General parenting, anti-smoking socialization and smoking onset

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Abstract

A theoretical model was tested in which general parenting and parental smoking predicted anti-smoking socialization, which in turn predicted adolescent smoking onset. Participants were 4351 Dutch adolescents between 13 and 15 years of age. In the model, strictness and psychological autonomy granting were related to lower likelihood of smoking onset, and parental smoking was positively related to smoking onset. Involvement and strictness were positively related to anti-smoking socialization, whereas parents who smoke where less likely to be engaged in anti-smoking socialization. In turn, anti-smoking socialization was negatively related to adolescent smoking. To test mediation, an asymptotic resampling method was used (bootstrapping); anti-smoking socialization appeared to mediate the links between involvement and smoking onset, strictness and smoking onset and parental smoking and smoking onset. In addition, parental smoking appeared to moderate the link between anti-smoking socialization and smoking onset. Implications for prevention were addressed.

Introduction

In preventing their offspring from involvement in risk behaviors such as smoking, parents face a major challenge. Adolescence has been identified as the period in life in which experimentation with smoking increases dramatically [1]. Of all addictive behaviors, cigarette smoking is the one most likely to become established leading to full-fledged addiction [2]. Because adolescents constitute the majority of all new smokers, the focus of prevention campaigns should be on how to prevent them from taking up smoking. The present study examined the role of parents in adolescent smoking by looking at general parenting, parental own smoking and anti-smoking socialization.

The first important mechanism by which parents affect their children’s smoking is through their own behavior. Parents function as important role models [3] and parental smoking is considered to be a consistent predictor of adolescent smoking [4–6]. Secondly, modulation of the child’s behavior takes place by employment of general parenting. Scholars have distinguished three parenting dimensions: ‘involvement’, ‘strictness’ and ‘psychological autonomy granting’ [7, 8]. Involvement relates to the extent to which children perceive their parents as loving, responsive and involved. Strictness taps the extent to which children perceive their parents as monitoring, supervising and limit setting. The level on which parents are perceived as employing non-coercive, democratic discipline and encouraging expressing individuality taps the psychological autonomy granting dimension. Parenting practices characterized by involvement in the child’s activities, warmth and support, yet also by control and...
limit setting, have been associated with lower odds of smoking [9, 10]. Psychological autonomy granting with respect to smoking has hardly received any attention. Because this concept relates to encouraging individuality and making own decisions, we expected the use of democratic disciplinary practices and parental encouragement of child autonomy to decrease the risk of adolescent engagement in experimenting with smoking.

Thirdly, in addition to general parenting practices (We consider general parenting practices as a synonym for general socialization, whereas smoking-specific parenting practices are synonymous for anti-smoking socialization. We prefer to talk about anti-smoking socialization since we will not discuss the separate, distinct practices.) (general socialization), parents may engage in anti-smoking socialization, which includes setting rules or transmitting knowledge, attitudes and skills to prepare children to resist smoking [11] (e.g. quality of communication and rule setting) and are thought to be easier to modify than general parenting practices [12]. Most studies on anti-smoking socialization found lower smoking rates among children whose parents employ anti-smoking socialization [12, 13]. However, these studies are often cross-sectional and conducted among small samples.

In a review, Darling and Steinberg [14] suggested that general parenting practices are critical in forming the context that steers the effectiveness of specific parenting practices, and they argue to maintain the distinction between general and more specific parenting practices to be able to address questions concerning this effectiveness. Nevertheless, there are hardly any studies that include general socialization and smoking-specific socialization. Other than testing the moderating role of parenting styles on the effectiveness of smoking-specific parenting practices, the present study focused on the direct role of general parenting and how general parenting dimensions indirectly affect smoking through anti-smoking socialization. Despite this underexposed field of research, the assumed relationship between general and smoking-specific socialization is plausible; parents who are more likely to monitor their child’s activities and employ control can be expected to control their child’s smoking behavior more for instance by employing smoking-specific rules. On the other hand, parents who are more involved and responsive may be more likely to discuss smoking-related issues. Parents who employ psychological autonomy granting probably are less likely to interfere in the young adolescents’ life and may therefore be less engaged in employing anti-smoking socialization.

In the present study, we explored the relationships between general parenting and anti-smoking socialization longitudinally with the latter concept based on the five smoking-specific parenting practices that were derived from Henriksen and Jackson [11]. In exploring the field of smoking-specific parenting they introduced five parenting practices, which were found to be related to adolescent smoking. The construct anti-smoking socialization in the present study was based on the same items and therefore we expected anti-smoking socialization to be related to lower odds for smoking onset. Moreover, we expected parents to be more engaged in anti-smoking socialization if they were more involved and stricter. We expected parents who were smokers themselves or those who emphasized the importance of psychological autonomy to be less engaged in anti-smoking socialization.

To our knowledge, only two studies focused on the link between general and smoking-specific parenting. In a cross-sectional study among 856 adolescents, Harakeh et al. [15] found that support, strict control and psychological control were positively related to the frequency and quality of communication about smoking. In turn, higher quality of communication was associated with lower smoking rates, whereas more frequent communication about smoking was positively related to adolescent smoking. In a longitudinal study among 382 adolescents, Chassin et al. [16] found that both general parenting styles and smoking-specific parenting accounted for unique explained variance in adolescent smoking. Adolescents with authoritarian and authoritative parents were most likely to report smoking-specific punishment and smoking-related discussions. No mediated effects of smoking-specific discussion and punishment were found.
It has been argued that smoking parents can do little to dissuade their children from smoking and have low credibility as sources of anti-smoking socialization [17]. Ambivalent results have been reported; some studies indicated that even smoking parents’ socialization efforts may prevent children from taking up smoking [13, 17, 18], whereas others showed that effects of anti-smoking socialization were confined to non-smoking families [16]. Therefore, the present study also addressed the moderating role of parental smoking in the association between anti-smoking socialization and adolescent smoking.

In conclusion, the present study elaborated on the aforementioned studies, by testing a theory-based model assuming that general parenting and parental smoking not only affects adolescent smoking directly but also through anti-smoking socialization (Figure 1). Moreover, whereas other studies either used small convenience samples or a cross-sectional design, we used a nationwide sample with adolescents that were followed >2 years (22–24 months) in a two-wave longitudinal design. In addition, we tested for moderating effects of parental smoking.

**Methods**

**Procedure**

Participants were Dutch students that took part in the first two waves (22–24 months in-between) of a longitudinal study on precursors of smoking, which was set up with the approval of the Dutch Central Committee on Research Involving Human Subjects [for more details see 19, 20]. A probabilistic random selection of Dutch schools was obtained in four regions in The Netherlands. Of the 55 secondary schools that were randomly approached, 33 school boards finally agreed to participate. Participation in other studies was the main reason to refuse cooperation; it is unlikely that these schools are different from the schools that agreed to participate. From each school we selected all classes of the first and second year of secondary education, resulting in a total of 478 classes. Students completed self-report questionnaires during one lesson (50 min) with the classroom teacher acting as a survey administrator. Students’ names were not recorded on the surveys. Each student’s name was linked to a personal respondent number on the

![Conceptual model](http://her.oxfordjournals.org/)

**Fig. 1.** Conceptual model.
questionnaires. Teachers received the list with names and related numbers and had to make sure that every student received the questionnaire with its related respondent number. Moreover, every teacher had received brief instructions about the procedure that emphasized the confidentiality of responses and contained instructions on how to handle questions from the respondents. Non-response was mainly due to absence on the day of assessment; only 15 explicit refusals from adolescents were recorded. In all schools, one CD (music) voucher was randomly allotted to one of the respondents in each school year. The second measurement took place 2 years after the first and followed the same procedure. Attrition rate across the first and second measurement was 24.86%. Dropouts ($N = 2239$) were older ($P < 0.01$) and were more likely to report lifetime smoking at T1 ($\chi^2 = 59.75, 1, P < 0.001$). Moreover, those respondents who participated in both waves ($N = 6769$) were to some extent higher educated ($\chi^2 = 18.85, 3, P < 0.001$), were more likely to have parents who never smoked ($\chi^2 = 24.34, 2, P < 0.001$) and were more likely to report higher psychological autonomy ($P < 0.001$). Dropout between the two measurements was mainly due to the fact that a large number of students had moved to other locations. Therefore, these students did not have the opportunity to participate in the second measurement. No major attrition was due to truancy since Dutch students have a compulsory attendance at school according to a strict government policy. Moreover, the students did not know at what day the questionnaire would be administered. To limit the number of respondents not filling out the questions on smoking, confidentiality was emphasized and every student received an envelop to enclose his or her questionnaire after completing it.

The initial sample (both participating in T1 and T2) comprised 6769 respondents, smokers as well as non-smokers. Because the aim of the study was to predict smoking onset, we selected the non-smokers on T1 resulting in a sample of 4386. From these 4386 respondents, 35 did not fill out the questions about smoking at T2, leading to a final sample of 4351. At T1, 19 respondents were 11 (0.4%), 1531 respondents were 12 (35.2%), 2051 respondents were 13 (47.1%), 686 respondents were 14 (15.8%), 62 respondents were 15 (1.4%) and 2 respondents were 16 years old (0.0%) (mean = 12.83, standard deviation = 0.75 years) and 53% were female. With respect to educational level, all levels of the Dutch school system were represented in the sample. Three categories were constructed: lower education level (30.9%), intermediate education level (general) (19.8%) and high education level (preparatory college and preparatory university education) (49.3%). Most of the respondents were born in The Netherlands (95.8%).

**Measurements**

**Adolescent smoking**

At T1, participants were asked to indicate their smoking status on a nine-point ordinal scale (1 = I have never smoked; 2 = I tried but I quit; 3 = I quit after smoking less than once a week; 4 = I quit after smoking at least once a week; 5 = I smoke on occasion; 6 = I smoke less than once per month; 7 = I smoke at least once per month; 8 = I smoke at least once per week and 9 = I smoke every day) [21]. The aim of the present study was to look at smoking onset; therefore, a new variable was constructed differentiating never smokers from ever smokers (category 1 versus 2–9). To predict smoking onset on T2, non-smokers at T1 were selected for the analyses ($N = 4351$).

**General parenting practices**

Perceived parenting was measured by three forced-choice scales [8], ranging from 1 to 5 (‘absolutely not true’ to ‘absolutely true’). Involvement ($\alpha = 0.76$) was measured with nine items (e.g. When you get a good grade, do your parents encourage you?). Strictness of control ($\alpha = 0.70$) was measured with six items (e.g. My parents know exactly where I am after school) and psychological autonomy granting ($\alpha = 0.69$) with nine items (e.g. My parents let me make my own plans for things I want to do). Research on the psychometric properties of the scale provides evidence for the internal consistency, external validity and test–retest reliability of
the three factors [22–24]. We chose to use dimensions, whereas using parenting styles requires dichotomization of continuous dimensions, which has been found related to methodological problems [25]. Mean scores were calculated for each dimension. Higher scores referred to more involvement, more strictness and more psychological autonomy.

Anti-smoking socialization
Five single items were used to measure adolescent perception of smoking-specific parenting [13]. The items were (i) My parents would allow smoking inside the house; (ii) My parents would not find out if I were smoking cigarettes; (iii) I would expect negative consequences if my parents found out about my smoking; (iv) My parents often talk with me about not smoking and (v) I would disregard explicit requests of my parents not to smoke. The first four items attempt to assess child perception of anti-smoking parenting efforts, whereas the fifth item measures the receptivity to anti-smoking parenting practices. Respondents were asked to respond to these statements on a five-point scale ranging from 1 (definitely not true) to 5 (definitely true). The five items aim to tap different aspect of anti-smoking socialization. Following a formative measurement perspective rather than a reflective perspective, we decided to construct an index rather than a scale. Formative indicators can be viewed as causing rather than being caused by the latent variable measured by the indicators [26]. The index was constructed by calculating a sum score.

Parental smoking
Respondents were asked to report whether their mother/father was a smoker or not. Combining both variables lead to the new variable—parental smoking—with three possible outcomes (two non-smoking parents, one smoking parent, two parents who smoke). Previous studies have shown that children are very well capable of adequately reporting parental smoking behavior [27].

Covariates
In addition to the main predictor variables in the model, we controlled for sex, age and education level.

Strategy for analyses
The model was tested as depicted in Figure 1 using structural equation modeling. Mplus was used to estimate our initial model [28] because it allows the input of both continuous and categorical (dichotomous) variables as independent and dependent variables. The weighted least square parameter estimator was used to estimate the parameters with robust standard errors and a mean- and variance-adjusted chi-square test statistic [28]. To handle missing values, we used the full-information maximum likelihood approach: parameters were estimated using all the available information in the data by casewise maximizing the likelihood of the observed data [29] with help of the expectation maximization algorithm [30].

To reduce the model complexity, we used parcels as indicators for the latent constructs that aimed to measure the different parenting dimensions [31, 32]. For each of the latent variable, items with equivalent factor loadings were split up into two groups, leading to two parcels representing the original factor structure of the latent variable. Scores on the parcels were computed by summing the items of each part. Factor loadings for the parcels were between 0.65 and 0.97.

To test mediation, we decided to use bootstrapping, an approach which is implemented in Mplus. The aim of bootstrapping is to generate a sampling distribution of an indirect effect by resampling the data set [33, 34]. In the present study, we drew 5000 times a pseudo sample (with replacement) from the observed sample. The primary benefits of bootstrapping include the fact that it has no distributional assumptions that the technique has high statistical power and is highly accurate in estimating Type I error rates. Moreover, whereas our aim was to test the model as illustrated including the three parenting dimensions (and thus multiple independent factors), as well as anti-smoking socialization, bootstrapping offers the opportunity to test mediation simultaneously without ignoring the presence of other independent variables in the model, which would not damage the theoretical conceptual model that we had in mind.
Additional, we tested the moderating effect of parental smoking. Three groups were formed: one group with non-smoking parents, one group with one parent who smokes and one group with two parents who smoke. Group differences of model parameters were tested by imposition of cross-group equality constraints. The chi square of the model with the path constraints to equality was then contrasted against the unconstrained model, a procedure which is standard in Mplus. Because testing the moderating influences for several parameters and many models will increase the risk of Type 1 errors, we decided to use $P < 0.01$ as significant criterion.

Results

Descriptive statistics
In the initial sample ($N = 6769$), 2238 (33.8%) reported lifetime smoking. Of this initial group, the never smokers on T1 were selected ($N = 4351$) and at T2, 1258 (28.9%) of these respondents reported lifetime smoking at T2. With respect to parental smoking, 2645 respondents reported having two non-smoking parents (60.8%); 1128 respondents reported having one parent that smokes (25.9%); and 578 respondents reported having two parents who smoke (13.3%). Appendix 1 shows the correlations between all the variables in the model. Smoking onset was positively related to age and parental smoking. Smoking onset was negatively related to education level, involvement, strictness, psychological autonomy granting and anti-smoking socialization.

Model testing
The basic model had a good fit ($\chi^2 = 78.07$, df = 8, $P = 0.00$). To rely on chi-square in large samples is not adequate because ‘excessive test power (due to large $N$) may prompt rejection of acceptable models’ [35]. Therefore, in addition to the chi square, we used the Root Mean Square Error of Approximation (RMSEA) [30, 36], and the Comparative Fit Index (CFI) [30, 37] as indicators of model fit. The CFI was 0.98 and the RMSEA was 0.05.

Table 1 shows the standardized estimates for the model. Of the three covariates that were included in the model, age was negatively related to anti-smoking socialization. Education level was (negatively) associated with smoking onset. First, we looked at the direct effects between the independent variables and the outcome variable. Of the three general parenting dimensions, only strictness and psychological autonomy granting were associated with lower risks for smoking onset. Parental smoking was positively related to smoking onset.

Regarding associations between independent variables and possible mediators, more parental involvement and strictness was associated with anti-smoking socialization. Parental smoking was negatively associated with anti-smoking socialization. In turn, anti-smoking socialization was negatively related to smoking onset.

Mediation
One of the aims of this study was to test the extent to which anti-smoking socialization mediated the relationship between general parenting dimensions and smoking onset. Mediation exists when a predictor affects a dependent variable indirectly through an intervening variable. In the present study, we tested the indirect effects of four independent variables on the dichotomous outcome through one possible mediator (i.e. anti-smoking socialization). Conditions for mediation are significant relations between independent variables and dependent variables, between independent variables and mediators, and between mediator and dependent variables [36]. Psychological autonomy granting was not significantly correlated to anti-smoking socialization and therefore not included in the mediation test. Bootstrapping procedure showed that associations between involvement and smoking onset (estimate $-0.045$, CI $= -0.031$ to $-0.012$), between strictness and smoking onset (estimate $-0.017$, CI $= -0.020$ to $-0.004$) and between parental smoking and smoking onset (estimate $0.087$, CI $= 0.045$ to $0.075$) were mediated by anti-smoking socialization, although effects were marginal.

Multigroup tests
Finally, we conducted multigroup analyses to test for possible moderating effects of parental smoking. No
differences were found in the links between the three parenting dimensions and anti-smoking socialization. With respect to the link between anti-smoking socialization and smoking onset ($\chi^2(2) = 10.84$, $P < 0.01$), we only found this association significant for the group with parents who do not smoke ($B = 0.07/0.17$, $P < 0.001$) and for the group with one parent who smokes ($B = 0.08/0.22$, $P < 0.001$). No significant relation between anti-smoking socialization and smoking onset was found for children with two smoking parents.

### Discussion

The present study showed that general parenting dimensions (i.e. strictness and psychological autonomy granting), parental smoking and anti-smoking socialization were predictors of smoking onset. General parenting dimensions and parental smoking were related to anti-smoking socialization. In turn, anti-smoking socialization was related to smoking onset among adolescents, although mediating effects of anti-smoking socialization were marginal. These results support the notion that both general and anti-smoking socialization as well as parental smoking account for unique explained variance [14] and to a certain extent general parenting and parental smoking provide the context for anti-smoking socialization.

With respect to the direct effects between general parenting dimensions and smoking onset, we found both strictness and psychological autonomy granting related to a lower risk of smoking onset, as expected. Although there was a significant correlation between involvement and smoking onset, the link was not significant in the multivariate model. This may seem surprising and in contrast with other studies [9, 10]; however, it is likely that the absence of a longitudinal effect was caused by the inclusion of anti-smoking socialization. In line with earlier studies, we found parental smoking associated with higher smoking rates [4–6].

Unlike direct links between involvement and strictness on the one hand and anti-smoking socialization on the other, psychological autonomy

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### Table I. Direct effects in the model tested

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<td>Education level—anti-smoking socialization</td>
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<td><strong>Covariates on outcome variable</strong></td>
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<td>Age—smoking onset</td>
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<tr>
<td>Education level—smoking onset</td>
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**Effects from independent variables on outcome**

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<td>Involvement—smoking onset</td>
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<td>Strictness—smoking onset</td>
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<td>Psychological autonomy granting—smoking onset</td>
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<td>Parental smoking—smoking onset</td>
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**Effects from independent variables on mediators**

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**Effects from mediators on outcome variable**

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<td>Anti-smoking socialization—smoking onset</td>
<td>$-0.18^{***}$</td>
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$^{***}P < 0.001$, $^{**}P < 0.01$, $^{*}P < 0.05.$
granting was not associated with anti-smoking socialization, i.e. adolescents from parents that scored high on psychological autonomy were less likely to engage in smoking-specific socialization. As expected, this finding indicated that parents, who emphasize psychological autonomy in raising their children, are more likely to encourage child autonomy rather than setting rules and being strict.

Involvement seemed the most important dimension in forming the appropriate context for anti-smoking socialization as this dimension illustrated the highest association with anti-smoking socialization. This supported the idea that parents who are involved try to influence their children’s behavior and are likely to use specific parenting practices to accomplish this.

With respect to associations between parental smoking and smoking onset, results were in line with the expectations we had; parental smoking leads to an increased risk of smoking onset. Parental smoking was also strongly negatively related to anti-smoking socialization. These results clearly indicate that the behavior of parents who smoke also affects the extent to which they engage in anti-smoking socialization or at least affect the perception of their children on how the parents deal with this issue.

Because the model implied so, we tested mediation. By conducting bootstraps, indirect effects of anti-smoking socialization were found on the links between involvement and smoking onset, strictness and smoking onset and between parental smoking and smoking onset. Point estimates are the product of the two regression coefficients and can therefore be small and still significant if the standard errors are small and the model fits well. Nevertheless, these findings support the idea that both general, and anti-smoking socialization, and parental smoking account for unique explained variance in explaining adolescent smoking onset. Only a small part of the variance in smoking onset is explained by the mediation of anti-smoking socialization.

A moderating effect of parental smoking was found on the link between anti-smoking socialization and smoking onset. This effect was only significant for groups in which both parents were non-smokers and in families in which only one of the parents was a smoker. These effects also show very clearly that anti-smoking socialization is less effective in families where both parents smoke, which may be explained by the child perception of parental lack of credibility to implement smoking-specific rules, rules which these parents obviously violate themselves by maintaining smoking [17, 18]. Not only did we find a significant effect for children with two non-smoking parents but also for children who have one parent who smokes. This may be explained by a buffering effect of the other (non-smoking) parent. Moreover, and although somewhat speculative, smoking behavior of the other parent may be used by the non-smoking parent as an instrument in warning the children and in implementing anti-smoking socialization in terms of warnings and discussing the consequences (‘be careful or you will end up addicted like your…’).

Among the strengths of this study are the large sample size and longitudinal design. Most studies that focus on anti-smoking socialization were conducted among relative small samples; the large sample size used in this study contributes to the reliability and generalizability of the results. Whereas cross-sectional data lack the ability to draw conclusions about causality, longitudinal data are more informative in this regard. Moreover, cross-sectional models may be biased by the inclusion of adolescents who already smoke. These features, including the fact that we focused on both general parenting as well as on anti-smoking socialization, give us greater confidence in understanding the effects of parenting on adolescents smoking.

Limitations

Despite these strengths, the present study is subject to a number of limitations. First, one might question the reliability of self-reports. With respect to smoking, we acknowledge the advantages of physiological measures or multiple informants. However, Harakeh and colleagues [38] have shown that self-report is an appropriate way to measure adolescent smoking. Furthermore, some scholars may question why we used perceived parenting by adolescent reports. Fuligni and Eccles [39],
however, argued that it is not parenting itself, but the subjective adolescent perception of parenting practices that influence adolescent behavior; or in other words, the psychological reality for adolescents is the version constructed by themselves [5]. Further, parental reports have even been found more biased than adolescents’ self-report [38]. Nevertheless, again information by multiple informants would have increased reliability. Another caveat refers to the incompleteness of the model we tested. Anti-smoking socialization was based on five smoking-specific parenting practices, although one might suggest there are more specific parenting practices conceivable. Apart from the parenting factors we assessed in the present study, there are numerous factors that may influence adolescent smoking onset. One might think for instance of the role of peers or personality characteristics. Regarding peers, they may affect the effectiveness of parental efforts to prevent the child from smoking as the child grows older and aspects of popularity and social pressure become increasingly important. Moreover, due to the fact that questionnaires were administered in classrooms may suggest that issues related to peers become more salient than if the questionnaires were completed in the home environment. We do not intent to underestimate the impact of peers; however, in this study we concentrate on smoking onset. Parents have been found to have an impact in smoking onset, not only directly but also by influencing the selection process of peers. In other words, children with parents are more likely to select peers who smoke [40] and parents are considered to be the ‘friendship-formation gatekeepers’ [41]. Nevertheless, the aim of this study was not to offer a full explanation for adolescent smoking onset, yet to focus on only a small but significant aspect of the role that parents have in affecting their children by testing a theoretical model. Moreover, we were not able to include some background variables that might have influenced the outcome. The effect of socioeconomic status for instance might affect both the effect parents have on their children as well as the actual risk of smoking of their children.

Besides possible incompleteness of the model, one may come up with alternative models that may influence child smoking behavior. For instance, it is conceivable to test a similar model in opposite direction, in which child smoking influences parenting behavior. Although this is an important question, this was also not the aim of this particular theory-based study. Future studies should focus on this model and other models that may include social norms, peer/sibling smoking and other aspects of family environment. Another limitation refers to the extent to which the results may be generalizable to other countries or cultures. The study was conducted in The Netherlands and in a particular time frame, and although the findings are interesting, we have to acknowledge that the social climate and parent–child relationships in one particular country (i.e. the Netherlands) may not be generalizable to other countries or cultures. Finally, the effects that we found were mostly marginal to medium in strength, which may be explained by the large number of parameters in the models to be estimated in our theoretical model. A number of arguments can be given for the idea that small effects can, in fact, be important. Small effects may be important in a practical context and may accumulate into larger effects over time. Moreover, small effects may have important theoretical importance in a sense that it helps us to better understand the mechanisms involved in adolescent smoking onset [42–44].

Conclusions

Our findings support the notion that general parenting affects adolescents’ smoking in early and mid adolescents both directly and indirectly through its effect on anti-smoking socialization. Although we tested a theoretical model, the findings of our study support the use of strategies in prevention campaigns that include aspects of smoking-specific parenting practices. These specific parenting practices should be imbedded in a larger parenting framework including not only general parenting but also the importance for parents not to smoke. The latter
is important not only because of the direct preventive effects of parental non-smoking but also because parental smoking negatively affects anti-smoking socialization. It seems important for parents to employ a coherent policy with respect to smoking, meaning that parental behavior with respect to smoking, and general parenting and anti-smoking socialization should be congruent and supporting each other. This way, effectiveness of such an anti-smoking policy within the family is optimized.

Conflict of interest statement

None declared.

References

Appendix I. Correlations between the predictor variables

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<td>0.31&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological autonomy granting</td>
<td>0.21&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.05&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.20&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.11&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.18&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental smoking</td>
<td>-0.01</td>
<td>0.05&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.13&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.00</td>
<td>-0.06&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.04&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td>Anti-smoking socialization</td>
<td>-0.00</td>
<td>-0.05&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.07&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.12&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.11&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.01</td>
<td>-0.32&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td>Smoking onset</td>
<td>-0.02</td>
<td>0.05&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.12&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.07&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.07&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.07&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.10&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.17&lt;sup&gt;a&lt;/sup&gt;</td>
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<sup>a</sup>Correlation is significant at the 0.01 level (two tailed)
<sup>b</sup>Correlation is significant at the 0.05 level (two tailed).