

Parental Attachment, Parental Control, and Early Development of Alcohol Use: A Longitudinal Study

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The authors explored the predictive influence of both parental attachment and parental control on early onset of alcohol consumption in adolescence by use of a longitudinal sample of 1,012 young adolescents. Whether the relationship between parental control and adolescents' drinking is moderated by parental attachment was also examined. Consistent with other studies, attachment and strict control were cross-sectionally related to adolescents' alcohol use at all 3 measurements. However, the longitudinal results of structural equation modeling analyses suggest that a good attachment relationship between parent and child does not prevent adolescents from drinking. In addition, strict control was related to lower engagement in alcohol use. Furthermore, with regard to the moderating effect, parental attachment did not moderate longitudinally the association between parental control and an early development of alcohol use. Implications for further research are discussed.

Keywords: attachment, control, adolescents, alcohol use

Alcohol use is a major health problem among Dutch adolescents. Approximately 74% of Dutch adolescents aged 12–18 years have reported lifetime drinking (De Zwart, Monshouwer, & Smit, 2000). Boys drink on average six alcohol beverages on one occasion, and girls drink about four. This number peaks at the age of 18 years when Dutch boys drink on average almost nine glasses of alcohol, and girls drink five (De Zwart et al., 2000). Moreover, an early development of alcohol use is related to enhanced levels of drinking in late adolescence (Engels, Knibbe, de Vries, Drop, & Van Breukelen, 1999), as well as problem drinking and alcoholism later in life (Fergusson, Lynskey, & Horwood, 1994; Muthén & Muthén, 2000). The negative effects of starting to drink early in life emphasize the relevance of gaining insight into the predictors of the development of alcohol use in early adolescence. We explored in the present study the role of parental attachment and control in early development of adolescents' alcohol use and the interplay between attachment and control on adolescents' drinking.

Parental Attachment

The attachment relationship between parent and child is assumed to be an important feature for the development of a child. In the first months after birth, a child seeks proximity to the parent (mother), and if the parent responds to the needs of the child, the child will create a secure attachment with the parent from which it will explore the world (Bowlby, 1982). It is also assumed that an insecure attachment is a substantial factor in the development of mental health problems, notably in childhood, but also later in life (e.g., Cowan, Cowan, Cohn, & Pearson, 1996).

Several studies have shown the relationship between an insecure attachment and an enhanced likelihood of internalizing problems in adolescence (Allen, Moore, Kuperminc, & Bell, 1998), such as depression (Cole-Detke & Kobak, 1996; Kobak, Sudler, & Gamble, 1991; Pedersen, 1994; Vivona, 2000), emotional disturbance (Overbeek, Vollebergh, Engels, & Meeus, 2003), anxiety (Cooper, Shaver, & Collins, 1998; Pedersen, 1994; Vivona, 2000), and even a higher risk for suicidal behavior (Martin & Waite, 1994). Further, an insecure attachment is related to externalizing problems (Buist, Deković, Meeus, & Van Aken, 2004), such as delinquency (Allen et al., 1998; Allen, Hauser, & Borman-Spurrell, 1996; Pedersen, 1994), hostility (Cooper et al., 1998), marijuana use (Cooper et al., 1998), and the use of hard drugs (Allen et al., 1996).

Thus, the relevance of the attachment relationship between parent and adolescent is illustrated by numerous studies that have provided empirical evidence for the association between insecure attachment and adolescent engagement in different kinds of problem behavior. Alcohol use and misuse is a major health problem among youth (De Zwart et al., 2000) and could be considered a form of deviant behavior. Therefore, it is striking that little research has focused on the relationship between attachment and

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alcohol use in adolescence. As suggested by McNally, Palfai, Levine, and Moore (2003), insecurely attached people use alcohol as a method to cope with negative affect, which in turn would subsequently lead to harmful drinking. Insecure attachment could also predispose adolescents to spend more time with deviant peers who drink; these friendships could place them at risk to start drinking at an early age (Bauman & Ennett, 1996).

Parental Attachment and Alcohol Use

To our knowledge, only a few cross-sectional studies have examined the relation between attachment and an early development of drinking. Cooper et al. (1998) showed that insecurely attached adolescents have a higher risk for substance use than securely attached adolescents. Anderson and Henry (1994) investigated the importance of family bonding in relation to substance use, including alcoholic beverages, and found that family bonding serves as a buffer against adolescents' substance use. This is in contrast with the outcomes of Kwakman, Zuiker, Schippers, and de Wuffel (1988). They demonstrated that alcohol consumption was not associated with the quality of the attachment relationship.

In addition, some studies have investigated the effect of an insecure attachment on the development of alcoholism or substance disorders in young adulthood. Overbeek, Vollebergh, Meeus, de Graaf, and Engels (2004) assessed longitudinally whether parental bonding is linked to substance disorders in young adulthood; they did not find a significant relationship. However, Bernardi, Jones, and Tennant (1989) implied that bonding (especially maternal overprotection) is a feature in the development of alcoholism. In sum, although several studies have examined the role of parental attachment in externalizing and internalizing problem behaviors, there is still a lack of longitudinal research regarding the impact of parental attachment on early onset of drinking.

Parental Control and Adolescents' Alcohol Use

In contrast, the influence of parenting on the development of alcohol use has been well investigated. This line of research focuses especially on the association between parental control and adolescents' drinking behavior. Barnes and Farrell (1992) reported that parental monitoring prevents adolescents from starting to drink heavily, even after taking into account critical demographic and other family factors (see also Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003; Fletcher, Darling, & Steinberg, 1995). Moreover, longitudinal research has demonstrated this preventive effect of parental monitoring on the development of adolescents' alcohol use (Duncan, Duncan, Biglan, & Ary, 1998; Peterson, Hawkins, Abbott, & Catalano, 1994; Reifman, Barnes, Dintcheff, Farrell, & Uhteg, 1998).

Yu (2003) measured parental control by asking parents whether they allow their children to consume alcohol under their supervision in four different situations. According to Yu, parents who prohibit adolescents from drinking alcohol at home tend to lower adolescents' alcohol involvement. Furthermore, Engels and van der Vorst (2003) indicated that providing rules decreases the likelihood of adolescents' drunkenness. These findings were more pronounced for boys than for girls. For both sexes, harsh discipline affected drinking behavior positively. In summary, there is con-

sistent evidence that high levels of parental control might prevent young people from starting to drink heavily.

Interplay Between Parental Attachment, Parental Control, and Adolescents' Alcohol Use

Studies have provided empirical evidence for the association between parental control and adolescents' alcohol use. Cross-sectional research has implied that the attachment relationship between parent and child is also related to adolescents' alcohol use. Thus, both features seem to influence adolescents' drinking behavior. However, parental control and parental attachment are also interrelated: In families in which children have a warm and secure relationship with their parents, parental control efforts are effective in preventing children from becoming involved in problem behaviors (Coombs & Landsverk, 1988). Thus, the attachment relationship goes hand in hand with parenting. More specifically, parents who adequately control and supervise their adolescents might prevent them from starting to drink early in life. When children are also highly attached to their parents, this attachment relationship might strengthen the impact of control on adolescents' alcohol use. Because of this, it is assumed that the expected association between parental control and an early development of drinking will be moderated by parental attachment.

The Present Study

The present study estimated the impact of parental attachment¹ on the early development of alcohol consumption by use of a longitudinal sample of 1,012 young adolescents (see Figure 1). We expected that high parental attachment would prevent young adolescents from drinking alcohol at an early age. Besides this, we explored whether parental attachment moderates the assumed relationship between psychological control or strict control and adolescents' drinking behavior. It is hypothesized that the magnitude of the association between psychological control and adolescents' alcohol consumption will decrease as the attachment relationship between parents and youngsters increases. Furthermore, because of the robust gender differences in alcohol consumption, we assume that these expected associations might affect boys and girls differently. These hypotheses were measured by testing structural models with cross-lagged paths between attachment and alcohol use and between psychological control or strict control and alcohol use at three waves (see Figure 1).

Method

Data for analyses were derived from a large-scale survey among 1,358 students aged 11–14 years conducted in the autumn of 2000 in the Netherlands. A total of five schools were selected in the region of Utrecht in which all first-grade students of secondary education were included (a total of 45 classes). Before the questionnaires were administered, parents were

¹ In the present study, the term parental attachment refers to the "affectively toned cognitive expectancies" (Armsden & Greenberg, 1987, p. 431). Our main interest is a relative degree of the perceived quality of the attachment relationship between parents and adolescents (see also Engels, Finkenauer, Meeus, & Deković, 2001). Thus, in the current article, parental attachment does not refer to attachment styles or attachment representations.

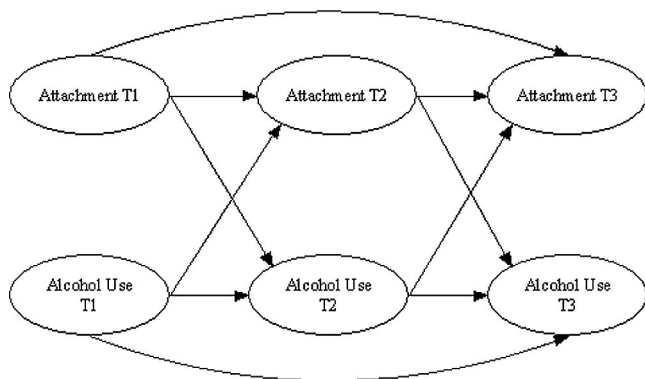


Figure 1. Theoretical model on the associations between parental attachment and adolescents' alcohol consumption at three waves. T1 = Time 1; T2 = Time 2; T3 = Time 3.

informed about the aims of the study and could return a form indicating that their child was not allowed to participate (some parents telephoned the institute for additional information, but none of them returned this form). The questionnaires were filled out in the classrooms in the presence of a teacher. No explicit refusals were recorded; nonresponse was exclusively due to the adolescent's absence on the day of assessment. A total of 1,232 adolescents filled out the questionnaires at the first measurement.

Attention was drawn to the confidentiality of responses. The letters of introduction and the questionnaires emphasized privacy aspects and clearly stated that no information about the specific responses of participants would be passed on to teachers or parents. Only the principal researcher made a matching of numbers and names. To motivate respondents to participate, adolescents and parents could join a raffle for CD vouchers.

The second wave of the study was conducted 6 months after the first wave in the spring of 2001, and the third wave was conducted 12 months after the first wave. Questionnaires were administered among adolescents and followed procedures similar to those in the first wave. A total of 1,153 (93% response rate) adolescents participated in the second wave, and 1,012 adolescents (82%) participated in the third.

In total, 520 (51.4%) boys and 492 (48.6%) girls participated in all three waves of the study. The mean age of the participants was 12.3 years ($SD = .51$) at the first wave. Most adolescents (95.9%) were of Dutch origin, 20% were involved in lower education (trade school education), 28% in middle education, and 52% in the highest level of secondary school in the Netherlands, (i.e., preparatory college and university education). Regarding living arrangements, 90% of the adolescents lived with both parents, 8% lived with their mother, 1% lived with their father, and 2% lived in other situations (e.g., other family members, institutions, adoptive parent).

An attrition analysis was conducted to verify whether adolescents who participated in all three waves differed from those who did not. A logistic regression analysis showed that participants ($n = 954$) differed from dropouts ($n = 198$) in living arrangements (odds ratio [OR] = 1.75, $p < .05$, 95% confidence interval [CI]: 1.12, 2.72) and educational level (OR = .76, $p < .01$, 95% CI: .63, .93). Adolescents who did not live with both of their parents and those who followed low education were more likely to drop out. No differences were found for gender, age, ethnicity, frequency of alcohol use, quantity of alcohol use, psychological control, strict control, and parental attachment. Furthermore, the Cox and Snell indicator of explained variance was .03, suggesting that the predictor variables explained only limited variance in attrition.

Measures

All instruments were administered at each wave. No alterations were made in the formulations of items or in the order of scales in the questionnaires at the different waves.

Attachment. A short version (12 items) of the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987; Nada Raja, McGee, & Stanton, 1991) was used to measure parental attachment. The IPPA attempts to assess parental attachment by the "affectively toned cognitive expectancies" (Armsden & Greenberg, 1987, p. 431; see review of self-report measures of parent-adolescent attachment by Lopez & Gover, 1993) associated with internalized representations of each attachment. The instrument is derived from the theoretical assumptions of the attachment theory (Bowlby, 1982) concerning the affective-cognitive dimensions of trust in the accessibility and responsiveness of attachment figures (Lyddon, Bradford, & Nelson, 1993). It should be noted that the IPPA does not allow the classification of attachment styles. The subscales of the IPPA (Trust, Communication, and Alienation) are indicative of the relative degree of perceived parental security by adolescents (for more details of this instrument, see Engels, Finkenauer, Meeus, & Deković, 2001). Empirical research on the psychometric properties have shown high internal consistencies, for instance, .91 for the subscales Trust and Communication and .86 for Alienation in the study by Armsden and Greenberg (1987; see also Nada Raja et al., 1991; Papini, Roggman, & Anderson, 1991; Paterson, Pryor, & Field, 1995). Furthermore, a high 3-week test-retest reliability was reported, and the scale appears to possess convergent validity (Armsden & Greenberg, 1987).

The short version of the IPPA can also be used for overall quality of attachment relationship with the parents by summing the scores (see Leondari & Kiosseoglou, 2002). Response categories ranged from 1 (*never*) to 6 (*always*). The internal reliabilities of the total scale of 12 items are .84 (Time 1 [T1], mother), .86 (Time 2 [T2], mother), .86 (Time 3 [T3], mother), .86 (T1, father), .89 (T2, father), and .89 (T3, father).

Strict and psychological control. The Strict Control Scale measured parental monitoring and supervision of the adolescent, and consists of eight items (Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994). Cronbach's α was .67 (T1), .74 (T2), and .76 (T3). The Psychological Control scale assessed the extent to which parents used coercive, nondemocratic discipline and discouraged adolescents to express individuality in the family. This subscale consists of nine items (Lamborn et al., 1991). Cronbach's α was .75 (T1), .79 (T2), and .79 (T3). Research on the psychometric properties of these scales provides evidence for the internal consistency, external validity, and test-retest reliability of these factors (Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997; Lamborn et al., 1991; Gray & Steinberg, 1999). In the present study, we used a Dutch translation of the scales (Beyers & Goossens, 1999).

Alcohol consumption. Respondents were asked how often they drank alcoholic beverages in the past 4 weeks. Answers were rated from 1 to 6 (1 = *every day*, 2 = *5-6 days a week*, 3 = *3-4 days a week*, 4 = *1-2 days a week*, 5 = *1-3 days in the last weeks*, and 6 = *have not been drinking*; Engels & Knibbe, 2000). Besides the frequency of drinking, the intensity of drinking was estimated. Four questions asked how many glasses of alcohol the respondents had been drinking in the past week, during weekdays, during weekends, and inside and outside of the home (Engels, Knibbe, & Drop, 1999). By asking about these four specific situations, respondents were forced to actively go back to episodes in their memory, which is supposed to increase the reliability of response. The sum of these four scores was used to indicate the total amount of alcoholic beverages consumed in the past week.

Strategy for Analyses

First, descriptive analyses were conducted on attachment, psychological control, strict control, and adolescents' alcohol consumption (frequency and intensity) to examine gender differences and to explore possible differences between the waves. To answer our research questions about the impact of parental attachment on adolescents' drinking behavior, we tested a three-wave cross-lagged model, depicted in Figure 1, for the whole sample, as well as for boys and girls separately. In addition, we measured a three-wave cross-lagged model with regard to psychological control,

strict control, and alcohol consumption. To test moderator effects of parental attachment on the association between parental control and alcohol consumption, we assessed the model of the whole sample under two conditions: low and high parental attachment. These two groups were created by dividing the attachment variables in two parts: below the median and above the median (median split method; see also: Harakeh, Scholte, de Vries, Vermulst, & Engels, 2004). Respondents who scored below the median were designated to the low-attachment group, and the remainder of respondents were designated to the high-attachment group. Structural equation modeling (SEM) was used to test all the models with LISREL 8.52 (Jöreskog & Sörbom, 1996a). Model differences between girls and boys, and between high and low levels of parental attachment, were conducted with multiple-group testing according to the strategies of Jöreskog and Sörbom (1996a) and Bollen (1989).

In the initial model, each latent variable was assessed by two manifest variables. The latent variable attachment at T1 was measured by the manifest variables attachment to father and mother at T1. Further, the latent variable alcohol use at T1 was assessed by frequency and intensity of alcohol use at T1. The same applies for the latent variables at T2 and T3. Because the alcohol variables were ordinal and had very skew distributions, PRELIS (Jöreskog & Sörbom, 1996b) was used to perform nonlinear transformations and to calculate the resulting correlation matrix with the asymptotic covariance matrix. Both matrices were used as the input for the final LISREL analyses.

Further, in the parental control model, the latent variables psychological control and strict control were measured by their manifest variables. Because these latent variables are represented by only one indicator, the error variances of these indicators were estimated beforehand by using the alphas of these indicators (see also the recommendations of Bollen, 1989, and Jöreskog and Sörbom, 1996a). The latent variable alcohol use at T1 was assessed in the same way as in the model of parental attachment.

Analyses in the initial model were conducted for three groups separately (total model, boys, and girls). Analyses on the model of parental control and adolescents' alcohol use were conducted for five groups separately (total model, boys, girls, low on parental attachment, and high on parental attachment). Factor loadings, as well as structural parameters, were estimated simultaneously. Because the input in both models is a correlation matrix with an asymptotic covariance matrix, the maximum likelihood estimation method was inappropriate; instead, the weighted least squares estimation method (WLS) was used (Kaplan, 2000; Bollen, 1989). Results of the models are presented in three parts, the measurement (factor) models, the fit measures, and the structural models.

Results

Descriptives

Table 1 shows the means and standard deviations of the parental attachment, psychological control, strict control, and alcohol con-

sumption variables. With general linear modeling repeated measures, we tested time (within factor) and gender (between factors) effects on each of the six variables of Table 1. Attachment to mother showed significant differences over time, $F(2, 1009) = 17.09, p = .000$, and partial eta squared (PES) = .033. Attachment to father had the same trend, $F(2, 1009) = 6.74, p = .001$, PES = .013. The findings depicted in Table 1 revealed that attachment with parents decreased over time, but the effect was very small.

Psychological control also had a significant time effect, $F(2, 1009) = 3.22, p = .041$, PES = .006, as well as a significant gender effect, $F(1, 1010) = 58.16, p = .000$, PES = .055. However, post hoc comparisons (Bonferroni) demonstrated no significant time effects, indicating that the time effect for psychological control was small and negligible. The significant gender effect implies that boys experienced more psychological control than did girls.

Strict control showed also a small negligible time effect, $F(2, 1009) = 3.60, p = .028$, PES = .007, with nonsignificant effects after post hoc comparisons with Bonferroni's correction procedure. Nevertheless, the gender effect was significant, $F(2, 1020) = 12.26, p = .000$, PES = .012, which means that parents monitored boys less than girls.

The effects of alcohol consumption over time were strong: frequency, $F(2, 1009) = 182.29, p = .000$, PES = .265; intensity, $F(2, 1009) = 141.96, p = .000$, PES = .220. Post hoc comparisons showed significant increases in the amount, as well as the frequency, of alcohol consumption for both genders. The gender effects were also significant for alcohol use: frequency, $F(1, 1010) = 27.51, p = .000$, PES = .027; intensity, $F(1, 1010) = 32.35, p = .000$, PES = .031. Namely boys consumed more alcohol and more frequently than did girls.

Scores on maternal attachment and paternal attachment were highly correlated for the total sample at the three measurements (see Table 2). This was also the case for frequency and intensity of alcohol use. Maternal attachment and paternal attachment were both negatively associated with frequency and intensity of alcohol use. Attachment to mother correlated stronger to alcohol consumption than did attachment to father. The correlations between the attachment and alcohol variables within the samples of the boys and the girls separately showed the same trend. Furthermore, maternal attachment and paternal attachment were both moderately correlated to psychological and strict control at all time points (see Table 2).

Table 1
Means and Standard Deviations of the Model Variables at Time 1 (T1), Time 2 (T2), and Time 3 (T3)

Variable	Boys						Girls					
	T1		T2		T3		T1		T2		T3	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Attachment mother	4.78	0.65	4.67	0.71	4.69	0.71	4.83	0.67	4.53	0.73	4.72	0.75
Attachment father	4.64	0.71	4.60	0.74	4.55	0.77	4.56	0.78	4.53	0.84	4.48	0.90
Psychological control	2.33	0.57	2.39	0.59	2.33	0.61	2.15	0.53	2.13	0.56	2.10	0.59
Strict control	3.45	0.67	3.39	0.69	3.40	0.71	3.57	0.66	3.51	0.69	3.53	0.66
Alcohol frequency	1.37	0.66	1.67	0.93	1.93	0.93	1.22	0.53	1.42	0.71	1.73	0.82
Alcohol intensity	1.39	0.92	1.87	1.39	2.25	1.54	1.22	0.67	1.53	1.08	1.79	1.25

Table 2
Correlations Between Model Variables for the Total Sample

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Attachment mother T1	—																		
2. Attachment mother T2	.64	—																	
3. Attachment mother T3	.56	.62	—																
4. Attachment father T1	.67	.45	.43	—															
5. Attachment father T2	.48	.72	.51	.68	—														
6. Attachment father T3	.42	.47	.75	.56	.63	—													
7. Psychological control T1	-.33	-.23	-.22	-.28	-.20	-.16	—												
8. Psychological control T2	-.27	-.39	-.29	-.23	-.36	-.26	.50	—											
9. Psychological control T3	-.32	-.29	-.44	-.27	-.27	-.40	.47	.53	—										
10. Strict control T1	.31	.26	.18	.23	.25	.16	.07	.01	-.04	—									
11. Strict control T2	.27	.32	.25	.25	.30	.21	-.02	.07	-.02	.51	—								
12. Strict control T3	.21	.26	.36	.21	.25	.32	-.00	-.05	.01	.46	.54	—							
13. Alcohol frequency T1	-.08	-.08	-.08	-.08	-.09	-.07	.04	.04	.06	-.13	-.15	-.11	—						
14. Alcohol frequency T2	-.11	-.22	-.16	-.05	-.18	-.11	.02	.10	.07	-.12	-.24	-.16	.37	—					
15. Alcohol frequency T3	-.09	-.16	-.21	-.07	-.13	-.18	.02	.05	.05	-.12	-.21	-.22	.35	.46	—				
16. Alcohol intensity T1	-.09	-.08	-.09	-.03	-.06	-.07	.07	.06	.08	-.15	-.18	-.11	.75	.38	.35	—			
17. Alcohol intensity T2	-.10	-.22	-.17	-.02	-.16	-.12	.04	.08	.09	-.16	-.22	-.15	.38	.72	.45	.42	—		
18. Alcohol intensity T3	-.07	-.26	-.18	-.04	-.12	-.15	.02	.05	.07	-.15	-.23	-.22	.34	.45	.73	.35	.50	—	

Note. $r > .06$ is significant at $p < .05$. $.07 \leq r < .10$ is significant at $p < .01$. $r \geq .11$ is significant at $p < .001$. T1 = Time 1; T2 = Time 2; T3 = Time 3.

Structural Equation Models: Parental Attachment

The factor loadings of the three models were very high, ranging from .70 to 1.07. This means that adequate indicators measured the latent variables in each of the models. Further, the three models fitted the data well: total, $\chi^2(38, N = 1012) = 56.33$, root-mean-square error of approximation (RMSEA) = .022, comparative fit index (CFI) = .999; boys, $\chi^2(38, N = 520) = 51.78$, RMSEA = .026, CFI = .999; girls, $\chi^2(38, N = 492) = 123.14$, RMSEA = .068, CFI = .992.

The cross-sectional correlations between the latent variables and the parameter estimates of the structural models (beta weights) are presented in Table 3. The cross-sectional correlations between attachment and alcohol use were significant for all groups, except for the correlation in the first wave for the model for girls. In general, higher levels of attachment were associated with lower levels of adolescents' alcohol consumption at all three waves.

Total model. First of all, beta coefficients of the assessments of parental attachment and alcohol consumption showed a strong

Table 3
Cross-Sectional Correlations Between Latent Variables and Structural Parameter Estimates of the Three Models (Unstandardized Beta Weights), Parental Attachment, and Adolescents' Alcohol Use

Path	Boys and girls	Boys	Girls
Cross-sectional correlations between latent variables			
Attachment T1-alcohol use T1	-.12	-.15	-.03 ^a
Attachment T2-alcohol use T2	-.26	-.25	-.21
Attachment T3-alcohol use T3	-.21	-.21	-.12
Stability paths (betas)			
Attachment T1-attachment T2	.697	.639	.790
Attachment T2-attachment T3	.483	.413	.576
Attachment T1-attachment T3	.265	.276	.233
Alcohol use T1-alcohol use T2	.651	.620	.674
Alcohol use T2-alcohol use T3	.546	.510	.527
Alcohol use T1-alcohol use T3	.172	.116 ^a	.225
Cross-lagged paths (betas)			
Attachment T1-alcohol use T2	-.042 ^a	-.007 ^a	-.038 ^a
Attachment T2-alcohol use T3	-.024 ^a	-.076	-.008 ^a
Alcohol use T1-attachment T2	-.059	-.015 ^a	-.104
Alcohol use T2-attachment T3	-.048	-.046 ^a	.037 ^a

^a Estimates are not significant ($p > .05$).

stability in drinking and attachment to parents over time. Second, the two cross-lagged paths of parental attachment to alcohol use over time were not significant. This indicates that attachment is not a precursor of alcohol use. However, the paths of alcohol use to parental attachment were significant in the total model. This implies that an increase of adolescents' alcohol use leads to lower levels of attachment to the parent.

Boys and girls. The stability paths were also significant in the models of the boys and girls separately (see Table 3), with the exception of the association between alcohol use at T1 and alcohol use at T3 for the model of the boys. With regard to the cross-lagged effects, only the path between parental attachment at T2 and alcohol use at T3 for the boys, and the path between alcohol use at T1 and parental attachment at T2 for the girls, was significant. All the remaining cross-lagged paths were not significant for boys and girls separately.

Structural Equation Models: Psychological and Strict Control

The factor loadings of the three models were very high, ranging from .77 to 1.02. This implies that adequate indicators assessed the latent variables in each of the models. Further, the three models fitted the data well: total, $\chi^2(30, N = 1012) = 60.48$, RMSEA = .032, CFI = .998; boys, $\chi^2(30, N = 520) = 45.04$, RMSEA = .031, CFI = .998; girls, $\chi^2(30, N = 492) = 80.92$, RMSEA = .059, CFI = .996.

The cross-sectional correlations between the latent variables and the parameter estimates of the structural models (beta weights) are presented in Table 4. The cross-sectional correlations between psychological control and adolescents' alcohol use were only significant in the total model at T2 and T3. Strict control, on the contrary, was significantly negatively related to adolescents' alco-

Table 4

Cross-Sectional Correlations Between Latent Variables and Structural Parameter Estimates of the Three Models (Unstandardized Beta Weights) on Parental Control and Adolescents' Alcohol Use

Path	Boys and girls	Boys	Girls
Cross-sectional correlations between latent variables			
Psycontr T1-stricontr T1	.114	.140	.128
Psycontr T2-stricontr T2	.098	.198	.012 ^a
Psycontr T3-stricontr T3	.013 ^a	.086 ^a	-.036 ^a
Psycontr T1-alcuse T1	.040 ^a	.035 ^a	-.008 ^a
Psycontr T2-alcuse T2	.114	.076 ^a	.046 ^a
Psycontr T3-alcuse T3	.076	.046 ^a	.001 ^a
Stricontr T1-alcuse T1	-.251	-.202	-.279
Stricontr T2-alcuse T2	-.293	-.220	-.257
Stricontr T3-alcuse T3	-.304	-.265	-.293
Stability paths (betas)			
Psycontr T1-psycontr T2	.716	.570	.873
Psycontr T2-psycontr T3	.578	.480	.838
Psycontr T1-psycontr T3	.247	.296	.026 ^a
Stricontr T1-atricontr T2	.802	.722	1.010
Stricontr T2-atricontr T3	.405	.420	.275
Stricontr T1-atricontr T3	.415	.362	.647
Alcuse T1-alcuse T2	.643	.671	.648
Alcuse T2-alcuse T3	.539	.538	.586
Alcuse T1-alcuse T3	.215	.142 ^a	.207
Cross-lagged paths (betas)			
Psycontr T1-stricontr T2	-.110	-.123	-.124
Psycontr T2-stricontr T3	-.098	-.146	-.021 ^a
Psycontr T1-alcuse T2	-.021 ^a	-.018 ^a	.001 ^a
Psycontr T2-alcuse T3	-.019 ^a	-.004 ^a	-.041 ^a
Stricontr T1-psycontr T2	-.084	-.026 ^a	-.211
Stricontr T2-psycontr T3	-.070	-.029 ^a	-.085
Stricontr T1-alcuse T2	-.092	-.089 ^a	-.107 ^a
Stricontr T2-alcuse T3	-.095	-.166	-.055^a
Alcuse T1-psycontr T2	.040 ^a	.087	-.097
Alcuse T2-psycontr T3	.048 ^a	.074	-.012 ^a
Alcuse T1-stricontr T2	-.062	-.078	.003 ^a
Alcuse T2-stricontr T3	-.018	.034	-.012 ^a

Note. Estimates in bold are significantly different. Psycontr = psychological control; Stricontr = strict control; Alcuse = alcohol use; T1 = Time 1; T2 = Time 2; T3 = Time 3.

^a Estimates are not significant ($p > .05$).

hol consumption at all three measurements. The more parents supervised their youngsters, the less alcohol they drank.

Total model. Psychological control, strict control, and alcohol consumption seemed to predict the same behavior 6 months and 1 year later. Furthermore, the two cross-lagged paths between psychological control and adolescents' alcohol use over time were not significant. This indicates that psychological control does not increase the likelihood that adolescents will drink heavily. However, all associations between strict control and alcohol use were significant in the total model. Full reciprocal effects were observed between strict control and alcohol use. It appeared that parental monitoring prevents young adolescents' alcohol use and that adolescents' drinking behavior leads to lower levels of parental strict control.

Boys and girls. The stability paths were also significant in the models of the boys and girls separately (see Table 4), with the exception of the association between alcohol use at T1 and alcohol use at T3 in the model of the boys. With regard to the cross-lagged effects, strict control at T2 was significantly negatively related to alcohol use of boys at T3. Moreover, boys' alcohol consumption seemed to predict strict control. However, higher levels of alcohol use at T1 were associated with lower levels of monitoring at T2, and remarkably, higher levels of alcohol use at T2 were associated with higher levels of monitoring at T3. All remaining cross-lagged paths were not significant for boys and girls separately.

Differences Between Groups: Multiple Group Testing

To address the question about whether structural parameter estimates of the cross-lagged effects are significantly different for boys and girls in the parental attachment model (or for boys and girls and for groups scoring low and high on parental attachment in the psychological and strict control model) a multiple group testing procedure was conducted (Byrne, 1998; Jöreskog & Sörbom, 1996a). First, in each model, a baseline χ^2 was computed with no equality constraints between parameters of the two groups (unconstrained model). Next, the factor loadings were constrained to be equal for both groups and again χ^2 was computed (constrained model for factor loadings). Equality of factor loadings between groups was a prerequisite for the next step. A third step was to constrain the betas so that they would be equal for both groups and to calculate χ^2 of this (beta) constrained model. If χ^2 increases significantly from Step 1 to Step 2 or from Step 2 to Step 3, then one or more factor loadings or one or more betas will be significantly different across groups, respectively. To establish which factor loadings or betas are different between two groups, additional difference tests for each individual factor loading or beta are needed. No essential differences have been found between factor loadings of boys and girls in the parental attachment model, of boys and girls, or of groups high and low on parental attachment in the psychological and strict control model. This means that we are allowed to test differences between betas. Here, only differences between cross-lagged effects are discussed, because these effects are our main interest.

In examining the cross-lagged paths for boys and girls in the initial model, a significant difference in the beta weight was found for the path of alcohol use at T1 to parental attachment at T2: The relation for girls is stronger than for boys, $\Delta\chi^2(1) = 8.29, p < .01$. According to Table 3, the association is not significant for boys

and significantly negative for girls. In general, it appeared that there are hardly any gender differences in the effects of parental attachment on alcohol consumption and only a small effect of alcohol consumption on parental attachment for girls.

When comparing the cross-lagged paths between boys and girls in the parental control model, a significant difference was observed for the association between strict control at T2 and adolescents' alcohol use at T3, $\Delta\chi^2(1) = 4.38, p < .01$. This relation is stronger for boys than for girls, which means that boys will drink less than will girls when their parents monitor their drinking behavior. The association appeared to be significant for boys and not significant for girls. Furthermore, boys and girls also differ significantly on the path between alcohol consumption at T1 and psychological control at T2, $\Delta\chi^2(1) = 13.90, p < .001$. For boys, the association is positive, and for girls it is negative, indicating that parents exhibit greater psychological control when boys start to drink more alcohol and exhibit less psychological control when girls consume more alcohol.

Finally, in the psychological and strict control model, no significantly different beta weights of the cross-lagged associations were found when the models between low and high parental attachment were compared. This implies that parental attachment does not moderate the relation between psychological control and young adolescents' alcohol consumption or between strict control and adolescents' alcohol consumption.

Discussion

Previous research has indicated that an insecure attachment relationship between parent and child is an important feature of the development of internalizing and externalizing problems in adolescence. For the role of parental attachment in the domain of alcohol use, empirical evidence is still lacking. Therefore, the current study examined whether an insecure attachment relationship predicts an early onset of alcohol use in adolescence. We also investigated which role parental control plays in the development of adolescents' alcohol use. In addition, it was hypothesized that parental attachment moderates the assumed association between psychological control and adolescents' alcohol use and between strict control and adolescents' alcohol use.

First, the cross-sectional results of our research affirm that parental attachment and drinking are negatively related. The lower the adolescent perceives the quality of the attachment relationship, the more likely the adolescent consumes alcohol at an early age. This finding is consistent with the conclusions of the cross-sectional studies of Cooper et al. (1998) and Anderson and Henry (1994). Nevertheless, our longitudinal SEM analyses demonstrate no such effect of parental attachment on adolescents' drinking behavior, with one exception in the model of the boys. However, because this effect is very small, and it is the only longitudinal association between parental attachment and alcohol use in all three models, we will not over interpret this particular finding. Thus, our results do not support the hypothesis that the attachment relationship between parent and child has an important impact on the development of adolescents' drinking behavior. This outcome corresponds with previous longitudinal research of Overbeek et al. (2004) among young adults. In this study, an insecure attachment did not precede the incidence of a substance use disorder. Although Overbeek et al. (2004) examined, in essence, a pathological

form of alcohol consumption among an older age group, their results point in the same direction as ours.

In contrast with this hypothesized effect of parental attachment, our longitudinal findings do show that it might be the opposite. An early development of alcohol use has a negative influence on parental attachment. The more the young adolescent consumes alcohol, the less strong the adolescent perceives the attachment relationship with his or her parents. Although the effects are very small, they are robust and significant. This indicates that alcohol use in adolescence could remove the youngster emotionally from his or her parents. The results of the longitudinal study of Buist et al. (2004) confirm this interpretation, whereby internalizing problem behavior, as well as externalizing problem behavior, was shown to affect the quality of the relationship between parents and their offspring. Thus, involvement in problematic behavior might affect the attachment relationship between parents and their youngsters.

Further, we tested whether parental attachment moderates the relationship between psychological control and alcohol use as well as between strict control and alcohol use. Again, our longitudinal results did not provide support for these hypotheses. First, this means that using coercive control does not have less effect on adolescents' alcohol consumption when the attachment relationship is high, or second, that monitoring adolescents' behavior does not have a stronger effect on adolescents' alcohol consumption when adolescents report that they have a good attachment relationship with their parents.

In sum, our cross-sectional analyses underline our hypotheses about attachment and early onset of drinking, but the longitudinal data reject it. This might seem remarkable at first glance. We expected that such a theory as widespread as the attachment theory (Bowlby, 1982) would explain at least part of the variance in one of the most common deviant behaviors in adolescence, namely starting to drink relatively early in life, particularly because many studies have indeed found associations between an insecure attachment and various problem behaviors. These studies, however, are mainly cross-sectional. Longitudinal research into the role of parental attachment on the course of problem behaviors in adolescence is less common, and mixed findings have been reported (e.g., Kobak et al., 1991; Overbeek et al., 2003; Pedersen, 1994). On the basis of the cross-sectional outcomes of the present study and other studies, we might conclude that parental attachment is a feature in the development of problem behavior, such as drinking. Our longitudinal results demonstrate that the behavior of the adolescent itself can influence the perceived level of security. This particular outcome might then account for the cross-sectional relationship between parental attachment and alcohol use. This suggests that the predictive value of parental attachment in adolescence is limited. Still, the findings of the present study and other research show that the importance of parental attachment might vary between the domains observed. For instance, an insecurely attached adolescent could be high at risk for depression or delinquency (Pedersen, 1994) but not for drinking. Therefore, it remains relevant to acquire insight into which area of problem behavior insecure attachment is indeed an antecedent.

Nevertheless, it might be too early to conclude that parental attachment does not matter at all in the development of adolescents' alcohol use. The present study only indicates that attachment does not play a role in the initiation phase of adolescents'

alcohol consumption. The attachment relationship between parent and child could have negative effects on those adolescents who start drinking at an extremely early age (such as 9 or 10 years old) but not on the adolescents who start at the age of 12 years or older. In our study, we could not make a distinction between those two groups. In addition, the participants of this research are on average 12 years old at the first measurement; at this age most adolescents do not drink very much. Perhaps, parental attachment has a stronger impact at an older age, for instance when youngsters are 16 or 17 years old. The majority of the adolescents at this age drink alcohol on a regular basis. A secure attachment relationship with parents might prevent these youngsters from drinking heavily. Another possibility is that attachment is especially of influence in the development of problem drinking or alcoholism, as indicated by Bernardi et al. (1989). Future research should explore the impact of parental attachment within these different stages of adolescents' alcohol consumption.

Finally, in accordance with previous research (Barnes & Farrell, 1992; Fletcher et al., 1995), the present study demonstrates that monitoring prevents adolescents from drinking more heavily, although monitoring has a stronger effect on boys than on girls. Psychological control, on the other hand, was not related to an early development of alcohol use. A reason for this could be that, like Barber, Olsen, and Shagle (1994) suggested, discouraging adolescents' autonomy has more impact on emotional health or internalizing problems of adolescents than on externalizing behavior, such as drinking alcohol. The findings of Barber (1996) and Gray and Steinberg (1999) confirmed this interpretation.

Moreover, corresponding with the reciprocal findings of parental attachment in the present study, adolescents' alcohol consumption also influenced the way parents provide strict control. Drinking seemed to decrease the degree of parental monitoring; however, these findings were rather small. Nonetheless, this outcome is consistent with the findings of Stice and Barrera (1995). They reported that parents lower their control after the adolescent exceeds the level of parental tolerance toward adolescents' deviant behavior.

Because of robust gender differences in alcohol consumption (i.e., boys drink substantially more alcohol than girls) we expected that the effects of parental attachment and parental control on adolescents' drinking would differ for boys and girls. Although boys and girls seem to experience the degree of strict and psychological control differently, the effects of control on their alcohol use did not differ significantly, with the exception of two associations. However, these associations seem rather incidental for the moment, considering the number of gender differences that could have occurred. Thus, apparently the substantial differences in the amount of alcohol consumed by boys and girls do not lead to differences in the role of parental attachment and parental control on adolescents' alcohol use.

Despite the longitudinal design and the substantial size of the sample, some limitations of the current study should be acknowledged. First, parental attachment is measured by the IPA, which gives an indication of the relative degree of the perceived parental security by the adolescent. The main interest is thus the degree of parental responsiveness and sensitivity toward the adolescent. The questionnaire does not measure representations or does not allow a classification in attachment styles to be made. For instance, Cooper et al. (1998) suggested in their cross-sectional study that

anxiously attached adolescents have significantly more drinking problems than avoidant or securely attached youngsters. They used the Adult Attachment Interview (George, Kaplan, & Main, 1985) as a method to classify their participants in the different attachment styles. Because this instrument entails a very labor-intensive procedure (Goldberg, 2000), interviewing respondents is only possible if the sample is not too large. Because of our large sample size, we could not (from a logistic point of view) use an interview to establish information about attachment styles. Additional longitudinal studies are needed to distinguish the effects of the various attachment styles on alcohol use. Second, parental drinking might influence the associations between parental attachment and adolescents' alcohol use and between parental control and adolescents' alcohol use. For instance, parents who are heavy drinkers might enforce less strict rules than would parents who are light-to-moderate drinkers, which in turn could affect adolescents' alcohol use. However, we were not able to control for this variable in our analyses, because our questionnaires did not include parental alcohol use. Third, we used self-report measures to examine the amount of alcohol the adolescents consumed. Levels of drinking may be underestimated in our study, because the young adolescents could have answered the alcohol questions in a socially desirable way. Asking their peers about the adolescents' alcohol use would perhaps control for this bias; however, the use of self-reports among youngsters is still the most common way to assess drinking in large social-epidemiological studies. Fourth, because the longitudinal design of the present research covered 1 year, long-term effects cannot be estimated from the results of this study. Fifth, our study population does not represent all young Dutch adolescents, for instance, very few adolescents of non-Dutch origin participated in this project. Further, data were collected from only five schools, although all three levels of education (low, middle, high) were almost equally represented in our study.

Taking these limitations into account, the present study is one of the first that gives empirical insight into the role of parental attachment and the interplay between parental attachment and parental control in the early onset of alcohol use. It appears that findings of cross-sectional studies overvalue parental attachment as a precursor of drinking. The role of parental attachment seems to be overestimated when it concerns the initiation phase of adolescents' alcohol consumption. It might even be the other way around: If children start to drink early, this can affect the qualitative bond with their parents in a negative way. In our opinion, future research should focus on (a) this bidirectionality of parental attachment and alcohol use, (b) the impact of parental attachment on adolescents' drinking in other age groups, (c) the role of parental attachment in problem drinking or heavy drinking, and (d) the question of whether attachment styles play a role in the development of alcohol use.

References

- Allen, J. P., Hauser, S. T., & Borman-Spurrell, E. (1996). Attachment theory as a framework for understanding sequel of severe adolescent psychopathology: An 11-year follow-up study. *Journal of Consulting and Clinical Psychology, 64*, 254–263.
- Allen, J. P., Moore, C., Kuperminc, G., & Bell, K. (1998). Attachment and adolescent psychosocial functioning. *Child Development, 69*, 1406–1419.
- Anderson, A. R., & Henry, C. S. (1994). Family system characteristics and parental behaviors as predictors of adolescent substance use. *Adolescence, 29*, 405–420.
- Armsden, G. C., & Greenberg, M. T. (1987). The Inventory of Parent and Peer Attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16*, 427–454.
- Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development, 67*, 3296–3319.
- Barber, B. K., Olsen, J. E., & Shagle, S. C. (1994). Associations between parental psychological and behavioural control and youth internalised and externalised behaviors. *Child Development, 65*, 1120–1136.
- Barnes, G. M., & Farrell, M. P. (1992). Parental support and control as predictors of adolescent drinking, delinquency and related problem behaviours. *Journal of Marriage and the Family, 54*, 763–776.
- Bauman, K. E., & Ennett, S. E. (1996). On the importance of peer influence for adolescent drug use: Commonly neglected considerations. *Addiction, 91*, 185–198.
- Bernardi, E., Jones, M., & Tennant, C. (1989). Quality of parenting in alcoholics and narcotic addicts. *British Journal of Psychiatry, 154*, 677–682.
- Beyers, W., & Goossens, L. (1999). Emotional autonomy, psychosocial adjustment and parenting: Interactions, moderating and mediating effects. *Journal of Adolescence, 22*, 753–769.
- Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley.
- Borawski, E. A., Ievers-Landis, C. E., Lovegreen, L. D., & Trapl, E. S. (2003). Parental monitoring, negotiated unsupervised time, and parental trust: The role of perceived parenting practices in adolescent health risk behaviors. *Journal of Adolescent Health, 33*, 60–70.
- Bowlby, J. (1982). *Attachment and loss* (Rev. ed., Vol. 1). New York: Basic Books.
- Buist, K. L., Deković, M., Meeus, W., & Van Aken, M. A. G. (2004). Reciprocal relationships between early adolescent attachment and internalising and externalising problem behaviour. *Journal of Adolescence, 27*, 251–266.
- Byrne, B. M. (1998). *Structural equation modeling with LISREL, PRELIS and SIMPLIS: Basic concepts, applications, and programming*. Mahwah, NJ: Erlbaum.
- Cole-DeTke, H., & Kobak, R. (1996). Attachment processes in eating disorder and depression. *Journal of Consulting and Clinical Psychology, 64*, 282–290.
- Coombs, R. H., & Landsverk, J. (1988). Parenting styles and substance use during childhood and adolescence. *Journal of Marriage and the Family, 50*, 473–482.
- Cooper, M. L., Shaver, P. R., & Collins, N. L. (1998). Attachment styles, emotion regulation, and adjustment in adolescence. *Journal of Personality and Social Psychology, 74*, 1380–1397.
- Cowan, P. A., Cowan, C. P., Cohn, D. A., & Pearson, J. L. (1996). Parents' attachment histories and children's externalizing and internalizing behaviors: Exploring family systems models of linkage. *Journal of Consulting and Clinical Psychology, 64*, 53–63.
- De Zwart, W. M., Monshouwer, K., & Smit, F. (2000). *Jeugd en riskant gedrag. Kerngegevens 1999. Roken, drinken, drugsgebruik en gokken onder scholieren vanaf tien jaar* (Youth and risky behavior. Key data 1999. Smoking, drinking, drug use, and gambling among scholars aged ten years and older). Utrecht, the Netherlands: Trimbos-Instituut.
- Duncan, S. C., Duncan, T. E., Biglan, A., & Ary, D. (1998). Contributions of the social context to the development of adolescent substance use: A multivariate latent growth modeling approach. *Drug and Alcohol Dependence, 50*, 57–71.
- Engels, R. C. M. E., Finkenauer, C., Meeus, W., & Deković, M. (2001). Parental attachment and adolescents' emotional adjustment: The role of interpersonal tasks and social competence. *Journal of Counseling Psychology, 48*, 428–439.

- Engels, R. C. M. E., & Knibbe, R. A. (2000). Alcohol use and intimate relationships in adolescence: When love comes to town. *Addictive Behaviors, 25*, 435–439.
- Engels, R. C. M. E., Knibbe, R. A., de Vries, H., Drop, M. J., & Van Breukelen, G. J. P. (1999). Influences of parental and best friends' smoking and drinking on adolescents' use: A longitudinal study. *Journal of Applied Social Psychology, 29*, 337–361.
- Engels, R. C. M. E., Knibbe, R. A., & Drop, M. J. (1999). Why do late adolescents drink at home? A study on psychological well-being, social integration and drinking context. *Addiction Research, 7*, 31–46.
- Engels, R. C. M. E., & van der Vorst, H. (2003). The roles of parents in adolescent and peer alcohol consumption. *The Netherlands' Journal of Social Sciences, 39*, 53–68.
- Fergusson, D. M., Lynskey, M. T., & Horwood, J. (1994). Childhood exposure to alcohol drinking patterns. *Addiction, 89*, 1007–1016.
- Fletcher, A. C., Darling, N., & Steinberg, L. (1995). Parental monitoring and peer influences on adolescent substance use. In J. McCord (Ed.), *Coercion and punishment in long-term perspectives*. Cambridge, MA: Cambridge University Press.
- George, C., Kaplan, N., & Main, M. (1985). *The Adult Attachment Interview*. Unpublished manuscript, University of California at Berkeley.
- Glasgow, K. L., Dornbusch, S. M., Troyer, L., Steinberg, L., & Ritter, P. L. (1997). Parenting styles, adolescents' attributions, and educational outcomes in nine heterogeneous high schools. *Child Development, 68*, 507–529.
- Goldberg, S. (2000). *Attachment and development*. London: Arnold.
- Gray, M. R., & Steinberg, L. (1999). Unpacking authoritative parenting: Reassessing a multidimensional construct. *Journal of Marriage and the Family, 61*, 574–587.
- Harakeh, Z., Scholte, R., De Vries, H., Vermulst, A., & Engels, R. C. M. E. (2004). Parental factors, smoking specific cognitions and early onset of smoking. *Preventive Medicine, 39*, 951–961.
- Jöreskog, K., & Sörbom, D. (1996a). *LISREL 8. User's reference guide*. Chicago: Scientific Software International.
- Jöreskog, K., & Sörbom, D. (1996b). *PRELIS 2: User's reference guide*. Chicago: Scientific Software International.
- Kaplan, D. (2000). *Structural equation modeling. Foundations and extensions*. Thousand Oaks, CA: Sage.
- Kobak, R. R., Sudler, N., & Gamble, W. (1991). Attachment and depressive symptoms during adolescence: A developmental pathways analysis. *Development and Psychopathology, 3*, 461–474.
- Kwakman, A. M., Zuiker, F. A. J. M., Schippers, G. M., & de Wuffel, F. J. (1988). Drinking behavior, drinking attitudes and attachment relationship of adolescents. *Journal of Youth and Adolescence, 17*, 247–253.
- Lamborn, S. D., Mounts, N. S., Steinberg, L., & Dornbusch, S. M. (1991). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development, 62*, 1049–1065.
- Leondari, A., & Kiosseoglou, G. (2002). Parental, psychological control and attachment in late adolescents and young adults. *Psychological Reports, 90*, 1015–1030.
- Lopez, F. G., & Gover, M. R. (1993). Self-report measures of parent-adolescent attachment and separation-individuation: A selective review. *Journal of Counseling and Development, 71*, 560–569.
- Lyddon, W. L., Bradford, E., & Nelson, J. P. (1993). Assessing adolescent and adult attachment: A review of measures of current self-report measures. *Journal of Counseling and Development, 71*, 390–395.
- Martin, G., & Waite, S. (1994). Parental bonding and vulnerability to adolescent suicide. *Acta Psychiatrica Scandinavica, 89*, 246–265.
- McNally, A. M., Palfai, T. P., Levine, R. V., & Moore, B. M. (2003). Attachment dimensions and drinking-related problems among young adults. The mediational role of coping motives. *Addictive Behaviors, 28*, 1115–1127.
- Muthén, B. O., & Muthén, L. K. (2000). The development of heavy drinking and alcohol-related problems from ages 18 to 37 in a U.S. national sample. *Journal of Studies on Alcohol, 61*, 290–300.
- Nada Raja, S., McGee, R., & Stanton, W. R. (1991). Perceived attachments to parents and peers and psychological well-being in adolescence. *Journal of Youth and Adolescence, 21*, 471–485.
- Overbeek, G., Vollebergh, W., Engels, R. C. M. E., & Meeus, W. (2003). Parental attachment and romantic relationships: Associations with emotional disturbance during late adolescence. *Journal of Counseling Psychology, 50*, 28–39.
- Overbeek, G., Vollebergh, W., Meeus, W., de Graaf, R., & Engels, R. C. M. E. (2004). Young adults' recollections of parental bonds. Does satisfaction with partner relationships mediate the longitudinal association with mental disorders? *Social Psychiatry and Psychiatric Epidemiology, 39*, 703–710.
- Papini, D. R., Roggman, R. L., & Anderson, J. (1991). Early-adolescent perceptions of attachment to mother and father: A test of emotional distancing and buffering hypotheses. *Journal of Early Adolescence, 11*, 258–275.
- Paterson, J., Pryor, J., & Field, J. (1995). Adolescent attachment to parents and friends in relation to aspects of self-esteem. *Journal of Youth and Adolescence, 24*, 365–376.
- Pedersen, W. (1994). Parental relations, mental health and delinquency in adolescents. *Adolescence, 29*, 975–990.
- Peterson, P. L., Hawkins, J. D., Abbott, R. D., & Catalano, R. F. (1994). Disentangling the effect of parental drinking, family management, and parental alcohol norms on current drinking by black and white adolescents. *Journal of Research on Adolescence, 4*, 203–227.
- Reifman, A., Barnes, G., Dintcheff, B. A., Farrell, M. P., & Uhteg, L. (1998). Parental and peer influences on the onset of heavier drinking among adolescents. *Journal of Studies on Alcohol, 59*, 311–317.
- Steinberg, L., Lamborn, S. D., Darling, N., Mounts, N. S., & Dornbusch, S. M. (1994). Over-time changes in adjustment and competence among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development, 65*, 754–770.
- Stice, E., & Barrera, M. (1995). A longitudinal examination of the reciprocal relations between perceived parenting and adolescents' substance use and externalising behaviors. *Developmental Psychology, 31*, 322–334.
- Vivona, J. M. (2000). Parental attachment styles of late adolescents: Qualities of attachment relationships and consequences for adjustment. *Journal of Counseling Psychology, 47*, 316–329.
- Yu, J. (2003). The association between parental alcohol-related behaviors and children's drinking. *Drug and Alcohol Dependence, 69*, 253–262.

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