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## Research Note

# Parental Support and Control and Early Adolescent Smoking: A Longitudinal Study

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*The aim of this study is to examine the role of parental support and control on young adolescent smoking initiation, increase, continuation, and cessation. Longitudinal data gathered every 6 months over a one-year period were collected in Utrecht, The Netherlands, for 1,012 adolescents in 2000. Logistic regressions demonstrated that low parental control predicted adolescent smoking initiation but neither support nor control predicted adolescent smoking increase or continuation. Parental smoking status was important in adolescent smoking continuation and cessation. Suggestions based on these findings are made for prevention programs. A limitation is that the study only utilized adolescent reports.*

**Keywords** adolescents; smoking; adolescent smoking; adolescent smoking cessation; parental smoking; parenting; parenting styles

## Introduction

This study explores the role of two parenting dimensions (support and control) and the effects they may have on early adolescence smoking. Parental control is a continuum that ranges from restrictiveness to permissiveness and parental support is described as the variation in the amount of parental responsiveness and warmth, such as responding to the child needs (see Engels, Finkenauer, Kerr, and Stattin, 2005).

Although previous studies have used these two dimensions to determine parenting types (e.g., Baumrind, 1991), this study examined the parental support and control dimensions separately and tested whether it interacted with parental smoking status. Our three-wave longitudinal design enables us to identify those early adolescents who make the transition from never smoker to occasional smoking, that is, less than once a month, or who make the transition from occasional smoking to regular smoking in their first year of secondary

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school. Additionally, we explored associations between parenting and the continuation of occasional adolescent smoking as well as quitting.

## Method

Data were collected in The Netherlands among early adolescents in their first year of secondary school. Five schools in the region of Utrecht participated after having discussed our introduction letter during their respective board meetings. The criteria in selecting school were that the school (a) had to be a public school and (b) had to cover the range from low to high education. The first wave (T1) was conducted in the fall of 2000, the second and third waves (T2 and T3) 6 months and one year later, respectively. Initially 1,209 respondents were invited to participate; attrition over the waves was only due to student absence on the day of measurement or was caused by students who had left that particular school. Respondents who did not participate in all three waves or had missing data on criterion variables were excluded from the analyses, which resulted in 1,012 respondents. Adolescents excluded from the analyses smoked marginally more at T1 ( $T(1,209) = 2.03$ ,  $p < .05$ ).

The parents were informed about the study's objectives in a letter by the primary researcher as well as from the school board and were given the opportunity to withdraw their child from the study (waiver of informed consent) or the respondents themselves could elect not to participate. Additionally, parents and respondents were able to contact the researcher at all times. Responses were kept strictly confidential and the testing procedures at school were organized to assure this confidentiality.<sup>1</sup> To increase participation motivation, the respondents could win a music compact disc at each wave.

A total of 520 boys (51.4%) and 492 girls (48.6 %) participated. The ages varied between 11 and 14 years (T1:  $M = 12.29$ ,  $SD = .50$ ) at the first wave. At T1, 89.8% of the respondents lived with both their parents; the other 10.2% lived with one parent, in most cases due to divorce. Those one parents might or might not have a new partner. A total of 4.1% reported to have an ethnic background not of Dutch origin.

## Measures

*Adolescent Smoking.* Respondents had to indicate their (non)smoking behavior on a 7-point scale, ranging from 1 ("I have never smoked, not even one puff") to 7 ("I smoke at least once a day"). Four variables were constructed: (a) smoking initiation between the first and the second wave (b), smoking initiation between the second and the third wave, (c) smoking increase between T1 and T2, and (d) smoking increase between T2 and T3. We constructed various variables to identify those who smoked at low levels (occasional smokers: less than once a month) but did indicate this at each wave, and those who reported smoking at T1 and/or T2 but had chosen the answer alternative that they had quit at T3.

*Parental Smoking.* This was determined by adolescent report; a parent was coded as a smoker if the adolescent indicated parental smoking at any wave.

*Parenting.* The parenting styles were measured by the Dutch version of the Parenting Scales of Lamborn, Mounts, Steinberg, and Dornbusch (1991; see also Steinberg, Lamborn, Darling, and Mounts, 1994). The total scale of 19 items consists of two subscales, namely support (11 items) and control (8 items). Respondents were asked to rate their parents in specific situations, for example, "My parents take time to talk with me" and "If I get bad

grades at school, my parents encourage me to perform better.” Response categories ranged from 1 (“not true at all”) to 5 (“absolutely true”). The internal consistencies of the subscales were satisfactory: support: T1:  $\alpha = .80$ , T2:  $\alpha = .86$ , T3:  $\alpha = .84$ , control: T1:  $\alpha = .71$ , T2:  $\alpha = .76$ , T3:  $\alpha = .75$ .

### *Strategy for Analyses*

For the longitudinal analyses on smoking onset, we selected the nonsmokers at T1 and T2, respectively, and predicted whether respondents initiated smoking at the subsequent wave. For the analyses on smoking increase we selected and compared two groups; those adolescents who did smoke less than once a month at T1 and continued to do so at T2 compared with those who increased their smoking level to more than once a month at T2. This strategy was also used on this transition between T2 and T3.

Four logistic regression analyses were computed. In the first, smoking initiation between first and second wave was predicted by the background variables (age, sex, living arrangement, educational level, and parental smoking status) and reported parenting at T1. In the second analysis, smoking initiation between second and third wave was determined and analyzed by second-wave parenting. In the third and fourth analysis, both groups that increased their smoking levels between T1 and T2 and T2 and T3, respectively, to more than once a month were analyzed. Finally, we conducted additional analyses to determine the relationship between parenting and quitting and to determine the relationship between parenting and the continuation of occasional smoking; that is, less than once a month but at each wave.

To determine whether the role of parenting differs for smoking and nonsmoking parents, a parental smoking status  $\times$  parental style interaction term was added in the final step of the analysis. We tested also for interaction between support and control.

In order to test whether smoking initiation influences subsequent parenting we applied a multivariate general linear model (GLM) to calculate whether parenting before the occurrence of smoking initiation differs from parenting after smoking initiation. This could only be tested for the group that had initiated smoking at T2, controlled for first-wave parenting and calculating whether there was a difference on the subsequent measurement of parenting at T3 compared to those respondents who had remained never smokers T3.

## **Results**

### *Adolescent Smoking Characteristics*

Smoking initiation occurred in 8.3% of the adolescent sample between T1 and T2 and 9.9% of the adolescents had initiated smoking between T2 and T3. Regular smoking (i.e., more than once a month) increased from 4.5% at T1 to 8.3% at T2 and finally to 13.4% at T3.

Occasional smoking increased from 4.5% at T1 to 5.1% at T2 and finally to 9.9% at T3. Within this group of occasional smokers a total of 3.4% continued to smoke less than once a month during each wave. The transition from occasional to regular smoking was made by 4.5% of the respondents between T1 and T2 and by 5.3% between T2 and T3. A total of 14.0% of the sample indicated some level of smoking at T1 or T2 but indicated to be a nonsmoker at T3.

With respect to parental smoking, 503 respondents (49.7%) lived with two nonsmoking parents, 322 (31.8%) lived with one smoking parent, and 187 (18.5%) with two smoking

parents. Pearson correlations of the parental smoking status between the waves were all significant; mothers: T1–T2 ( $r = 0.90$ ;  $p < .01$ ) and T2–T3 ( $r = 0.73$ ;  $p < .01$ ); fathers: T1–T2 ( $r = 0.88$ ;  $p < .01$ ) and T2–T3 ( $r = 0.65$ ;  $p < .01$ ).

### ***Stability of Parenting***

Mean scores on parental control were fairly stable (T1:  $M = 3.51$ ,  $SD = .67$ ; T2:  $M = 3.45$ ,  $SD = .70$ ; T3:  $M = 3.47$ ,  $SD = .67$ ). Pearson correlations between T1 and T2 and T2 and T3 were  $r = .51$  and  $r = .53$  ( $p < .001$ ) respectively. Reports on parental support were higher (T1:  $M = 4.03$ ,  $SD = .53$ ; T2:  $M = 3.97$ ,  $SD = .61$ ; T3:  $M = 3.98$ ,  $SD = .64$ ). Correlations on support were  $r = .53$  ( $p < .001$ ) between T1 and T2 and  $r = .56$  ( $p < .001$ ) between T2 and T3.

### ***Longitudinal Analyses of Parenting Styles and Parental Smoking on Transitions in Smoking Stages Among Adolescents***

All analyses controlled for the background variables and were tested for two types of interactions in the final step of each analysis, namely, (a) support  $\times$  control and (b) support (or control)  $\times$  parental smoking status.

The first two longitudinal logistic regressions (Table 1) demonstrated that the associations between support and control and adolescent smoking initiation between T1 and T2 as well as between T2 and T3 (first and second column) were significant for the control dimension only. In this second analysis on smoking initiation between T2 and T3, the interaction control  $\times$  parental smoking status was significant ( $OR = .39$ ,  $p < .05$ ). Further examination indicated that only for smoking parents higher levels of control are associated with lower likelihood of smoking initiation ( $OR = .37$ ,  $p < .01$ ). The third and fourth logistic regression analyses (Table 1) demonstrated that support and control were not associated with smoking increase.

When we selected children who indicated that they smoked during all three waves but with a frequency of less than once a month ( $N = 34$ ; data not shown) and contrasted them with never smokers ( $N = 566$ ) we found that the only significant association was with the parental smoking status ( $OR = 2.52$ ,  $p < .05$ ). It is noteworthy that the control dimension almost reached statistical significance in this analysis ( $OR = .60$ ,  $p < .10$ ).

Furthermore, in an analysis to test associations between parenting and quitting the interactions control  $\times$  parental smoking status as well as support  $\times$  parental smoking status were both significant ( $OR = .47$ ,  $p < .05$  and  $OR = 2.28$ ,  $p < .05$ , respectively). Analyses showed that for the group with nonsmoking parents, parental control was associated with a higher likelihood of quitting as compared to the group with smoking parents. The analysis for the group of smoking parents demonstrated that parental support was associated with a higher likelihood of quitting.

## **Discussion**

This study investigated the associations between parental support and control and early adolescents' smoking initiation, increase, cessation, and the continuation of low levels of smoking. Our findings show that parental control plays an important role in adolescent smoking initiation. Jackson, Bee-Gates, and Henriksen (1994) found that high parental control was positively associated with child competencies, and these competencies, in turn,

**Table 1**  
 Logistic regressions of parenting dimensions on early adolescent T2 and T3 smoking initiation and T2 and T3 smoking increase

Parenting dimension	Smoking initiation <sup>a</sup> by first-wave parenting ( <i>N</i> = 750)		Smoking initiation <sup>a</sup> between T2 and T3 by second-wave parenting ( <i>N</i> = 666)		Smoking increase <sup>b</sup> between T1 and T2 by first-wave parenting ( <i>N</i> = 97)		Smoking increase <sup>b</sup> between T2 and T3 by second-wave parenting ( <i>N</i> = 214)		
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	
Control	.41	.89	.69 <sup>*c</sup>	.48	.99	.90	3.08	.71	.40
Support	.89	.55	.89	.60	1.33	.54	2.74	.82	.48
		Lower		Lower		Lower			Lower
		Upper		Upper		Upper			Upper

*Notes.* All analyses controlled for the background variables age, gender, educational level, parental smoking status, and living arrangement (two-parent family or broken home) and tested for two types of interactions: (a) support × control and (b) interactions between support or control and parental smoking status.

<sup>a</sup>Reported to be a never smoker initially but reported to have smoked at the subsequent wave (*N* = 84 at T1; *N* = 100 at T2), contrasted with never smokers (*N* = 666 at T1; *N* = 566 at T2). <sup>b</sup>Increased smoking level from less than once a month to more than once a month (*N* = 46 at T1; *N* = 54 at T2), contrasted with the group that continued to smoke less than once a month (*N* = 51 at T1; *N* = 160 at T2).

<sup>c</sup>The interaction term control × parental smoking status reached significance (OR = .39, *p* < .05); additional analysis indicated that for smoking parents only, control is associated with lower likelihood of smoking initiation (OR = .37, *p* < .01) but not for nonsmoking parents (OR = .77, n.s.).

OR = odds ratio; 95% CI = 95% confidence interval.

\* *p* < .05.

had a preventive effect on children's smoking. Our findings are only partially supportive of this finding since increased levels of child competencies could not be addressed by our study's design.

Our findings do not indicate that parental smoking plays a role in the first phase of smoking initiation and increase. However, we found some support that smoking and non-smoking parents differ in the way they exert control. Adolescents who indicate that they are beyond the first phases of experimentation are more likely to have smoking parents (see also den Exter Blokland, Engels, Hale, Meeus, and Willemsen, 2004). Our results support the findings of Pierce, Distefan, Jackson, White, and Gilpin (2002), who reported that strong parental control is associated with a reduced risk of future adolescent smoking initiation, regardless of parental smoking. The findings of our study seem to indicate that it is not the parental smoking status as such that predicts smoking outcomes but rather the way (non)smoking parents exert control (initiation) or support (cessation) that illustrates the difference in behaviors between smoking and nonsmoking parents.

These findings may hold insight into adolescent smoking prevention in addition to measures taken by policy-makers (for example; no smoking in public buildings, no tobacco sale under age 16, and a substantial raise in the price of cigarettes). Smoking takes place at an early age, but smoking levels are low and daily smoking is not yet a habit. Adolescents even might be ambivalent about their experimentation and therefore not consider themselves to be smokers, as Bell, Pavis, Amos, and Cunningham-Burley (1999) suggest. They point out the complex dynamics and variable nature of young adolescents' smoking status and their peer relationships. Prevention programs designed for this group should take this into account because it might not be peer pressure, *per se*, but rather peer affiliation that inclines young smokers to select peers with the same attitudes and behaviors. Parents may play a role in this process of peer selection by means of enforcing control (see also Chassin, Presson, Sherman, Montello, and McGrew, 1986; Engels, Vitaro, den Exter Blokland, de Kemp, and Scholte, 2004). Additionally, our study indicates that it might be fruitful to identify children who experience low parental control, because those children are prone to initiate smoking, regardless of their education, living situation, or parental smoking status (see also Chassin et al., 2005). Such identification can easily be done by using short questionnaires at school that measure parenting dimensions of control and support. Parents, if they so desire, can be involved in prevention efforts, be educated about the effects of parental control and the influence they have on the smoking experimentation, and be empowered to cope effectively with smoking in adolescence.

An interesting area for future study may be to both investigate how parental support and control are processed on an individual level as well as to apply measures of support and control toward other sources of influence. For example, the adolescent's peer group might offer support and control with regard to smoking and quitting as well as other sources within an individuals network (e.g., teachers, sport club coaches, and other family members).

Additionally, adolescent perception of parenting changes over time; that is, individual scores on the parenting dimensions vary across measurements. Therefore, it would be interesting to investigate whether stable and unstable parenting over time has predictive properties.

One limitation of this study is that it could not be determined whether lack of parental control implies that parents are not willing or trying to exert control. Stattin and Kerr (2000) demonstrated the exertion of parental control is a complex interplay between the willingness of parents to monitor their children and the willingness of the child to disclose information. Hence, although we found that a lack of parental control precedes adolescent smoking initiation, an alternative explanation might be that if the adolescent is smoking,

it causes him or her to withdraw from his or her parents (see also Engels et al., 2005; Finkenauer, Engels, and Meeus, 2002). While we did not find evidence for this process of parental disengagement, future studies with more longitudinal data and larger samples with a broader age ranges could better test what this study that comprised only one group of initiators could.

Additionally, our use of exclusively adolescent (self-)reports can be viewed as a limitation. However, regarding adolescent smoking, self-reports are considered to be reliable and valid as long as total anonymity is guaranteed (e.g., Engels, Knibbe, de Vries, Drop, and van Breukelen, 1999; Williams, Eng, Botvin, Hill, and Wynder, 1979).

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1. Confidentiality procedures are available from the first author.

### Glossary

*Parental Control*: a continuum that ranges from restrictiveness to permissiveness.

*Parental Support*: described as the variation in the amount of parental responsiveness.

## RÉSUMÉ

### Soutien et contrôle parental et la consommation de tabac chez les jeunes adolescents: Une étude longitudinale

Le but de cette étude est d'examiner le rôle du soutien parental dans le commencement, l'augmentation, la continuation et l'arrêt de la consommation de tabac chez les jeunes adolescents. Les données longitudinales, collectées tous les six mois sur une période d'un an, ont été collectées à Utrecht, aux Pays-Bas, pour 1.012 adolescents en 2000. Les régressions logistiques longitudinales ont démontré que seul un faible contrôle parental a joué dans le fait de commencer à fumer chez les adolescents, mais ni le soutien ni le contrôle parental n'ont provoqué l'augmentation ou la continuation de la consommation de tabac chez les adolescents. Le fait que les parents fumaient a joué un rôle important dans le fait que les adolescents ont continué ou arrêté de fumer. Des suggestions basées sur ces constatations ont été formulées pour des programmes de prévention. Une limitation majeure réside dans le fait que cette étude a été entièrement basée sur des rapports faits par des adolescents.

## RESUMEN

### Apoyo y control paternal y fumar prematuro entre adolescentes: Un estudio longitudinal

El objetivo de este estudio es examinar el papel de apoyo paternal a la iniciación, crecimiento, continuación y terminación de fumar en los adolescentes jóvenes. Datos longitudinales han sido adquiridos cada seis meses en el plazo de un año, en los Países Bajos en la región de Utrecht entre 1,012 adolescentes jóvenes en 2000. Las regresiones logísticas longitudinales



demonstraron que solamente el bajo control paternal pronosticó la iniciación de fumar pero ni apoyo ni control pronosticó la crecimiento o la continuación de fumar. El status de fumar paternal era importante en la continuación y cesación del hábito fumar. Propuestas basadas en estos resultados estan hechas por programas para la prevención de fumar. La mayor limitación es que el estudio solamente usó informes de los adolescentes.

### THE AUTHORS



**Endy den Exter Blokland** graduated with a master's in developmental psychology in 2000. He started working at the Department for Child and Adolescent Studies at the University of Utrecht after graduation to coordinate the fieldwork of a longitudinal study about adolescent smoking and commenced his thesis in 2001 using data from this study.



**William W. Hale III**, a clinical psychologist, is an assistant professor at the Department of Child and Adolescent Studies, Utrecht University, The Netherlands. He obtained his Ph.D. at the Department of Biological Psychiatry, University of Groningen, in 1997, on his work on nonverbal behaviors and clinical depression. Since then he has worked as both an assistant professor and a cognitive-behavioral therapist for Maastricht University and later for Utrecht University. Currently, he is involved in research on adolescent depression and anxiety and the effects that peer and parental factors have on these pathologies.



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**Wim Meeus**, Ph.D., is full professor of adolescent development. Research interests include development of identity and personality in adolescence, adolescent relationships, and psychosocial problems.

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