'One cigarette for you and one for me': children of smoking and non-smoking parents during pretend play

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ABSTRACT

Objective To investigate whether perceived parental smoking is related to pretend smoking in young children and whether children influence each other in pretend smoking.

Methods Children who reported to have at least one smoking parent were coupled with children who had non-smoking parents. Both children were then asked to pretend that they were adults having a barbeque party. During their role playing, the children were observed in order to assess their pretend smoking behaviours and to examine whether children of smoking parents were more likely to initiate pretend smoking. Children were tested at their schools; the sample consisted of 206 children between 4 and 7 years of age (mean age=5.14, SD=0.87), of which 54.4% were girls. The main outcome was whether a child pretended to be smoking and whether the child initiated or followed the other child in this behaviour.

Results During their play, 63.6% (n=131) of the children pretended to smoke. Children of smoking parents were more likely to initiate pretend smoking than to follow.

Conclusions Through their own smoking, parents appear to be able to influence the way in which their children interact with peers regarding pretend smoking. More specifically, children of smoking parents might instigate smoking among their peers.

INTRODUCTION

Despite the negative beliefs that young children in general explicitly express towards smoking,[1–4] evidence is accumulating that even at a very young age, children also develop ideas and expectations about how cigarettes fit into adult life.[2 5–8] To gain insight into these attitudes, rather than directly asking what children think of smoking, indirect measures have to be used.[2 3 7] Some studies using indirect measures have acknowledged the idea that positive attitudes towards smoking appear to be already formed early in life, and also revealed that this process is set into motion by having smoking parents.[2 5] In one such study,[5] children aged 2–6 years old were invited to shop for groceries in a miniature store and subsequently act out an evening with friends. Findings revealed that children of smoking parents were more likely to 'buy' and play with cigarettes than children of non-smoking parents. In another study, children aged 4–8 years old were asked to pretend that they were adults having dinner.[2] Results demonstrated that children were more likely to pretend to smoke when they reported having at least one smoking parent compared to children of non-smoking parents. Findings from both studies indicate that children learn that smoking is a normative behaviour in certain situations by observing their parents smoking.[9]

In the present study, we extended these studies by taking peers into account. An abundant number of studies have demonstrated that individuals who are friends with smokers are more likely to smoke than those with non-smokers as friends. In her review, Kobus[10] concluded that—despite the overwhelming empirical evidence supporting the assumption of peer influence—many questions remain unanswered about how peers exactly contribute to smoking. For instance, the mechanisms of peer influence appear to be more covert and subtle than commonly thought. Instead of feeling pressured to smoke, decisions regarding smoking tend to reflect choices about fitting in, social approval, popularity and autonomy. How these processes exactly work, particularly during the early phases of smoking uptake, remains unknown. Nevertheless, the idea that peers play a substantial role in smoking uptake is also evident from the fact that one's first puffs of a cigarette are often taken in the presence of peers.[10 11]

Parental smoking might constitute an important factor in peer processes involved in initial experiences with smoking.[12 13] Research has revealed that individuals often steal their first cigarettes from parents or received them from friends who themselves mostly took the cigarettes from their parents.[11 14–17] Consequently, it is plausible that children of smoking parents are a catalyst for smoking uptake among their peers, especially as they appear to start smoking on average 1 year earlier than their peers.[15] Based on these findings, one might argue that, among a group of peers, the children of smoking parents are more likely to introduce smoking as they are at a higher risk for smoking due to their more positive norms about smoking as a result of having observed their parents smoking.[12 13] In the present study, this assumption was tested by coupling children of smoking parents with children of non-smoking parents and inviting them for pretend play. Consequently, we were able to observe whether the children of smoking parents were more likely to initiate pretend smoking than the children of non-smoking parents.

In addition to creating a play setting with a peer, in this study, children were invited to play in a less girlish setting. Instead of doing groceries or making

dinner in a kitchen,[2 5] we asked children to pretend that they were adults having a barbeque party. Children who reported having at least one smoking parent played with a child who had non-smoking parents. Children's reports were used to assess parental smoking, as these were found to be predictive of children's pretend smoking whereas parental reports were not.[2 5] Moreover, a recent review revealed that under-reporting of smoking is especially prevalent in populations in which smoking is seen as particularly undesirable.[18] Along with the public perspective on exposing children to secondhand smoking as being detrimental, it is very likely that parents of young children under-report their smoking. Therefore, children's reports of parental smoking probably better capture what behaviour children observe from their parents than what parents report themselves. Also, some smoking parents purposefully refrain from smoking around their children, to reduce their exposure to secondhand smoke and to prevent their children becoming smokers in the future.[19] Hence, in the present study we focused on children's reports of parental smoking as this, compared to parental reports, more adequately reflect what smoking behaviours children actually observe from their parents. We hypothesised that children who reported to have at least one smoking parent would be more likely to initiate pretend smoking during their play than children of non-smoking parents. Children of non-smoking parents were expected to mostly follow children with at least one smoking parent.

METHODS

Sample characteristics

This study was conducted at nine primary schools in The Netherlands. The final sample consisted of 206 children between 4 and 7 years of age (mean=5.14, SD=0.87), of which 54.4% were girls. The majority of the children were born in The Netherlands (99.5%). Of their parents, 36.4% had completed a low to intermediate level of education, while 61.7% were highly educated. Compared to national Dutch statistics, the present sample is characterised by an over-representation of higher educational levels.[20]

Design and procedure

After obtaining permission to participate from schools' directors, parents of the children in the first three classes (ie, the nursery classes and the first grade) received a letter with a description of the study and a consent form. A total of 77% of the parents gave active written consent. Children who were allowed to participate were tested in two sessions. In the first session, 329 children were interviewed individually by a research assistant. To avoid the children becoming aware of the main focus of the study, not all questions were related to smoking. For instance, children were asked about their favourite colour and food.

The second session took place at least 2 weeks after the first to ensure that the children would not remember questions from the interview. In the second session, children were invited to play with another child in a play corner set up with a party tent, garden furniture and a barbeque (see figure 1). All materials were appropriately sized for children. The garden table held a package of fake cigarettes, a non-functioning lighter, an ashtray and an oil lamp. To prevent children's brand awareness from affecting their pretend smoking, the package of cigarettes was of a relatively unfamiliar brand (at least in The Netherlands (JPS Red)). The fake cigarettes were bought in a party shop and were hardly distinguishable from real cigarettes. Children were asked to pretend that they were adults having a barbeque party. After the instruction, children were given a shopping crate with a large number of barbeque-related and general food-related toys and were told that all the shopping was already done. All materials in the corner and the shopping crate were placed in the same place for all dyads. The play sessions, which were videotaped, were observed and coded by a trained research assistant. Dyads were formed on the basis of child-reported parental smoking: Children who indicated during the interview to have at least one smoking parent were coupled with a child who reported to have no smoking parents. Children were also matched according to sex and age. No other criteria were used to match the dyads. This resulted in 62.6% of the children who participated in the first session participating in the second session.

After observing the children, research assistants phoned the parents to ask them questions regarding demographical background. The telephone survey lasted for approximately 5 min. Questions were mostly answered by mothers (74.8%). The data collection took place between September 2009 and March 2010. The study was approved by the ethical committee of the Faculty of Social Sciences, Radboud University Nijmegen, Nijmegen, The Netherlands.

Measures

Child's pretend smoking

Children were coded as pretend smokers when they took at least one 'puff'. Children who just inspected what was inside the cigarette box were not classified as 'smokers'.[2] When both children pretended to be smoking, the child who was the first to do so was coded as an initiator while the other child was coded as a follower. In total, 20% of the children were observed by two raters to test the inter-rater reliability for both variables. This reliability indicated perfect agreement between the raters for pretend smoking (κ=1.00)[2] and for initiative taking (κ=1.00).

Perceived parental smoking

Children were asked whether their parents smoked using a question for the father and the mother separately (ie, 'Does dad smoke?'; 'Does mum smoke?').[2] Response options were

Figure 1 Play corner with party tent, garden furniture and a barbeque in child sizes.

'yes' or 'no'. Based on these answers, the group of children was dichotomised into a group with non-smoking parents and a group with one or two smoking parent(s).

Strategy of analyses

Descriptive analyses were conducted to establish the prevalence of children who pretended to smoke during their play. The χ^2 test and Student t test were performed to test whether children who pretended to smoke and those who did not differed according to sex, age and parental educational level. A χ^2 test was also used to assess whether perceived parental smoking was related to pretend smoking. Finally, we examined whether children of smoking parents were more likely to initiate rather than follow pretend smoking compared to children of non-smoking parents by executing a non-parametric χ^2 test.

RESULTS

Descriptive statistics

Descriptive statistics for child and parent characteristics are presented in table 1. Findings demonstrated that, of the 206 children who participated in the play session, 63.6% (n=131) pretended to smoke. Yates-continuity-corrected χ^2 tests indicated significant differences in sex between children who pretended to smoke and those who did not (χ^2(df=1, N=206)=8.83, p<0.01, φ=−0.21): Boys were more likely to pretend to smoke than girls. Marginal differences were found in parental education level (χ^2(df=1, n=202)=3.83, p=0.05, φ=−0.14), demonstrating that children of parents with low and intermediate educational levels were more likely to pretend to smoke during play than children of parents with high educational levels. No significant association between age and pretend smoking was found (t(df=204, N=206)=−0.43, p=0.67).

Perceived parental smoking and pretend smoking

Children of smoking parents did not display significantly more pretend smoking during their play than children of non-smoking parents (χ^2(df=1, N=206)=0.02, p=0.86, φ=−0.01). At the dyadic level, it appeared that in most cases either both children pretended to smoke (59.2%, n=61) or both did not (32%, n=33). Thus, in only a minority of dyads did one child pretend to smoke (8.7%, n=9). The relationship between perceived parental smoking and pretend smoking was further analysed by conducting a non-parametric χ^2 test, which revealed that perceived parental smoking was significantly related to initiative taking (χ^2(df=1, n=61)=5.92, p<0.05), indicating that children with at least one smoking parent were more likely to start pretend smoking (65.6%) than to follow (34.4%).

Table 1 Descriptive statistics for child and parent characteristics by pretend smoking

Characteristic	Total (N=206)	Pretend smoking group (n=131)	No pretend smoking group (n=75)
Child's sex:			
Male	46%	53%	32%
Female	54%	47%	68%
Parental educational level:			
Low and intermediate	36%	41%	28%
High	62%	57%	71%
Perceived parental smoking:			
Smoking fathers	40%	41%	40%
Smoking mothers	24%	23%	25%
One or both parents smoke	50%	50%	50%
Child's age in years, mean (SD)	5.14 (0.87)	5.16 (0.86)	5.11 (0.89)

DISCUSSION

Parental and peer influences could both be explained by the social learning theory, which proposes that individuals learn through observation.[9] First, by observing their smoking parents, children learn that smoking is a normative behaviour in certain situations. They may also develop cognitive scripts of adult life in which smoking is incorporated.[2 5] Second, children appear to adopt smoking behaviours of their peers.[10] Our findings add to this knowledge that parents through their own smoking can increase vulnerability to smoking in their own children[12 13] and also probably indirectly in their children's friends.

Notwithstanding the large number of studies that already supported the applicability of the social learning theory in explaining similarities in smoking status among peers,[10] the current study elaborates upon this knowledge by demonstrating that these processes of modelling appear to be already visible among peers of a relatively young age. Next to social processes, cognitive processes play an important role when explaining smoking uptake in light of the social learning theory. Several reasons for smoking uptake among youth have already been identified, such as gaining social status and popularity.[10] In the present study, children were matched according to sex and age, although one might think of other constellations of play couples to gain insight into whether social status is related to whether or not a peer will follow the other peer. Peer influences might be explained by passive processes as smoking children model smoking to their peers, but children might also actively involve their peers in (pretend) smoking.[10] Based on expressions that children made during their play, one might expect that active processes of socialisation are applicable as children of smoking parents sometimes used subtle forms of peer pressure to persuade the child of non-smoking parents to 'smoke'. However, children of non-smoking parents seemed to actively discourage smoking as well. Although observational data are difficult to quantify, we present a selection of quotes from the children during their play (see appendix 1) as these expressions are illustrative of the findings and also because they might be helpful for future research.

A next step for future research might be to conduct an experiment in a 2×2 factorial design by creating dyads based on parental smoking of both the children. Such a study design would strengthen the possibility of a causal interpretation of the observed results from the current study. As parents may be able to influence the way in which their children interact with peers through their own smoking, another step would be to disentangle which role parenting plays in processes of peer influences. This seems important given that evidence increasingly indicates that smoking-specific parenting plays a substantial role in explaining smoking uptake. For instance, parents could communicate the disadvantages of smoking to their children or establish a full household smoking ban. Both strategies have been promising in keeping children from smoking.[21 22] Thus far, little is known about whether and how smoking-specific parenting could be effective in preventing children from smoking, especially when children have smoking friends. Perhaps parents can help their children become resistant to peer influences through their parenting. It might even be that children of these parents actively discourage their peers from smoking.[10] All in all, it seems warranted that research starts to zoom in on underlying mechanisms of peer influence in early

What this paper adds

- This is the first study to reveal that children of smoking parents have well established ideas about smoking and act upon these ideas during pretend play, and at the same time also involve children of non-smoking parents in 'lighting up a cigarette'.
- This indicates that, by smoking themselves, parents place their children at risk for smoking uptake as well as likely make their children the instigator of smoking among their peers.

phases of smoking initiation and exactly how parents relate to this. Next to that, future research should disentangle what exactly constitutes smoking modelling. Children are considered to learn from many models and their final behaviour is a combination of what they have learnt observationally from various sources.[23] Therefore, the question is what it is that smoking parents exactly do, that make their children choose them as a model. For instance, it would be interesting to detect possible differential influences of fathers' versus mothers' smoking on boys versus girls.

In interpreting the findings of the current study, it is crucial to remember that the children in this study did not engage in real smoking. Therefore, it is challenging to generalise these results to true smoking behaviours. However, it is promising that recent research has demonstrated that adolescents' positive implicit attitudes predicted their smoking initiation prospectively above and beyond the effects of explicit attitudes.[24] Rather than directly asking what children think of smoking, we used pretend play as an indirect measure to assess their ideas and expectations about smoking.[2 3 7] As such, it can be expected that this play measure is predictive of actual behaviour as well. Nevertheless, it is essential to use prospective designs to test whether pretend smoking is related to actual future smoking behaviours. Finally, we would like to emphasise that in this study parental smoking was measured with children's reports only, which probably does not completely reflect actual parental smoking. Although it might be that children's reports better capture what their children perceive from their parents than parental reports, it is necessary to replicate this study and also include biochemical measures. For instance, it would be interesting to measure hair cotinine concentrations in the children,[25] and compare these measures with the given answers by the children and the parents.

Despite the need for additional research, the present study might contribute to successful and effective smoking prevention. By now, a considerable number of school-based programmes targeting adolescents have been developed and executed, but with relatively little long-term success in preventing smoking.[26–28] Perhaps focusing on adolescents is inadequate as ideas about smoking may be formed already in early childhood.[3 5–7] Moreover, as parents seem to affect their own children's ideas about smoking and indirectly those of their children's peers, it might be worthwhile to focus on children and their parents. Nowadays, programmes targeting smoking parents who have young children focus primarily on reducing children's exposure to secondhand smoke.[29] The findings of the present study suggest that we should go one step further. That is, parents should not model smoking behaviour in any way. Consequently, they should not smoke when there is even the slightest chance that children may observe them. Instead of smoking outdoors or by the kitchen fan, parents with young children should be supported to stop smoking completely.

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Competing interests None.

Ethics approval This study was conducted with the approval of the ethical committee of the Faculty of Social Sciences, Radboud University Nijmegen.

Contributors All coauthors contributed equally to this study.

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APPENDIX 1

Quotes From Children During The Play Session

Initiative taking in pretending to smoke or not

For smoking

A 4-year-old boy with smoking parents twice asked, 'Shall we smoke a cigarette?'. A boy of the same age with non-smoking parents refused both times by saying, 'No, I'm barbecuing'. A few minutes later the boy with smoking parents said, 'I am going to smoke a cigarette'. The boy with non-smoking parents responded, 'I'm not'. The boy with smoking parents replied, 'Yes, you have not smoked for the whole day'. When the boy with non-smoking parents said, 'Are we going to smoke a cigarette?', the boy with smoking parents replied, 'One cigarette for you and one for me, like people are used to doing'. Both children then pretended to smoke.

A 4-year-old girl with smoking parents asked three times, 'Do you want a cigarette?'. A girl of the same age with non-smoking parents refused all three times, saying 'No'. A few minutes later, the girl with smoking parents asked, 'Do you want a cigarette? Then you may put the cigarette in here', and she pointed to the ashtray. The girl with non-smoking parents said, 'OK'. The girl with smoking parents gave her a cigarette, and both children pretended to smoke.

For not smoking

When a 5-year-old girl with smoking parents opened the pack of cigarettes, she said: 'Look, there are cigarettes in here'. A 6-year-old girl with non-smoking parents responded, 'We do not need cigarettes' and put them away. None of the children pretended to smoke.

A 5-year-old boy with smoking parents offered a 4-year-old child of non-smoking parents a cigarette: 'Do you want a cigarette?'. The second boy replied, 'No, now we're done with the cigarettes', and he put the package away. None of the children pretended to smoke.

Demonstrating detailed knowledge of smoking behaviour

A 6-year-old girl with smoking parents and a girl of the same age with non-smoking parents both pretended to smoke. The girl with smoking parents demonstrated to the other girl how to light up a cigarette. She explained, 'You have to light up the white side instead of the yellow side'. After that she said: 'You must hold it like this' and held the cigarette between two fingers.

As both children pretended to smoke, a 6-year-old boy of non-smoking parents asked, 'On which side of the cigarette you must puff?'. A boy of the same age with smoking parents replied, 'You must put the cigarette in the mouth at the side of filter instead of the other way around'. He also demonstrated this to the child with non-smoking parents.

A 4- year-old girl with non-smoking parents was given a cigarette by a girl of the same age with smoking parents. The girl with smoking parents first pretended to light up a cigarette, then put the cigarette in the mouth of the other girl. After that, she demonstrated how to smoke, saying, 'You put the cigarette in your mouth and then you blow the smoke out of your mouth like this'.

Awareness of social desirability

When a 5-year-old boy saw that he was being observed as he pretended to smoke, he said, 'You are not allowed to see it'.

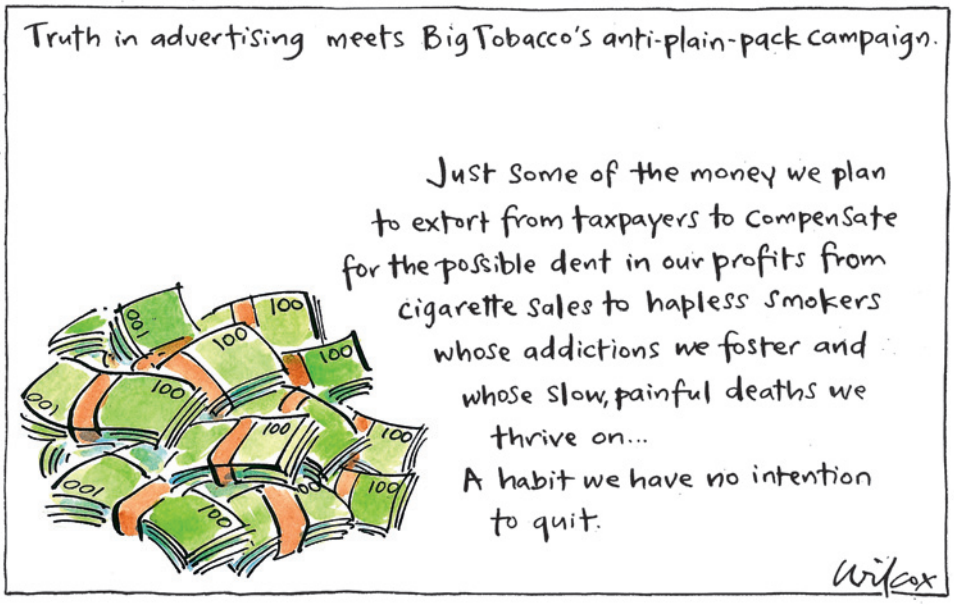
When both children were sitting at the table, a 6-year-old girl with smoking parents said, 'Everyone must hide their cigarettes'. She then put her own cigarette under the table.

A 5-year-old girl with smoking parents started smoking when the other girl of the same age went to the toilet.

Contradictory messages

A 7-year-old girl with non-smoking parents pointed to the cigarettes and said, 'Look, yucky'. Later, she pretended to smoke.

When a 6-year-old boy with smoking parents pretended to smoke, the other boy of the same age with non-smoking parents reacted, 'That's disgusting'. A few minutes later this boy also pretended to smoke.



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