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Lying Behavior, Family Functioning and Adjustment in Early Adolescence

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Abstract Communication between children and parents has been the subject of several studies, examining the effects of, for example, disclosure and secrecy on adolescents' social relationships and adjustment. Less attention has paid to adolescent deception. We developed and tested a new instrument on lying behavior in a sample of 671 parent-adolescent couples. Analyses on the psychometric properties showed that this instrument had one principal component, and high internal consistency, item-total correlations and inter-item correlations. Lying was moderately associated with other indicators of parent-child communication, the quality of the parent-child relationship, and with parenting practices. In addition, frequent lying was moderately related to behavioral problems and emotional problems.

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Deception is assumed to be related to people's functioning in social relationships. During early adolescence, youth spend increasing time in activities with peers without the supervision of adults such as parents and teachers. Because the social life of the adolescent tends to shift away from the home environment, parents are more dependent on what their children tell about curfews, where they go to and whom they are with (Kerr and Stattin, 2000). Adolescents make certain commitments with their parents and if adolescents lie about these commitments or about these activities, this can seriously disturb the process of building a trustworthy relationship. Adolescents' deception may not only affect the relationship with parents but may also be reflected in the engagement in externalizing problem behaviors, such as aggression, loss of self-control and delinquency (e.g., Gervais *et al*., 2000; Stouthamer-Loeber, 1986). Less is, however, known about the relations between lying and internalizing problem behaviors. The aims of the present study are to examine the associations between lying behavior of adolescents on the one hand, and the quality of the parent-child relationship and parenting on the other hand. In addition, we will focus on the relations between lying and externalizing and internalizing problem behaviors. We will start by addressing the concept of lying as well as the development of lying behavior in childhood and adolescence.

The concept of lying

Lying has been the focus of attention in a few empirical studies. Lee and Ross (1997) explain how young children define a lie based on the factual truth of the statement. This means that when a person reveals information that he or she

believes is true, but which in fact is not, a young child will consider this a lie. From adolescence on, however, lying becomes a more complex concept. During adolescence, lies are defined based on three semantic elements of lying, namely (a) the statement is factually false, (b) the speaker believes that the statement is false, and (c) the speaker intends to deceive the hearer (Lee and Ross, 1997). The definition of a lie seems clear when people reach adolescence (e.g., Gervais *et al*., 2000; Lee and Ross, 1997; Stouthamer-Loeber, 1986). Furthermore, occasional lying has been found to start in young childhood and is considered to be part of a normal development (e.g., Halpert, 2000). However, excessive and consistent lying is seen as a serious child problem behavior by parents, teachers and clinicians (Stouthamer-Loeber, 1986). DePaulo and Jordan (1982) argue that the earliest lies of children are meant to escape punishment. Later in childhood and during early adolescence more complex patterns of lying become apparent, such as lying to obtain rewards and altruistic lying to cover up for friends (Stouthamer-Loeber, 1986; Stouthamer-Loeber *et al*., 1985).

Lying may also become more frequent in adolescence, because youths spend more time outside the supervision of parents. They are introduced to all sorts of new stimuli in their surroundings. Disapproval from parents on peer relations and experimentation with often forbidden activities such as alcohol, cigarette smoking and drugs, may represent a context in which adolescents intensify lying about their behaviors. Gervais *et al*. (2000) found that the frequency of lying behavior accumulates till the age of seven. Longitudinal results of their study showed that children at age 7 and 8 lied more frequently than children at age 6. Lee and Ross (1997) also found significant age differences concerning the judgment of what qualifies as a lie. As age increased the ratings of the participants became more extreme. This could mean that the concept of a lie is still developing between the ages of 12 and 19 years, resulting in adolescents having a better understanding of lie-telling. It is a question whether the development of more complex lying is related to the ways adolescents operate in their social relationships like with parents.

Lying towards parents

Persistent lying by children can be considered to be such a serious problem that the relationship of trust between the child and a parent is compromised. As was previously stated, lying behavior is assumed to be related to the quality of social relationships according to research on adults: Warm, intimate and satisfying relationships are related to fewer lying in that relationship (Kashy and DePaulo, 1996). Other research focusing on the association between lying and social relationships indicated that lying to people who are close to you is considered to be more socially unacceptable than lying to acquaintances (Backbier *et al*., 1997). What are the implications for the parent-child relationship? First, it is expected that children who are raised in warm and responsive families lie less than children who are raised in cold and ignorant families (see Finkenauer *et al*., 2002). Further, the communication between parent and adolescent is likely to be negatively affected by adolescent deception. When parents are aware of their offspring lying to them, they might reduce the amount of time talking to their children because of the fear of being lied to or simply because they can not believe what their children tell them anymore. Another consequence of adolescent lying might be that parent and child alienate from one another. When there is little trust between parents and their child, the child may feel reluctant to tell their parents about important experiences in their lives or lie about them.

In addition, lying by adolescents can also interfere with certain parenting practices, such as monitoring, supervision and having knowledge on adolescent whereabouts. During the period of adolescence, parents become more reliant on what their children tell them about their doings and whereabouts (Kerr and Stattin, 2000). When children lie about their activities, parents are left in the dark about what their children really do and with whom they do it, and it becomes more difficult for them to act properly upon the activities of their offspring.

In sum, it is assumed that frequent lying is associated with low quality of the parent-child relationship, distorted communication between parents and adolescents, and with less adequate parenting.

Lying and developmental outcomes

Deception may not only be linked to adolescents' relationship with their parents, but also to negative developmental outcomes. Indeed, lying in adolescents has been considered an early indicator of antisocial behavior problems, such as aggression, delinquency, loss of self-control, and class disruptive behavior (Gervais *et al*., 2000; Stouthamer-Loeber, 1986). These antisocial behavioral problems have been found to accumulate when lying behavior becomes more persistent. In their longitudinal study of a group of 1128 six- to eight-year olds, Gervais *et al*. (2000) found that frequent liars showed more disruptive behaviors, such as fighting, biting and bullying, than youngsters who are not frequent liars.

There may also be a relation between lying and indicators of emotional adjustment, such as low self-esteem, depression, stress and loneliness. It should, however, be mentioned that there is no empirical research on this relation yet. Still, some arguments can be made for the existence of this link. First, adolescents with low self-esteem or depressive feelings may try to make themselves look better by lying. In addition, one of the reasons why people lie is to protect other

people (Kashy and DePaulo, 1996). Adolescents may lie to their parents about their emotional problems to prevent them from worrying about them. Finally, adolescents may want to resolve their emotional problems on their own without any help from their parents and therefore lie to them.

In conclusion, frequent lying may be related to several forms of adjustment. Lying has been found to be associated with more externalizing problem behaviors and difficulties in social adjustment. The question remains whether lying is also related to emotional problems.

Assessment of lying among adolescents

Before we address the main aims of the present study we would like to address issues regarding assessment of deception by adolescents. One way to assess lying behavior is by means of self-reports. In the studies of DePaulo *et al*. (1996) and Kashy and DePaulo (1996), respondents were asked to report how often they lied and the nature and context of the lie. They carried a notebook with them and were encouraged to report a lie immediately after it occurred. The use of this kind of self-reports in assessing lying behavior also brings about the problem of social desirable answers. Because lying is viewed as a negative behavior, people may not be completely honest about their own lying behavior. Gervais *et al*. (2000) (see also Trembley *et al*., 1991) have dealt with this problem by asking parents and teachers to answer items on adolescent lying. However, they only used one item, from their Social Behavioral Questionnaire, to measure lying. This item does not differentiate in the nature of lies or the social context in which they are told. To our knowledge, there is no instrument that concentrates exclusively on adolescent's lying behavior. In this paper, we will examine the psychometric properties of a questionnaire to assess different aspects of adolescent lying behavior towards their parents. Parents were asked to fill out this instrument.

Hypotheses

We expect that adolescents who frequently lie to their parents, as indicated by the parents themselves, also keep more secrets and disclose less, trust their parents less, and communicate generally less well than adolescents who do not frequently lie. Further, we assume that when adolescent lie often, parents are less adequate in their parenting skills, so they will be less engaged in enforcing control and having knowledge on their offspring whereabouts. Concerning problem behaviors, we expect that adolescents who lie frequently are more involved in internalizing as well as externalizing problem behaviors.

In addition, as there are substantial gender differences in adolescents' problem behaviors, e.g., higher involvement of boys in externalizing behaviors and of girls in internalizing behaviors (e.g., Finkenauer *et al*., 2005), and expected differences in lying towards parents (Gervais *et al*., 2000). we conducted all analyses for the total sample, as well as for boys and girls separately. However, we did not have specified a priori hypotheses on gender differences in the associations between lying on the one hand, and parental behaviors and problem behaviors on the other.

Method

Procedure and sample characteristics

Two self-report questionnaires were developed; one to administer to the children at school and one to administer to the parents at home. The study consisted of a sample of 671 parent-adolescent couples. The questionnaires for the adolescents were administered in winter 2000–2001 in the classroom during a normal class hour under supervision of a teacher at six secondary schools in the Netherlands. No explicit refusals were recorded; non-response was exclusively due to absence on the day of assessment. Before the questionnaires were administered, parents were informed with respect to the aims of the study and could return a form stating that they did not want their child to participate. Although some parents called our institute for additional information, none of the parents returned this form. The questionnaires were filled out in the classrooms in the presence of a teacher. No explicit refusals were recorded; non-response was exclusively due to absence at the day of assessment.

The questionnaires to be filled in by the parents were sent to the homes of the adolescents in the winter 2000–2001. A total of 718 parents returned the completed questionnaire by mail. We explicitly requested that only one parent should fill out the form. In 75% of the cases, the mother filled out the questionnaire and in 25% the father.

A total of 1342 parents and adolescents ($N = 671$ couples) provided data for analyses. The sample of adolescents consisted of 356 (53%) boys and 316 (47%) girls. The mean age was 12.3 (SD = .51), ranging from 10 to 14. Ninety-one percent lived together with both parents, 6% with their mother, 1% with their father, and 2% in other settings. All students were in first grade of secondary education with 8% following lower education ('Vbo'), 37% middle education ('Mavo/Havo'), and 47% higher education ('Havo/Vwo'). Nine percent followed another type of education ('Montessori').

Measures

Parent reports

Lying towards parents. To assess adolescents' lying towards parents, we developed a new instrument because, to our

Table 1 Structural coefficients and descriptive statistics for lying scale items

Item	PC	*r*	M	SD
How often do you get the impression that your child:				
1. exaggerates the things he/she experiences?	.53	.46	2.29	.77
2. lies to you about the things that he/she is engaged in?	.74	.67	1.87	.66
3. tells a white lie?	.68	.62	2.29	.71
4. is not completely honest with you?	.76	.69	2.02	.67
5. conceals things from you that are going on at school (relationship with teachers, grades)?	.67	.59	1.78	.72
6. lies about the reasons why he/she did not meet an agreement with you?	.78	.71	1.81	.70
7. pictures things better than they actually are?	.70	.64	2.07	.74
8. consciously does not tell you the truth when you have a conversation with your child?	.83	.77	1.72	.65
9. does not tell you important things when you ask him/her something?	.76	.69	1.76	.67
10. lies about what he/she does with his/her friends?	.77	.70	1.65	.64
11. only tells you part of the story when you ask him/her something?	.75	.69	2.03	.77
12. sometimes does not tell the truth so he/she does not have to hurt somebody else's feelings?	.47	.40	2.30	.76

Note. $n = 671$. Scale ranges from 1 (very often) to 5 (never). PC: loading on principal component; *r*: corrected item-total correlation.

knowledge, no scales for adolescents are currently available. Information on the reliability and validity of this instrument will be provided in the result section of this paper (see Table 1). The scale consists of 12 items assessing the extent to which (a) the adolescent explicitly lies about activities and actions to his/her parents, (b) tells white lies, and (c) makes stories more interesting or lively by adding incorrect information (see Table 1). These three aspects of lying were mentioned by DePaulo *et al*. (1996) as the most relevant ones concerning the assessment of lying. Response categories ranged from 1 = never to 5 = very often.

Secrecy from parents. To assess secrecy from parents, we adapted Larson and Chastain's Self-Concealment Scale (SCS; Larson and Chastain, 1990). The original SCS consists of 10 items assessing (a) the tendency to keep things to oneself, (b) the possession of a secret or negative thoughts not shared with others, and (c) the apprehension of the revelation of concealed personal information. To assess secrecy from parents, we adapted the original items simply by adding parents as the target of adolescents' secrecy and changing the items to fit parents' reports. The items 'My secrets are too embarrassing to share with my parents' and 'I have negative thoughts about myself that I never share with my parents,' for example, became 'My child's secrets are too embarrassing to share with me' and 'My child has negative thoughts about his-/ herself that he/ she would never share with me', respectively. Parents rated all items on 5-point scales (1 = not at all, 2 = a little bit, 3 = somewhat, 4 = very much, 5 = extremely). In our study, the scale had high internal consistency (Cronbach's $\alpha = .79$).

Disclosure towards parents. To assess adolescents' disclosure towards parents, we used an adapted version of the Self-Disclosure Index (SDI, Miller *et al*., 1983). The SDI consists of 10 items assessing general self-disclosure in same-sex relationships. Because we wanted to assess adolescents' willingness to disclose personal information to parents, we adapted the items by asking parents to rate to what extent their children disclose information (e.g., personal habits, deepest feelings, what they like or dislike about themselves) to them. Parents rated the 10 items on 5-point scales (1 = not at all, 2 = a little bit, 3 = somewhat, 4 = very much, 5 = extremely). The disclosure scale showed a satisfactory internal consistency (Cronbach's $\alpha = .90$).

Quality of parent-child relationship. Parts of the Inventory of Parent and Peer Attachment (IPPA; Armsden and Greenberg, 1987) were used to measure parental attachment. The IPPA consists of three subscales with 4 items each: Communication (e.g., 'My child always tells me about his/ her problems and worries'), Trust (e.g. 'I respect my child's feelings'), and Alienation (e.g., 'My child often is angry with me'). Response categories ranged from 1 = never to 6 = always. The alpha for the subscale communication was .62, for trust .66, and for alienation .54.

Parental knowledge. We assessed parental knowledge by a 6-item scale developed by Brown *et al*. (1993). Parents rated their knowledge about their child's whereabouts (e.g., what their child does during her/ his free time), activities (e.g., how their child spends her/ his money), and contacts (e.g., whom their child's friends are). Items were rated on a 4-point scale (1 = I know nothing about this issue; 4 = I know everything about this issue). Cronbach's alpha was .83.

Parental control. Control was measured by a scale of Kerr and Stattin (2000), assessing the extent to which parents actively control their off-spring's activities. This 5-item scale had responses ranging from 1 = never to 5 = always. Examples of items are: 'If you have been out past curfew, do your parents require that you explain why and tell who you were with?', and 'Do your parents demand that they know where you are in the evenings, who you are going to be with, and what you are going to do?' Cronbach's alpha was .68.

Parental solicitation. To assess parental solicitation, we adapted a scale developed by Kerr and Stattin (2000). The scale measures the extent to which parents actively solicit information about and are interested in their child's activities, such as how often parents talk to their child's friends when they come to their home or how often they usually ask their child to talk about things that happened during her/ his free time. A total of 5 items were rated on 5-point scales, ranging from 1 = never to 5 = always. Cronbach's alpha was .76.

Adolescent reports

Self-esteem. Rosenberg's (1965) self-esteem scale measures adolescents' perceived self-value or sense of worth comprising 10 items (e.g., 'Sometimes I feel that I am completely useless' or 'In general I am happy with myself'). Responses were on a 4-point scale ranging from 'highly descriptive of me' to 'highly undescriptive of me.' Cronbach's alpha was .78.

Loneliness. Loneliness was assessed using the revised UCLA Loneliness scale (Russell *et al.*, 1980), which was translated into Dutch using a translation-back-translation procedure. The scale consists of 10 statements concerning the extent to which people feel lonely (e.g., I feel left out). Adolescents rated the items on 5-point scales, in which 1 = not at all true for me, and 5 = very true for me. Cronbach's alpha was .81.

Depressive mood. The Depressive Mood List of Kandel and Davies (1982) assesses the extent in which adolescents experience negative mood. Respondents rated how often they experienced negative feelings in the past 12 months such as 'not having much hope for the future', 'feeling nervous and tensed' and 'worrying too much about problems.' Responses on 6 items were given on a 5-point scale ranging from 1 = never to 5 = always. Cronbach's alpha was .76.

Stress. A short form of the Perceived Stress Scale (Cohen *et al.*, 1983) was employed to measure the degree to which the adolescent perceived his/her life to be unpredictable, uncontrollable, or overloaded. A total of 11 items were rated on a 5-point scale ranging from 'never' to 'very often.' The items of the subscale 'perceived ability to cope' were recoded. Thus, higher scores were associated with increased stress. Cronbach's alpha was .80.

Parent and adolescent reports

Aggression. Aggressive behavior was assessed by means of a subscale from the Dutch version of the Youth Self-Report (Achenbach, 1991; Verhulst *et al.*, 1996). The subscale consists of 8 items tapping explicit aggressive behavior over the last six months. Item examples are "I fight a lot" or "I destroy other people's things." For parents, the same items were used, but were focused on their child, for example 'My child is mean to others' or 'My child destroys his/ her own properties'. The response categories ranged from 0 to 2 in which 0 = does not fit me/ my child at all, 1 = fits me/my child sometimes, 2 = fits me/my child often. Participants rated the items on a 3-point scale, ranging from 0 = does not apply to me/my child at all, 1 = sometimes applies to me/my child, 2 = often applies to me/my child. Internal consistency was .65 for the adolescents' reports and .68 for the parents' reports.

Delinquency. Delinquent behavior was assessed by a scale of Houtzager and Baerveldt (1999). This list consists of 14 items assessing the frequency of engagement in petty crime of non-institutionalized adolescents. Parents and adolescents answered 14 questions about whether the adolescent had engaged in certain delinquent behaviors, like shoplifting or vandalism, during the past year. The response scale was a 5-point scale ranging from 1 = never to 4 = 4 times or more. Internal consistency was .81 for adolescents' reports and .54 for parents' reports.

Self-control. A Dutch translation of the Self-control scale developed by Tagney and Baumeister (2000) was employed. The self-control scale aims to assess people's ability to control their impulses, alter their emotions and thoughts, delay gratification, and the like. The scale consists of 11 items. Examples of items are: 'I am able to resist temptations' or 'I lose my temper quite often.' Response categories ranged from 1 = not at all to 5 = very much. Cronbach's alpha for adolescents' reports as well as parents' reports was .61. More information on the validity of this instrument is provided by Tagney and Baumeister (2000).

Results

The lying scale

First, we will focus on the characteristics of the lying scale, filled out by parents. The scale consists of 12 items, which are presented in Table 1. The response categories range from 1 to 5, with 1 = never, 2 = almost never, 3 = sometimes, 4 = often, and 5 = very often.

Descriptive statistics are presented in Table 1. The mean scores of the individual items ranged from 1.65 to 2.30 and standard deviations from .65 to .77. To test the internal consistency, reliability analyses were conducted. The reliability coefficient was high, with a Cronbach's alpha of .90. Furthermore, the corrected item-total correlations ranged from .40 to .77, with an average of .64. The correlations between the items were also examined. All items were positively interrelated and ranged from .17 to .65, with an average of .45. So, high levels of internal consistency were indicated by the Cronbach's alpha, the item-total correlations and the inter-item correlations. Factor analyses on the 12 items indicated

Table 2 Means and standard deviations

	Total sample		Boys		Girls	
	Mean	SD	Mean	SD	Mean	SD
Parental reports						
Lying	1.97	.49	2.04[a,***]	.49	1.88	.49
Secrecy	1.86	.44	1.89	.44	1.83	.44
Disclosure	3.82	.58	3.77*	.57	3.87	.57
Communication	4.80	.70	4.77	.69	4.82	.72
Trust	5.04	.58	5.01	.59	5.07	.57
Alienation	2.39	.53	2.41	.52	2.38	.54
Knowledge	3.35	.37	3.32**	.36	3.40	.38
Control	4.87	.32	4.86	.31	4.87	.33
Solicitation	3.88	.49	3.89	.47	3.86	.53
Aggression	1.14	.19	1.19***	.21	1.09	.15
Delinquency	1.02	.07	1.04***	.09	1.00	.02
Self-control	3.38	.46	3.31***	.43	3.46	.47
Adolescent's reports						
Self-esteem	3.16	.49	3.23***	.45	3.07	.52
Loneliness	1.61	.50	1.64	.51	1.58	.50
Depressive mood	2.32	.65	2.31	.65	2.34	.66
Stress	2.21	.54	2.20	.53	2.23	.54
Aggression	1.25	.25	1.31***	.28	1.19	.19
Delinquency	1.16	.29	1.26***	.35	1.07	.17
Self-control	3.39	.53	3.37	.52	3.42	.55

[a]Additional analyses (*t*-tests) were conducted to verify whether there were any significant differences between boys and girls.

*$p < .05$; **$p < .01$; ***$p < .001$.

that there was one principal component. All items loaded on this component with a minimum item loading of .47 and a maximum item loading of .83 (see also Table 1). In sum, the lying scale seems to show adequate psychometric properties although test-retest reliability could not be established. The reliability of the scale was high (Cronbach's alpha is .90) and the individual items deliver a unique contribution to the lying concept.

Descriptive results

The means and standard deviations for all variables are presented in Table 2. We also examined whether boys and girls differ on these variables. First, parents reported that their sons lied more frequently than their daughters did. Furthermore, they felt that sons were less open compared to daughters. It appeared that parents reported a high quality of the relationship with their children ($M = 5.04$ for trust, $M = 4.80$ for communication, and $M = 2.39$ for alienation on a six-point scale) and no gender differences were found. Parents indicated that they felt that they knew less about the doings and whereabouts of boys than girls. In addition, parents rated boys to be more aggressive and delinquent, and to have less self-control, as compared to girls. Adolescent boys reported higher levels of self-esteem than adolescent girls did, as well as higher levels of aggression and delinquency. No gender differences were found for loneliness, depressive mood and stress.

Table 3 Pearson correlations between lying and the relationship with parents: Parental reports

	Lying		
	Total sample	Boys	Girls
Aspects of communication			
Secrecy	.59***	.62***	.55***
Disclosure	−.47***	−.45***	−.46***
Quality of relationship			
Communication	−.43***	−.46***	−.40***
Trust	−.39***	−.39***	−.39***
Alienation	.49***	.47***	.52***
Parenting practices			
Knowledge	−.42***	−.32***	−.48***
Control	−.09*	−.07	−.10
Solicitation	−.22***	−.20***	−.26***

*$p < .05$; **$p < .01$; ***$p < .001$.

Correlations between lying and the quality of relationship with parents, other communication measures, and parenting

The Pearson correlations between lying behavior and aspects of the relationship with parents are shown in Table 3. Frequent lying by adolescents was strongly related to a higher level of secrecy ($r = .59$, $p < .001$) and a lower level of disclosure towards parents ($r = -.47$, $p < .001$). Furthermore, when sons and daughters lie frequently, there was less communication between parents and their children ($r = -.43$, $p < .001$), less trust ($r = -.39$, $p < .001$), and a higher level of alienation ($r = .49$, $p < .001$). No differences were found between boys and girls according to Fisher z-tests.

As for parenting practices, high correlations were found between the level of lying and parental knowledge ($r = -.42$, $p < .001$) and solicitation ($r = -.22$, $p < .001$). These results indicated that the more children lied to their parents, the less parents knew; but also that the more children lie, the less parents asked. The association between lying and parental knowledge was significantly stronger for girls than for boys (Fisher z test, $p < .05$). These findings did marginally hold for levels of control, here only a moderate correlation was found ($r = -.09$, $p < .05$). The correlations were, however, not significant when we examined boys and girls separately (see Table 3).

Correlations between lying and behavioral and emotional adjustment

The Pearson correlations between lying behavior and the adjustment measures are presented in Table 4. All three

Table 4 Pearson correlations between lying and emotional and behavioural adjustment

	Lying		
	Total sample	Boys	Girls
Parent reports			
Aggression	.42***	.41***	.38***
Delinquency	.19***	.20***	.13*
Self-control	− .43***	− .38***	− .42***
Adolescent reports			
Aggression	.20***	.17**	.18**
Delinquency	.16***	.12*	.16**
Self-control	− .09*	− .13*	− .04
Self-esteem	− .14***	− .23***	− .12*
Loneliness	.12**	.09	.14*
Depressive mood	.15***	.17***	.13*
Stress	.16***	.14*	.20***

*$p < .05$; **$p < .01$; ***$p < .001$.

measures of behavioral adjustment, aggression ($r = .42$, $p < .001$), delinquency ($r = .19$, $p < .001$), and self-control ($r = -.43$, $p < .001$) were moderately related to lying. This implies that, according to parents, adolescents who lie frequently, also show more aggression, are involved in delinquent acts more often, and show lower levels of self-control. These findings were similar for boys and girls.

Next, the adolescents' reports in adjustment measures were examined. Adolescents who lied a lot, boys as well as girls, also reported more aggressive and delinquent behavior, and lower levels of self-control. Considering emotional adjustment, results showed that when adolescents lied frequently, they reported lower levels of self-esteem, and higher levels of depressive mood and stress. Furthermore, when girls lied frequently, they also reported to feel lonelier ($r = 14$, $p < .05$). Additional Fisher z-tests demonstrated no significant differences in associations between boys and girls (not in Tables).

Multivariate hierarchical regression analyses

The Pearson correlations provide insight into the relations between lying and the outcome variables. Because of the moderate correlations between lying and secrecy, and lying and disclosure, and the resemblances between the concepts – all three concern communication between adolescent and parent – it is important to consider to what extent lying contributed to the outcome variables independent of these other two concepts. In order to examine whether lying uniquely contributes to the prediction of the quality of the parent-child relationship, parenting, and adjustment, analyses were conducted with the communication measures secrecy and disclosure towards parents as control variables. To address this issue multivariate regression analyses were conducted in which lying, disclosure and secrecy were included as independent variables for the prediction of quality of relationship, parenting practices and adolescent problem behaviors.

The results indicated that lying had a significant contribution to the quality of the relationship with parents in terms of communication, trust and alienation, and to parental knowledge (see Table 5). In addition, lying was independently related to the measures of behavioral adjustment, with the exception of adolescents' ratings of self-control. Furthermore, lying had a significant contribution to emotional adjustment concerning levels of depressive mood and stress.

Discussion

The current study was conducted to gain more information about lying behavior of adolescents towards their parents, and the relations between lying behavior on the one hand, and aspects of the parent-child relationship, and behavioral and emotional adjustment on the other hand. Cross-sectional data from 671 parent-child couples were used for analyses.

The psychometric properties of this new instrument on lying showed to be satisfactory. The outcomes indicated that the scale proved to be highly reliable, with a Cronbach's alpha of .90. There appears to be a single factor underlying the lying-scale and the individual items deliver a unique contribution to this factor. Furthermore, regression analyses showed that, even when controlling for related constructs like secrecy and disclosure, lying is still related to most of the variables considered in the current study. This means that the assessment of lying by means of this instrument shows construct validity as well. Nonetheless, some issues remain unresolved. It is relevant to underline that although the instrument consisted of different aspects of lying, such as white lies and making stories more interesting by adding information, only one single factor appeared in the factor analyses. Although the findings in this study are straightforward on the one factor solution, other studies should verify whether this one factor solution is stable over samples and perhaps cultures. In particular, validation in studies with different age groups, such as primary school children and middle and late adolescents, is important. In addition, future studies should concentrate on longitudinal analyses to examine the stability of lying in adolescence and to test the predictive value of lying on outcome measures. Furthermore, to reduce social desirability, we asked parents to fill out the scale rather than adolescents themselves. Still, it is important to compare adolescent and parent reports in future studies to replicate whether similar psychometric properties show up and to examine whether parents are able to accurately estimate the frequency of lying.

The current study evaluated the associations between lying towards parents on the one hand, and the quality of

Table 5 Regression of secrecy, disclosure and lying on adjustment and relationship with parents: Beta weights

	Lying	Secrecy	Disclosure	r^2
Behavioral adjustment				
Aggression (parent ratings)	.38***	.11*	.06	.18
Aggression (adolescent ratings)	.19***	.03	.01	.04
Delinquency (parent ratings)	.14**	.04	− .07	.04
Delinquency (adolescent ratings)	.16***	.03	.04	.16
Self-control (parent ratings)	− .37***	− .15**	− .08	.19
Self-control (adolescent ratings)	− .03	− .18**	− .08	.03
Emotional adjustment				
Self-esteem	− .06	− .15**	− .02	.03
Loneliness	.06	.06	− .06	.02
Depressive mood	.10*	.18***	.14**	.04
Stress	.13**	.10	.06	.03
Relationship with parents				
Communication	− .16***	− .06	.51***	.41
Trust	− .15***	− .14**	.34***	.29
Alienation	.30***	.15***	− .22***	.31
Knowledge	− .22***	− .17***	.22***	.26
Control	− .01	− .07	.07	.02
Solicitation	.04	− .07	.45***	.23

Note. The outcomes (standardized parameters and explained variances) of 16 multivariate regression analyses are presented. For instance, in the first described analyses, lying, secrecy and disclosure are included in the equation as predictors of aggression rated by parents. The variance explained by the three predictors are depicted in the last row.

*$p < .05$; **$p < .01$; ***$p < .001$.

parent-child relationship and parenting on the other hand. The results show that children who frequently lie to their parents show less disclosure, higher levels of secrecy, poorer communication patterns, less trust between the parents and their child, and more alienation. The associations between lying and specific parenting practices were also considered. These results indicated that frequent lying is related to less knowledge, less control and less solicitation (see also Kerr and Stattin, 2000; Stattin and Kerr, 2000). This underscores the importance of lying in not only the way parents and children interact with each other but also the opportunities parents have to raise their children adequately. Furthermore, the regression analyses in which we looked at the additional value of lying controlling for the effects of other parent-child communication measures disclosure and secrecy, also underscored the strength of the concept of lying in the quality of the parent-child relationship. Nonetheless, concerning the parenting practices examined here, the analyses showed that lying is only related to knowledge. The relations between lying on the one hand, and control and solicitation on the other hand, do not remain significant after controlling for secrecy and disclosure.

Our results indicated that lying was related to all measurements of behavioral and emotional adjustment assessed in the current study. This means that adolescents who often lie to their parents also show more behavioral problems, as well as emotional problems. Concerning behavioral adjustment, our results strongly coincide with studies of Stouthamer-Loeber (1986) and Gervais *et al.* (2000). The moderate associations between lying and emotional adjustment are the first empirical evidence for the hypothesis that young people who lie frequently towards their parents are more likely to have emotional problems such as low self-esteem, stress and depression.

Most of the associations between lying and outcome variables remained significant and substantial after controlling for the other parent-child communication measures. This underscores the strength and additional value of the concept of lying in the relationships with other family characteristics and adolescent adjustment. However, when we considered the relations between lying on the one hand, and self-control, self-esteem and loneliness on the other hand, it appeared that these relations do not remain significant when we enclose secrecy and disclosure in the analyses. This means that secrecy and disclosure explain the better part of the variance in self-control, self-esteem and loneliness.

Causality

However, the question remains whether the adjustment problems are the outcome of a higher frequency of lying, or whether the higher frequency of lying is the result of more adjustment problems. For instance, in the first case, one could imagine that lying can be an early form of behavioral problems. These problems can start small with an 'innocent' lie, and then evolve into more serious problems, like delinquency and aggression. Lying behavior can also be part of the onset of emotional problems. When their child lies to parents over and over again, this could result in the parents not interacting with their child anymore. By doing so, the lying adolescent may create a climate in which he or she feels lonely and abandoned by his or her parents. Being separated from the family may also lead to low levels of self-esteem, an increase of depressive mood, and high levels of stress. On the other

hand, behavioral or emotional problems may be the cause of lying behavior. Deception may be used to cover up some behavioral or emotional problems. For instance, a delinquent adolescent may lie about his or her whereabouts to avoid punishment for doing something he or she should not have done, like stealing something from a store. Lying could also be used to cover up emotional problems. Adolescents may lie about their feelings of loneliness or depression because they do not want their parents to worry or get involved in what they see as their own problems. To be able to test these speculations about the causes in the relations between lying and adjustment, longitudinal research is necessary, in which reciprocal associations between lying and adjustment are examined.

When is lying beneficial?

In general, we found negative effects of lying towards parents on adolescent's social life and adjustment. Still, some kind of lies such as white lies may, if used properly, be a social skill that enhances people's competence in social relationships. In addition, one may also expect that hiding things from parents provide the opportunity to gain autonomy and relinquish of the dependence on parents (Allen *et al*., 1994). Feldman *et al*. (1999) examined the relations between social competence and deception in adolescents. They showed that respondents with higher levels of social competence were better at deceiving others than the low social competence group. Additionally, there was also an interaction with age, indicating that older adolescents are better at deception. Our findings, however, indicate that adolescents who lie to hide things from their parents are also telling more white lies and also we could found no positive effects of lying in any of the analyses, even if we looked in additional analyses at specifically the items measuring white lies.

Gender differences

Earlier research provided contradictory findings concerning gender differences in lying behavior. On a descriptive level, it is quite clear that boys lie more often than girls (see also On an explanatory level, however, it appeared that almost none of the associations between lying and outcome measures differed for boys and girls. In addition, DePaulo *et al*. (1996) did not find any significant sex differences in the frequency of telling lies in a study among young adults. They did, however, find a gender difference when considering the nature of the lies. It seemed that young woman lie more often to spare other people's feelings than young men do. Apparently, other people's feelings are more important to young woman than telling the truth, whereas young men tend to tell more self-centered lies. So, it is still possible that different aspects of lying are apparent in an older age group, and that these distinctive aspects are also differentially related to social interactions and problem behaviors. Therefore, future studies need to focus on gender and deception in various age groups.

At a young age, lying is one of the criteria for the diagnoses of a conduct disorder. A conduct disorder constitutes a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate social norms or rules are violated. Four categories of behavior are characteristic for a conduct disorder, namely: aggression towards people and animals, destruction of property, deceitfulness or theft, or serious violation of rules (American Psychiatric Association: DSM IV, 1994). In older adolescents, eighteen years of age at least, persistent lying is a criterium for the diagnosis of an antisocial personality disorder, which is defined as a continuation of a conduct disorder earlier in life. Although we do not suggest that our lying measure opens the possibility to detect people with a conduct disorder, still it is possible that adolescents who score high on our lying measure actually suffer from this disorder or are risk-prone to develop it. Future research should compare a lying measure with the DSM IV criteria for conduct disorder.

Shortcomings of the present study

The current study was subject to some limitations. First, the cross-sectional design of the study does not allow for any references to be made about the causal order of the variables. Future research would be able to draw such conclusions when using a longitudinal design. Furthermore, another issue to be addressed with respect to the methodology is which person is the best source to provide information about lying. In the present study, parents were asked to reflect their child's lying behavior. It can be argued that not all parents are able to correctly identify their children's lying behavior, and consequently overestimate or underestimate this behavior. Future research could compensate for this limitation by assessing lying not only from the parent but also from the adolescents themselves. On the other hand, the fact that we found similar findings on behavioral adjustment of parental and adolescent reports underlines the strength of our findings. In addition, the current study focuses on lying behavior towards parents. It may also be interesting to consider lying behavior in general and the relations between differences in lying behavior towards various persons, such as teachers, friends, siblings and parents.

Conclusion

The present study is one of the first that examined the role of adolescent lying behavior towards parents in the quality of parent-child relationship, and in emotional and behavioral problems of adolescents. Preliminary evidence suggest that

the instrument we developed may be relevant in research on parent-child communication, and that lying behavior in adolescence might be a precursor of emotional and behavior problems later on.

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References

Achenbach TM (1991) Manual for the Youth Self-Report and 1991 profile. University of Vermont, Department of Psychiatry, Burlington

Allen JP, Hauser ST, Bell KL, O'Connor TG (1994) Longitudinal assessment of autonomy and relatedness in adolescent-family interactions as predictors of adolescent ego development and self-esteem. Child Dev 65:179–194

Armsden GC, Greenberg MT (1987) The Inventory of Parent and Peer Attachment: Individual differences and their relationship to psychological well-being in adolescence. J Youth Adolesc 16:427–454

Backbier E, Hoogstraten J, Meerum Terwogt-Kouwenhoven K (1997) Situational determinants of the acceptability of telling lies. J Appl Soc Psychol 27:1048–1062

Botvin GJ, Botvin EM (1992) Adolescent tobacco, alcohol, and drug abuse: Prevention strategies, empirical findings, and assessment issues. J Dev Behav Pediatr 13:290–301

Brown BB, Mounts NS, Lamborn SD, Steinberg L (1993) Parenting practices and peer group affiliation in adolescence. Child Dev 64:467–482

Cohen S, Kamarck T, Mermelstein R (1983) A global measure of perceived stress. J Health Soc Behav 24:385–396

DePaulo BM, Kashy DA, Kirkendol SE, Wyer MM, Epstein JA (1996) Lying in everyday life. J Pers Soc Psychol 70:979–995

Feldman RS, Tomasian JC, Coats EJ (1999) Nonverbal deception abilities and adolescents' social competence: Adolescents with higher social skills are better liars. J Nonverbal Behav 23:237–249

Finkenauer C, Engels RCME, Baumeister RW (2005) Parenting and adolescent externalizing and internalizing problems: The role of self-control. Int J Behav Dev 29:58–69

Finkenauer C, Engels RCME, Meeus W (2002) Keeping secrets from parents: Advantages and disadvantages of secrecy in adolescence. J Youth Adolesc 31:123–136

Gervais J, Tremblay RE, Desmarais-Gervais L, Vitaro F (2000) Children's persistent lying, gender differences, and disruptive behaviours: A longitudinal perspective. Int J Behav Dev 24:213–221

Halpert E (2000) On lying and the lie of a toddler. Psychoanal Q 69:659–675

Houtzager B, Baerveldt C (1999) Just like normal: A social network study of the relation between petty crime and the intimacy of adolescent friendships. Soc Behav Pers 27:177–192

Kashy DA, DePaulo BM (1996) Who lies? J Pers Soc Psychol 70:1037–1051

Kerr M, Stattin H (2000) What parents know, how they know it, and several forms of adolescent adjustment. Dev Psychol 36:366–380

Larson DG, Chastain RL (1990) Self-concealment: Conceptualization, measurement, and health implications. J Soc Clin Psychol 9:439–455

Lee K, Ross HJ (1997) The concept of lying in adolescents and young adults: Testing Sweetser's folkloristic model. Merrill-Palmer Q 43:255–270

Miller LC, Berg JH, Archer RL (1983) Openers: Individuals who elicit intimate self-disclosure. J Pers Soc Psychol 44:1234–1244

Rosenberg M (1965) Society and the Adolescent Self-image. Princeton University Press, Princeton, NJ

Russell D, Peplau LA, Cutrona CE (1980) The revised UCLA Loneliness Scale: Concurrent and discriminant validity evidence. J Pers Soc Psychol 39:472–480

Stattin H, Kerr M (2000) Parental monitoring: A reinterpretation. Child Dev 1:1072–1085

Stouthamer-Loeber M (1986) Lying as a problem behavior in children: A review. Clin Psychol Rev 6:267–289

Tagney JP, Baumeister RF (2000) High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. Manuscript submitted for publication. George Mason University

Verhulst FC, van der Ende J, Koot HM (1996) Handleiding voor de Youth Self-Report (YSR). Rotterdam: Erasmus Universiteit/Sophia Kinderziekenhuis, Afdeling Kinder-en Jeugdpsychiatrie