Longitudinal Relations Among Parenting, Best Friends, and Early Adolescent Problem Behavior: Testing Bidirectional Effects
Ellen Reitz, Maja Dekovic, Anne Marie Meijer and Rutger C. M. E. Engels
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In this longitudinal study, the bidirectional relations between parenting and friends’ deviance, on one hand, and early adolescent externalizing and internalizing problem behavior, on the other hand, are examined. Of the 650 adolescents (13- to 14-year-olds) who filled out the Youth Self-Report and questionnaires about their parents at two times within a 1-year interval, 141 adolescents could be paired, at both assessments, with the same best friend who also filled out the questionnaires. Stable friends were used as a control for selection effects within friendships. The results showed significant effects of adolescent externalizing and internalizing problem behavior on parenting 1 year later, but not vice versa. Friends’ deviance affected adolescent externalizing but not internalizing problem behavior over time. The inclusion of friends’ self-reports about their own behavior and the examination of reciprocal effects seems to be a step forward in understanding the processes among parents, peers, and early adolescent problem behavior.

Keywords: parenting; best friends; problem behavior; reciprocal effects; adolescence
influence; that is, parents shape their child’s behavior through their child-rearing practices (Maccoby, 1992).

Peers, on the other hand, seem to influence the behavior of adolescents in a different way, namely through modeling: When friends show high levels of deviancy, it is more likely that the adolescent will show higher levels of problem behavior too (Ary, Duncan, Duncan, & Hops, 1999; Kandel, 1996; Kandel & Andrews, 1987). Several studies showed that adolescents and their friends tend to be similar on various attitudes and behaviors (Bauman & Fisher, 1986; Kandel, 1978; Tolson & Urberg, 1993), and association with deviant peers is often seen as a major cause of adolescent problem behavior (e.g., Berndt & Keefe, 1995; Fergusson & Horwood, 1999; Keena, Loeber, Zhang, & Stouthamer-Loeber, 1995).

When children enter adolescence, it is often assumed that the influence of parents on problem behavior of their children decreases because of the rising counterinfluence of peers. Early adolescents spend an increasing amount of time with peers without adult supervision (Laird, Pettit, Dodge, & Bates, 1998; Mounts & Steinberg, 1995), and peers become the most important reference group (Brown, Mounts, Lamborn, & Steinberg, 1993; Meeus & Deković, 1995). Numerous studies, however, show that the parent-child relationship is a continuous process, and although they keep changing as the child matures, parenting behaviors remain important for the development of the psychosocial adjustment of the young adolescent (e.g., Simons, Chao, & Conger, 2001; Simons-Morton, Chen, Abroms, & Haynie, 2004; Snyder & Huntley, 1990).

Despite this evidence, studies on parent and peer effects show some shortcomings. First, peer effects might have been overestimated. Reports on peer deviance are often assessed by asking adolescents to report on their friends’ behavior rather than asking the friends themselves to report on their own behavior (Bauman & Ennett, 1996). It has been found that adolescents tend to inflate the degree of similarity between themselves and their friends (Mounts & Steinberg, 1995). Thus, the strong association between peers’ and adolescents’ deviance might partly be a methodological artifact. Furthermore, many studies did not separate effects of friendship selection from effects of friendship influence. Second, most studies exclusively focused on externalizing problem behavior, such as aggression and delinquency. A second large group of problem behavior, internalizing problems (e.g., anxiety and depression), has received less attention. Last but not least, it is often assumed that the direction of effects is from the parent or peer to the child and that child effects on parenting or peers are mostly ignored.

In the present longitudinal study, we attempt to overcome these shortcomings. We examined a model in which bidirectional effects between parenting
and deviant peer behavior, on the one hand, and early adolescent problem behavior, on the other hand, were investigated. Not only externalizing problem behavior but also internalizing problem behavior were studied. Instead of adolescent reports about their friends’ behavior, we made use of peer reports about their own behavior.

Parenting and Problem Behavior

It appears that family factors that are most proximal to the child (i.e., factors related to the parent-child interaction) are the most important in fostering problem behavior (Deković, Janssens, & van As, 2003). When children move into the early adolescent phase, the parents’ role changes to become more managerial and advising. As a result, important factors within the parent-adolescent relationship are parental knowledge, discipline, and support (e.g., Snyder & Huntley, 1990). Parental knowledge (often referred as monitoring) is most effective when clear rules are negotiated and communicated and when consequences are applied when rules are violated (discipline). Such parenting behavior reduces the adolescent’s engagement in negative, antisocial behavior and promotes normative socialization opportunities. Similarly, high levels of parental support, consisting of parental warmth, responsiveness, and a good quality of the parent-adolescent relationship, promote healthy adolescent development by fostering self-competence, good communication, and good peer relations and reduce the chance of negative behavior. Several studies, for instance, have demonstrated that high levels of attachment (Laible et al., 2000), warmth (Greenberger, Chen, Tally, & Dong, 2000), and parental knowledge (Frick, Christian, & Wooton, 1999; Kerr & Stattin, 2000) are all related to lower levels of both externalizing and internalizing problem behavior.

Although many studies have indicated the importance of effects of parenting on adolescent problem behavior, most of them are limited in their ability to draw any conclusions about causal relations, largely because of the cross-sectional nature of their design (e.g., Barber, Olsen, & Shagle, 1994; Gray & Steinberg, 1999). Associations that are found in these studies are often interpreted as an influence effect of parenting on problem behavior. Some researchers emphasized child effects in eliciting certain reactions from others (e.g., Bell, 1977; Lytton, 1990a, 1990b; Patterson, 1982). The Bell (1977) control systems theory, for instance, proposes that the child’s behavior evokes certain responses from the parent, which in turn may foster the behavior of the child. Indeed, evidence is found for child effects on parenting regarding externalizing problem behavior of adolescents. A number of longitudinal studies show diminishing levels of positive parenting behaviors and an increment of negative control behaviors over

Regarding internalizing problem behavior, evidence of child effects on parenting is scarce. A study of Belsky, Rha, and Park (2000) showed child effects of 3-year-olds on parenting. To our knowledge only one study exists that explicitly studied both child and parenting effects for internalizing problem behavior during adolescence. Buist, Deković, Meeus, and Van Aken (2004) found reciprocal negative effects between parent-adolescent attachment and internalizing problem behavior. However, it is still unclear how internalizing problem behavior of the adolescent is related to other types of parenting such as responsiveness and parental knowledge. An anxious and withdrawn child, for instance, may not view his or her parents as very responsive and may not disclose much information about his or her whereabouts.

For a better understanding of the relations between parenting and adolescent problem behavior, it is important to examine both parent effects and child effects and to include both externalizing and internalizing problem behavior. This study is one step forward to this understanding and might give new insights and contributions to the existing literature.

Peers and Problem Behavior

As stated before, peers seem to influence the behavior of adolescents in a different way compared to parents, namely through modeling. Association with deviant peers is therefore frequently studied (e.g., Berndt & Keefe, 1995; Fergusson & Horwood, 1999; Keena et al., 1995). Nowadays, studies increasingly use friends’ self-reports about their own behavior when investigating peer influence on the behavior of adolescents (e.g., Brendgen, Vitaro, & Bukowski, 2000; Cui, Conger, Bryant, & Elder, 2002; Little, Brendgen, Wanner, & Krappmann, 1999; Maxwell, 2002; Urberg, Değirmencioğlu, & Tolson, 1998). Findings from these studies still show moderate effects of the association with deviant friends on adolescent (externalizing) problem behavior. It is found, however, that the magnitude of effect is significantly lower when friends’ self-reports are used than when adolescents are asked to report on their friends’ behavior (Aseltine, 1995; Bauman & Fisher, 1986; Kandel, 1996). In the present study, friends’ self-reports about their own behavior are used as a more objective measure of friends’ behavior.

Friends tend to be similar on various attributes. Two processes often explain this homogeneity. First are reciprocal influence processes, where individuals attempt to change each other to create a more satisfying friendship (Ennett & Bauman, 1994; Moreland & Levine, 1992). Second are
selection processes, that is, individuals select each other on the basis of common attributes (“assortative pairing”; Bauman & Ennett, 1996; Bauman & Fisher, 1986; Kandel, 1978). The majority of studies on peer influence have not separated the effects of friendship selection from effects of friendship influence. This might have led to an overestimation of the influence effect (Aseltine, 1995; Berndt & Keefe, 1995; Ennett & Bauman, 1994; Urberg, Değirmencioğlu, & Pilgrim, 1997). To control for selection effects, longitudinal data are needed. One way of controlling for selection effects is investigating only friendships that are stable over time; that is, after selection has occurred (Urberg et al., 1997). It is assumed that when stable friendships become more similar over time, this implicates an influence effect (Fisher & Bauman, 1988; Kandel, 1978; Urberg et al., 1997). The present study examined the effects of friends’ deviance on adolescent problem behavior over time in a group of stable friendships, thus controlling for selection effects. Because the adolescents are already friends at the first measurement wave, selection effects do not play a part anymore, and an increase in similarity between friends over time can be attributed to influence.

Research on friends’ homogeneity focused mostly on externalizing problem behavior. Relatively little is known about the friendship relationships of children with internalizing problem behavior (Hogue & Steinberg, 1995; Parker & Asher, 1987; Rubin, Hymel, Mills, & Rose-Krasnor, 1991). This might be attributed to the finding that children with psychosocial problems are more socially withdrawn and suffer rejection from peer groups (e.g., Newcomb, Bukowski, & Pattee, 1993; Rubin et al., 1991), and maintaining friendships is difficult for this group of children. Hogue and Steinberg (1995), however, showed that adolescents tend to associate with peers who report similar levels of internalizing problems and that they are just as successful as others at establishing friendships. This homophily of internalizing problems is explained by both selection and influence processes. The theory of interpersonal depression of Coyne (1984, 1985) proposes that socialization or influence processes of depressed persons follow a cycle of negative interactions, which increases negative affect within both persons who are involved in the relationship.

Many studies focused their attention on the influence of friends on adolescent problem behavior (e.g., Berndt & Keefe, 1995; Fergusson & Horwood, 1999). Because friends share a close relationship with each other, it is assumed in the present study that both individuals attempt to change each other’s behavior or change their own behavior according to the behavior of the other. Thus, not only may the best friend influence the behavior of the adolescent, but the adolescent may also influence the behavior of the best friend. Bidirectional effects will therefore be examined...
not only between parenting and adolescent problem behavior but also between best friends’ deviance and adolescent problem behavior.

**Aim**

To summarize, this longitudinal study examines the bidirectional relations between parenting and friends’ deviance, on the one hand, and adolescent externalizing and internalizing problem behavior, on the other hand. In previous studies, reciprocity is found between parenting and externalizing problem behavior, but it is less clear whether these relations also exist for internalizing problem behavior during early adolescence. Regarding the reciprocal effects between friends’ deviance and adolescent problem behavior, we hypothesize the following: Because friends have a tendency to change each other in more desirable directions (Ennett & Bauman, 1994; Moreland & Levine, 1992), and because it is found that stable friends are more similar in their behaviors than unstable friends (Kandel, 1978; Urberg et al., 1998), both the friend and the adolescent will have an effect on each other, at least for externalizing problem behavior. Following the theory of interpersonal depression of Coyne (1984, 1985), we expect that reciprocal relations between friends also exist concerning internalizing problem behavior.

**METHOD**

**Sample and Procedure**

The sample was drawn from three secondary schools in the Netherlands (eighth grade), located in medium- to large-sized municipalities. After schools agreed to participate, passive informed consent was obtained from the parents. Letters containing information about the date and nature of the study, were handed out to all adolescents to bring home for their parents. Parents could send the letter back, indicating that they refused to let their child participate in the study. Less than 1% of the adolescents in each of the target schools had their participation withheld by parents. At Time 1, the sample consisted of 650 adolescents between 12 and 15 years old ($\bar{X} = 13.36; SD = 0.55$ years). Adolescents completed a battery of questionnaires during regular school hours. After a 1-year interval, the schools were visited again, and questionnaires (and postpaid return envelopes) were sent to the homes of the adolescents who had left school or could not be reached at school (because of sickness or truancy). Nonresponders were called at home to ask whether they could still fill out the questionnaire and send it
back. A total of 563 adolescents participated again at Time 2. The sample consisted of predominantly middle-class, White (Dutch) adolescents, and the distribution of boys and girls for both waves was about equal (Time 1/Time 2: \( N \) boys = 328/272; \( N \) girls = 322/291). In 71.5% of the cases, the adolescent was living with both parents, 14.3% with the mother alone, 2.0% with their father alone, 7.5% with the mother and partner, 0.6% with the father and partner, 2.4% half the time with their mother and half the time with their father, and 1.7% with someone other than their parents.

**Friendship Nomination**

In both waves, adolescents were asked to write down the names and classes of their three best friends in school, in order of importance. Adolescents were paired with a best friend using the program MALEYDAD (Thissen-Pennings & Bendermacher, 2003). A large number of adolescents could be paired with a close friend who was also participating in the study (79% at both waves). The friend used is the one highest on the list who also completed the questionnaires, regardless of whether the friendship was reciprocal or not. The remaining 21% could not be paired with a close friend for several reasons: (a) they were friendless, (b) they named friends who did not participate in the study because they were in a higher or lower grade that was not tested, or (c) their friends were absent from school on the days of data collection.

Of the 513 paired adolescents at Time 1, 381 adolescents could also be paired at Time 2. Among these adolescents, 141 adolescents were paired with the same friend at both waves—the stable friendships \( (\bar{X} \text{ age} = 13.25; \ \text{SD} = 0.48) \). More girls \( (n = 92) \) than boys \( (n = 49) \) had stable friends. In comparison with the remaining group of participating adolescents \( (n = 509) \), the stable group scored significantly lower on delinquent behavior \( (t = 3.42; p < .01) \) and higher on parental knowledge \( (t = -3.73; p < .01) \) at Time 1. The two groups scored equal on all other problem behaviors and parenting measures. The scores on adolescent problem behavior for the stable group showed variances that are approximately the same as the variances found in the remaining group of participants (except for aggressive behavior and somatic complaints). This gives some support for the internal validity; that is, relations with regard to adolescent problem behavior and parenting are not inflated because of a change in the group sample (see Hogue & Steinberg, 1995).

Of the 141 stable friendships, 99 dyads were reciprocated choices, where the friend also chose the adolescent as best friend. The 99 dyads did not differ significantly from the 42 remaining dyads on any of the problem behavior scales and parenting measures. Also, analyzed with Fisher \( z \) tests, less than 5% of the correlations between the measures of interest were significantly different.
between the two groups. Because the two groups did not seem to differ much from each other, we decided to conduct the analyses with the total group of 141 paired adolescents.

**Instruments**

The internal consistencies (alphas), means, and standard deviations of all measures at each wave are presented in Table 1 and Table 2.

**Problem Behavior**

The Youth Self-Report (YSR; Achenbach, 1991; Verhulst, van der Ende, & Koot, 1997) was used to obtain adolescent reports on their own problem behavior. All items were rated on a 3-point, Likert-type scale of 0 (*not true*), 1 (*somewhat or sometimes true*), and 2 (*very true or often true*). The YSR assesses two broad-band syndromes, externalizing and internalizing. The externalizing syndrome consists of the scales Delinquent Behavior (e.g., “I steal from home”) and Aggressive Behavior (e.g., “I fight a lot”).

In addition, to expand the range of externalizing problems with problem behaviors that occur frequently in nonclinical groups during this developmental period, two new scales were developed in conformance with the YSR format (Reitz, Deković, & Meijer, 2005). The two scales assess school problems (e.g., Brack, Brack, & Orr, 1994; Gillmore, Hawkins, Catalano, Day, & Moore, 1991) and disobedience (Maggs, Almeida, & Galambos, 1995; Rothbaum & Weisz, 1994). School Problems consists of seven items, for example, “I have been sent out of class for misbehavior” (Gillmore et al., 1991) and “I copy homework from others” (Fletcher, Steinberg, & Sellers, 1999). The second scale, Disobedience of parents, includes eight items. Examples are, “I refuse to do domestic tasks” (Peeters, 1994), and “I ignore prohibitions from my parents” (Deković, 1999). The items of both scales were also rated on the 3-point, Likert-type scale used in the YSR.

The internalizing syndrome of the YSR consists of anxious/depressed (e.g., “I feel worthless or inferior”), withdrawn (e.g., “I rather be alone than with others”), and somatic complaints (e.g., “I feel overtired”).

Friends’ deviance was measured with the same problem behavior scales for externalizing and internalizing problem behavior as are described above. The internal consistencies can also be found in Table 1 and Table 2.

**Parenting**

Parenting was assessed with instruments that are frequently used in previous studies in the Netherlands (e.g., Deković, 1999; Gerris et al., 1993).
|                  | M     | SD    | α    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   |
|------------------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| **Problem behavior** |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 1. Delinquency    | .28   | .21   | .63  | —    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 2. Aggression     | .39   | .24   | .83  | 48** | —    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 3. School problems| .36   | .27   | .63  | 42** | 37** | —    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 4. Disobedience   | .32   | .29   | .75  | 57** | 36** | 31** | —    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| **Friends’ deviance** |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 5. Delinquency    | .29   | .24   | .73  | 20*  | 19   | 25*  | 23*  | —    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 6. Aggression     | .41   | .25   | .84  | 11*  | 28** | 19   | 13   | 54** | —    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 7. School problems| .39   | .28   | .65  | 25** | 22*  | 22*  | 20   | 45** | 51** | —    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 8. Disobedience   | .34   | .31   | .76  | 14   | 02   | 17   | 29** | 49** | 42** | 35** | —    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| **Parenting behaviors** |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 10. Quality of relation | 3.23  | .42   | .89  | -32**| -34**| -34* | -46**| -11  | -13  | -14  | -16  | 82** | —    |      |      |      |      |      |      |      |      |      |      |      |      |
| 11. Knowledge     | 3.10  | .60   | .91  | -29* | -27**| -21* | -38**| -16  | -07  | -05  | -15  | 75** | 73** | —    |      |      |      |      |      |      |      |      |      |      |      |
| **Problem behavior** |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 12. Delinquency   | .35   | .24   | .72  | 29** | 26** | 29** | 38** | 30** | 05   | 16   | 20*  | -19* | -09  | -20* | —    |      |      |      |      |      |      |      |      |      |      |      |
| 14. School problems| .45   | .33   | .75  | 21** | 27** | 37** | 29** | 22   | 09   | 26** | 08   | -28* | -31**| 53** | 53** | —    |      |      |      |      |      |      |      |      |
| 15. Disobedience  | .35   | .29   | .73  | 31** | 38** | 22*  | 62** | 32** | 15   | 26** | 27** | -26* | -31**| -25**| 43** | 48** | 42** | —    |      |      |      |      |      |
| **Friends’ deviance** |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 16. Delinquency   | .34   | .26   | .73  | 20*  | 09   | 16   | 23*  | 35** | 37** | 11   | 28** | -14  | -08  | -09  | 35** | 11   | 15   | 19   | —    |      |      |      |      |      |
| 17. Aggression    | .39   | .28   | .86  | -04  | 09   | 17   | 05   | 26** | 54** | 18   | 07   | -06  | -02  | -08  | 21*  | 10   | 11   | 05   | 58** | —    |      |      |      |
| 18. School problems| .43   | .32   | .74  | 22*  | 17   | 30** | 13   | 30** | 31** | 28** | 15   | -00  | -03  | -06  | 25** | 10   | 18   | 05   | 55** | 61** | —    |      |
| 19. Disobedience  | .38   | .33   | .78  | 04   | 02   | 21*  | 20   | 40** | 38** | 13   | 49** | -19  | -17  | -16  | 15   | -01  | -02  | 25*  | 50** | 49** | 39** | —    |      |
| **Parenting behaviors** |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 20. Responsiveness| 4.44  | 1.05  | .94  |      | -12  | -22* | -09  | -21* | -13  | -07  | -22  | -02  | 72** | 58** | 48** | -19* | -24* | -29** | -26* | -09  | -02  | 01   | -09  |      |
| 21. Quality of relation | 3.18  | .43   | .89  | -19* | -28**| -17  | -42**| -22* | -11  | -29* | -06  | 70** | 72** | 55** | -33**| -32**| -37** | -37**| -09  | -08  | -08  | 13   | 86** | —    |
| 22. Knowledge     | 2.93  | .56   | .89  | -12  | -21* | -17  | -26**| -20* | -00  | -14  | -09  | 56** | 48** | 59** | -40**| -36**| -40** | -32**| -06  | -03  | 08   | -02  | 65** | 66** |

**NOTE:** Boldface correlations are the stability coefficients of each measure from Time 1 through Time 2.  
*p < .05, **p < .01.
<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
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<tr>
<td><strong>Problem behavior</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Anxious/depressed</td>
<td>M = .33, SD = .30, α = .86, r = .33, .30, .87</td>
<td>M = .32, SD = .30, α = .87, r = .32, .30, .87</td>
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<tr>
<td>2. Withdrewn</td>
<td>M = .40, SD = .32, α = .61, r = .40, .32, .61</td>
<td>M = .40, SD = .34, α = .71, r = .40, .34, .71</td>
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<tr>
<td>3. Somatic complaints</td>
<td>M = .52, SD = .31, α = .68, r = .52, .31, .68</td>
<td>M = .48, SD = .32, α = .71, r = .48, .32, .71</td>
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<tr>
<td><strong>Friends' deviance</strong></td>
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<td>4. Anxious/depressed</td>
<td>M = .34, SD = .29, α = .85, r = .34, .29, .85</td>
<td>M = .30, SD = .32, α = .90, r = .30, .32, .90</td>
</tr>
<tr>
<td>5. Withdrewn</td>
<td>M = .37, SD = .30, α = .63, r = .37, .30, .63</td>
<td>M = .35, SD = .28, α = .58, r = .25, .28, .58</td>
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<tr>
<td>6. Somatic complaints</td>
<td>M = .50, SD = .33, α = .72, r = .50, .33, .72</td>
<td>M = .45, SD = .35, α = .78, r = .45, .35, .78</td>
</tr>
<tr>
<td><strong>Parenting behaviors</strong></td>
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<tr>
<td>7. Responsiveness</td>
<td>M = 4.52, SD = .99, α = .93, r = 4.52, .99, .93</td>
<td>M = 4.44, SD = 1.05, α = .94, r = 4.44, 1.05, .94</td>
</tr>
<tr>
<td>8. Quality of relation</td>
<td>M = 3.23, SD = .42, α = .89, r = 3.23, .42, .89</td>
<td>M = 3.18, SD = .43, α = .89, r = 3.18, .43, .89</td>
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<tr>
<td>9. Knowledge</td>
<td>M = 3.10, SD = .60, α = .91, r = 3.10, .60, .91</td>
<td>M = 2.93, SD = .56, α = .89, r = 2.93, .56, .89</td>
</tr>
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</table>

NOTE: Boldface correlations are the stability coefficients of each measure from Time 1 through Time 2.

*p < .05, **p < .01.
Adolescents filled out the questionnaires separately for mothers and for fathers. Given the medium to high strength of associations between maternal and paternal scores (correlation varied between .46 and .77 at Time 1 and between .41 and .58 at Time 2), in the following analyses maternal and paternal scores were averaged to provide a parental score.

**Responsiveness.** The responsiveness scale from the Child-Rearing Questionnaire (Gerris et al., 1993) that included eight items measuring the amount of parental warmth and support was used (e.g., “When I talk to my mother/father about my problems, she/he really helps me”). Adolescents rated their parent on a 6-point, Likert-type scale ranging from 1 (completely disagree) to 6 (completely agree).

**Quality of parent-adolescent relation.** A short version of the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987; Raja, McGee, & Stanton, 1992) was used to determine the quality of affectional bonds between the adolescent and his or her parents. The scale consists of 12 items for each parent, and all items are rated on a 4-point, Likert-type scale ranging from 1 (almost never) to 4 (almost always). The IPPA measures the quality of communication, the degree of trust, and alienation in the parent-adolescent relationship (e.g., “My mother/father respects my feelings”). A high score indicates a more positive quality of relation of the adolescent with his or her parents.

**Parental knowledge.** The six-item scale measures the extent to which parents know the whereabouts and daily activities of the adolescent. The adolescents were asked to indicate on a 4-point, Likert-type scale ranging from 1 (almost nothing) to 4 (almost everything) how much their mother and father know about their whereabouts after school, leisure time, who their friends are, and so on.

**Plan of Analysis**

To simultaneously test the reciprocal influences between parenting and friends’ deviance, on the one hand, and adolescent problem behavior, on the other hand, we applied structural equation modeling with multiple indicators for the three latent variables: problem behavior, parenting, and friends’ deviance. The LISREL 8.54 program is used for estimation of the models (Jöreskog & Sörbom, 1993), with covariance matrices as input and maximum likelihood estimation method. Because the problem behavior scales were somewhat skewed, log transformations were performed, and these new scales were used in the analyses. Models were tested separately for
externalizing and internalizing problem behavior. The models include stability paths (Time 1 → Time 2) for the three latent variables. In addition, four cross-lagged paths were also included: two paths to measure reciprocal relations between parenting and adolescent problem behavior and two paths between friends’ deviance and adolescent problem behavior. Measurement errors of the same indicators over time were correlated (e.g., responsiveness Time 1 with responsiveness Time 2), and correlations were estimated between latent variables within each time frame (Farrell, 1994).

Model fit was evaluated using (a) the chi-square likelihood ratio statistic, (b) the root mean square error of approximation (RMSEA), (c) the non-normed fit index (NNFI), and (d) the comparative fit index (CFI). The chi-square provides a significance test of the null hypothesis that the model is correct. Because this statistic is strongly dependent on sample size and may cause small differences to be significant, other fit indices were included to evaluate the fit of a model. The fit was to be judged acceptable by an RMSEA of less than .08 and by NNFI and CFI values greater than .90 (Hartman et al., 1999).

RESULTS

Pearson correlations between all measured variables are reported in Table 1 (externalizing problem behavior) and Table 2 (internalizing problem behavior). Stability coefficients of all variables are moderate to high. The correlations between the separate indicators for adolescent problem behavior, friends’ deviance, and parenting are all significant, suggesting that they are good indicators of these latent constructs. All associations are in the expected direction. To investigate the validity of the problem behavior measures, it was examined whether the correlations within variable sets (internalizing subscales, externalizing subscales) were stronger than correlations between subscales in one set and subscales in the other set. This appeared to be the case: Correlations within variable sets are on average .46, whereas mean correlations between variable sets are .18.

The structural equation models for externalizing and internalizing problem behavior are shown in Figures 1 and 2. For externalizing problem behavior, the model yielded the following fit: $\chi^2(176) = 328.91, p < .000; \text{RMSEA} = .079; \text{NNFI} = .92; \text{CFI} = .94$. For internalizing problem behavior, the fit indices are comparable: $\chi^2(114) = 212.08, p < .000; \text{RMSEA} = .078; \text{NNFI} = .91; \text{CFI} = .93$. In both models, the chi-square test is significant, but the other fit indices are acceptable. It can be concluded that the model accurately describes the data for both types of problem behavior.
As can be expected, given the results in Tables 1 and 2, the stability over time is high for the three latent variables. Parenting at Time 1 (i.e., low levels of responsiveness, parental knowledge, and quality of relation) is not associated with higher levels of externalizing problems at Time 2.
effect of adolescent problem behavior on parenting 1 year later, however, is significant. These same effects are found for internalizing problems, indicating that problem behavior of the adolescent negatively affects parenting, but not vice versa.

Figure 2: A longitudinal latent variable model of the relations between adolescent internalizing problem behavior and parenting behaviors and friends’ deviance.

NOTE: RE = responsiveness; QR = quality of relation; KN = knowledge; A/D = anxious/depressed; WD = withdrawn; SC = somatic complaints.
Evidence is found for an influence process of deviant friends on externalizing problem behavior: The relation between friends’ deviance at Time 1 and externalizing problems at Time 2 is significant. Adolescent externalizing problem behavior at Time 1 is, however, unrelated to friends’ deviance at Time 2. In the model that included internalizing problem behavior, these cross-lagged paths are insignificant.¹

DISCUSSION

In the present study, we examined bidirectional relations between parenting and friends’ deviance, on the one hand, and early adolescent externalizing and internalizing problem behavior, on the other hand. The present study expands previous research in several ways. First, the longitudinal design permitted us to examine bidirectional relations. Second, we examined both externalizing and internalizing problem behavior. Third, we controlled for selection effects within friendships. Finally, we used friends’ self-reports about their own behavior instead of adolescent reports about their friends’ behavior.

The results show that both externalizing and internalizing problem behavior seem to affect parenting 1 year later, rather than the other way around. This is in line with researchers who argue that problem behavior is driven by the behavior trait of the child, which elicits negative parenting (Bell, 1977; Lytton, 1990a, 1990b). It is important to notice that effects were also found for internalizing problem behavior, a relatively neglected field in research on child effects. Although many studies propose that problem behavior of the adolescent are outcomes of parenting behaviors (e.g., Jacobson & Crockett, 2000; Laible et al., 2000), the majority of these studies have not examined child effects on parenting, even when these studies are longitudinal in nature (e.g., Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994). Some studies, however, do find child effects on parental control and support (Kerr & Stattin, 2003; Stice & Barrera, 1995). Possible mechanisms might be that parents’ tolerance of problem behavior increases, which decreases control attempts, and parents might become discouraged to be responsive and warm because of the child’s behavior. Furthermore, because problem behavior is stable and starts to emerge during childhood, parenting might have a relatively minimal effect during adolescence. In other words, parenting effects might decrease over time, whereas child effects become more prominent (Stice & Barrera, 1995; Vuchinich et al., 1992).

A factor that might have contributed to meager evidence of parental influence is that there was only 1 year between the first and second measurement
wave. The primary effect of parenting might be more visible across a broader time frame. It might also be that the associations between parenting and problem behavior are different for younger and older adolescents. It has been found that parents’ monitoring and supervision was predictive of problem behavior in older adolescents but moderately predictive of problem behavior in younger adolescents (Frick et al., 1999).

Finally, not all the parenting scales might be considered true parenting measures. For instance, the IPPA measures the quality of the parent-child relationship and assesses both parent and child behaviors that contribute to the child’s perception of the relationship. In addition, the parental knowledge scale is more likely to indicate the level of disclosure of adolescents of their whereabouts to their parents than active parenting behaviors. From this perspective, this might also have contributed to the absence of parenting effects.

Although the present study only shows child effects on parenting, “pure” child effects do not exist (Shanahan & Sobolewski, 2003). Family members are related in ongoing, reciprocal processes (Lollis & Kuczynski, 1997), and research needs to study the intertwining between parents and adolescents. Mechanisms of child effects need to be further explored, and the concept of child effects can be refined. Finally, mediating and moderating processes of child effects, such as the history of the relationships, preexisting characteristics, and gender and age of the child, are important areas for research on this subject of reverse socialization (Shanahan & Sobolewski, 2003).

Whereas adolescent problem behavior affected parenting, the opposite was found for friends’ deviance. The results showed an influence effect for externalizing problem behavior: Having deviant friends increases the level of problem behavior of the adolescent over time. This is in consistence with previous studies that show that having deviant friends causes problem behavior (Berndt & Keefe, 1995; Fergusson & Horwood, 1999; Keena et al., 1995).

Although some studies have shown effects of friends on internalizing problem behavior of the adolescent (Hogue & Steinberg, 1995; Parker & Asher, 1987; Rubin et al., 1991), this result was not replicated in the present study. A reason might be that our studied sample consisted of more girls \(n = 92\) than boys \(n = 49\). Hogue and Steinberg (1995) found only an influence effect of internalized distress for boys but not girls and proposed two possible explanations. First, it is possible that girls are less susceptible than are boys to influence processes of their friends because they are less vulnerable to influence processes in general (Savin-Williams & Berndt, 1990). Second, selection effects might be more important for girls than for boys. Girls vary to a lesser degree than do boys in their level of internalizing problem behavior, and initial similarity is responsible for the homogeneity of their behavior. Because boys vary to a greater extent in
their levels of internalizing problem behavior, there is more opportunity for an influence effect to take place. Our sample was too small to test for gender differences in effects between friends’ deviance and adolescent problem behavior, and further research should address this issue.

Many researchers have focused on whether peer relationships moderate or mediate the relation between parenting and adolescent adjustment (or vice versa; e.g., Vitaro, Brendgen, & Tremblay, 2000). Because the focus of the present study was mainly on bidirectional effects, a fairly new field of empirical research, our aim did not include studying these linkages. Also, studying the correlations between parenting and friends’ deviance, these appeared low and insignificant, both cross-sectionally and longitudinally, so these linkages were not addressed in the present study. Nevertheless, it is an important area for research that deserves further attention.

Given the great diversity in conceptualizations of friendship in the research literature, it is important to note several features of the definition of friendship used in the present study. First, our focus has been on one best friend of the adolescent. Other authors, however, have argued that adolescents often have several best friends and that the focus on only one of those friends leads to a distorted view of friends’ influence (e.g., Berndt, 1999). The friendship group or clique might have more influence on adolescent problem behavior than one friend alone.

Second, the present study compared the bidirectional influence between the adolescent and a best friend, regardless of whether this was a reciprocated choice. Our rationale was the following: Adolescents nominate someone with whom they identify and spend time as a friend (Kiesner, Cadinu, Poulin, & Bucci, 2002). These nominated friends are important to them and will therefore have an effect on the behavior of the adolescents, regardless of whether these nominations are reciprocal or not. This procedure might explain why there was no effect of friends’ deviance on adolescents over time. Reciprocated friendships probably show more bidirectional effects than unreciprocated choices because both friends might be inclined to put more effort in the relationship to make it a satisfying friendship. In contrast, adolescents might have nominated someone with whom they want to be friends and with whom they spend very little time. In this way, it could be that adolescents are influenced more in nonreciprocated dyads and less in reciprocated dyads. However, because we explicitly asked adolescents who their best friends are, we believe that this is not the case. Finally, because not all the friends chose the adolescent as best friend, these friends might have invested less in the friendship relationship than did the adolescent. The person with the higher investment in the relationship (adolescent) is more
likely to be influenced by the other’s behavior (friend) than vice versa, which might also explain the unidirectional effect. Because the sample sizes of the two groups (reciprocal or nonreciprocal) relative to the number of parameters is too small to conduct multigroup analyses, it is still unclear what mechanisms underlie the influence of friends on adolescent problem behavior.

Third, in the present study, only friends within the same school are paired. It has been shown that more friends are reported in school than out of school (Kupersmidt, DeRosier, & Patterson, 1995). Friends’ influence might be different, however, across contexts. For instance, having delinquent friends outside the school might be a higher risk factor for problem behavior than having delinquent friends in the school. Different friendship contexts are found to play unique roles in adolescent adjustment (Kiesner, Poulin, & Nicotra, 2003).

Finally, it is often assumed that when an adolescent’s behavior grows closer, over time, to the behavior of the friend, the friend models the behavior, which the adolescent imitates (e.g., Ary et al., 1999). This might not be the only possible mechanism underlying peer effects. There might be pressure of the friend to behave in a certain way, friends might reinforce behaviors (Dishion, Spracklen, Andrews, & Patterson, 1997), and friends can provide opportunities for the adolescent to change his or her behaviors. In conclusion, specific influence effects are still uncertain, and further research is needed to study this issue more thoroughly.

The following limitations of the present study are worth noting. The parenting measures and problem behavior examined in this study are derived from adolescents’ self-reports, and shared-method variance then becomes a problem. A first reason to include adolescent reports of parenting is that some authors have argued that children’s perceptions of their parents’ behavior are as important influences on their behavior as are parents’ actual behavior (e.g., Bronfenbrenner, 1979). A second reason is that studies have demonstrated that adolescent reports on how they perceive their family behavior are not inherently inferior to more objective measures (Chen, Greenberger, Lester, Dong, & Guo, 1998; Steinberg et al., 1994). It has been shown that parents tend to give, more often than adolescents, socially desirable responses about their own behavior and thus may be biased even more (Barnes & Farrell, 1992; Gecas & Schwalbe, 1986; Jessop, 1981). It might be concluded that adolescent reports on how they perceive their parents seems to be superior to more objective measures. Regarding self-reports of problem behavior, it is shown that adolescents report more externalizing and internalizing problem behavior about themselves than their
parents or teachers report about them (Verhulst & van der Ende, 1992; Youngstrom, Loeber, & Stouthamer-Loeber, 2000). It seems therefore important that adolescents report on their own functioning.

A second limitation considers the attrition group. This group scored higher on delinquent behavior and lower on parental knowledge than did the group of adolescents on which the analyses are based. Attrition of problematic youth also has been a problem in other research: dropouts scored lower on nurturant and involved parenting (Scaramella et al., 2002) and higher on externalizing and internalizing problem behavior (Aseltine, 1995). Thus, the most seriously troubled youth are underrepresented in the prospective analyses, which might have influenced the results (e.g., weaker associations because of less variance) and decreasing the generalizability of the findings. However, comparing the total sample with the stable friendship group on their variances, the very same variances were found for almost all problems behaviors that were studied, lending support for internal validity.

A third limitation concerns the nonindependence in the data set. Because some of the stable friendships are reciprocated friends, these reciprocated dyads are included twice in the analyses (both adolescents within a friendship are a target adolescent and a friend). To avoid this duplicate dependent information, one of the two friends can be randomly included (Little et al., 1999). However, because of the number of parameters that need to be estimated relative to the sample size (Bentler & Chou, 1987; Bollen, 1989), it was not reliable to estimate the model with a smaller group of participant. A consequence of nonindependence is that standard errors might be underestimated, and test statistics might be biased, which can lead to overly liberal inferences (Hox, 2002).

Finally, our sample is quite homogenous, consisting of mostly middle-class, White (Dutch) adolescents. It is therefore not possible to generalize the results to other culturally and ethnically diverse samples. To strengthen the generalizability of the findings, replication of this study is needed in different populations of youth.

Notwithstanding these limitations, important conclusions can be drawn from the findings of this study. First, both externalizing and internalizing problem behaviors exert an effect on parenting, but not vice versa. Second, deviant friends have an effect on externalizing problem behavior of the adolescent over time, even after the selection effects have been controlled for. The results of the present study reinforce the need for further inquiry into the specific processes through which parenting and friends’ deviance, on the one hand, and adolescent problem behavior, on the other hand, influence each other over time.
NOTE

1. We conducted additional analyses in which the effects of parenting and the effects of best friends are tested in two separate models. The results are similar to those obtained when one model was tested. Because adolescents experience both parents’ and friends’ effects simultaneously, the full model was maintained as a better representation of reality.

REFERENCES


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