

Smoking in Early and Mid-Adolescence

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ABSTRACT: *Objective:* Smoking among young people is declining in many European countries, although in some (particularly Central and Eastern Europe), the rates among young females are increasing. We compared the risk factors and variables for smoking in early- versus mid-adolescence with a view to helping policy makers identify age-specific prevention strategies. *Methods:* An anonymous questionnaire on smoking habits was administered to 1383 underage students in the Veneto Region (northeast Italy) in 2010, consisting of multiple-choice questions using words, numbers, and graphical illustrations designed to make it appeal to the adolescent age group. *Results:* Among 611 sixth-grade students, 93.5% of the boys and 95.3% of the girls had never smoked, although this was true of 53.2% of the boys and only 38.8% of the girls among 772 ninth-grade students. The first cigarette was smoked in different social settings and places, depending on the adolescents' age group. Age also influenced how much adolescents approved of smoking and their perception of how much their parents approved of them smoking. Adherence to the rules of their group of friends was the only variable found associated with smoking in both the age groups considered. *Conclusion:* We found experimental or habitual cigarette smoking rare among sixth graders, but much more common among ninth graders. Focused preventive measures are therefore needed in the intervening years. The transition from middle school to higher education coincides with a sharp drop in the perceived regulation of smoking at school, emphasizing the need for action to establish high schools as smoke-free environments.

(*J Dev Behav Pediatr* 33:449–455, 2012) **Index terms:** prevention, smoking habit, adolescent.

The prevalence of smoking among young people is declining in many European countries, but in some places—and particularly in Central and Eastern Europe—the smokers among girls and young women are still increasing. In Italy, for example, after 6 years of declining figures, the year 2009 saw an increase in the number of smokers, and this growth was more evident among the female gender and in the younger age groups. There are >1,700,000 young (15–24 year old) smokers in Italy, and as a percentage of the population, they increased from 24% in 2008 to 29% in 2009. Girls accounted for most of this increase, their percentage rising from 17.5% to 23.8%, as opposed to an increase from 30.3% to 34% among boys.¹ Smoking is in itself harmful to health, and tobacco is classified as a gateway \pm drug, i.e., adolescents who smoke are more likely to start drinking alcohol and using illicit drugs than non-smoking

adolescents.² Smoking is also associated with a host of other types of risky behavior, such as fighting and engaging in unsafe sex.³

The argument for preventing smoking among adolescents is based on evidence that if people do not take up smoking in adolescence, they are unlikely to do so at all; and the likelihood of adults giving up the habit is inversely related to the age at which they started smoking.^{4,5} Smoking experimentally in adolescence coincides with a significant 16-fold increase in the risk of becoming a smoker in adulthood by comparison with nonsmoking adolescents.⁶ Once people have acquired the habit, it is difficult to stop, and smoking is likely to be a long-term addiction. These data confirm the importance of primary prevention programs directed at adolescents to avoid them smoking. The wish to “experiment” typical of this age also encourages some teenagers to try cigarettes, but for youngsters who have already tried 1 or 2 cigarettes, the odds of them acquiring the habit is 4 times higher than for those who have never smoked.⁷ Since trying cigarettes in childhood makes people more vulnerable to becoming smokers, efforts at prevention focusing on younger children should be designed to discourage any experimentation at all, even just a puff.

Some studies on what induces adolescents to take up smoking have revealed the multifactorial nature of this phenomenon: the influence of peers⁸ and parents⁹ has been well documented, as have certain personality traits

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relating to anger and anxiety,¹⁰ and personal resources such as coping. In addition to these individual predictors, there are others that are specific to the young teenager's school environment. One such factor that is particularly important concerns teachers' and students' awareness of and compliance with the school's no-smoking rules, with regard to both the purchase and the consumption of cigarettes.¹¹ Studies on such issues have usually focused on the later stages of adolescence, however, or on the adolescent age group as a whole. Early-adolescence should be a time when cognitive, emotional, sexual, and psychological changes encourage individuals to engage in adult roles, which includes taking risks as individuals and experimenting with "adult" types of behavior. Individuals in mid-adolescence often feel invincible, convinced that nothing bad could possibly happen to them, and this makes them take risks. Experimenting with alcohol, cigarettes, marijuana, and sexual intercourse becomes markedly more common during this phase.

The main aim of this study was to assess the risk factors and conditions that affect smoking in early-adolescence, as compared with the factors and variables correlating with smoking in mid-adolescence, with a view to helping policy-makers to define age-specific prevention strategies.

METHODS

Participants

Our survey was conducted between March and May 2010 in the municipality of Padua (a province with a population of 442,023) in the Veneto Region of north-eastern Italy. Italian law forbids the sale of cigarettes to anyone under 16 years old. The study was approved by school principals and teaching staff, and was included in an educational scheme approved and signed by parents. The purpose of the study was explained to the students in detail, and they voluntarily agreed to take part in the study. The data were anonymous because the questionnaire was administered anonymously. The Ethical Review Board of the Veneto Oncological Institute examined the study design and approved the survey. Of the 1580 students initially invited to take part, 197 did not answer the questionnaire because they were absent on the day of the survey for various reasons (e.g. illness, skipping school, job training, etc.). None of the parents or students refused. We investigated a sample of 1383 underage students, 611 (44.2%) sixth-graders and 772 (55.8%) ninth graders.

Materials

Our questionnaire on adolescents and smoking was anonymous and consisted of multiple-choice questions that included words, numbers, and graphical illustrations to make them more appealing to this particular age group (examples of questionnaire items are mentioned in Supplemental Digital Content 1, available at: <http://links.lww.com/JDBP/A37>). Briefly, respondents

were asked to indicate their basic demographic details (age and gender), then answer some questions investigating their environment in terms of the amount of exposure to smoking and its acceptance (the respondents' perception of the legitimacy of smoking by peers and teachers at school, parents at home, and friends, on a scale from 0 to 10, where 0 = total disapproval and 10 = total approval; their perception of how much smoking went on at their school, and how much parents and teachers smoked, on a scale from 0 to 10, where 0 = none and 10 = a lot).

Information was obtained on when the adolescents had begun to smoke experimentally by asking the following questions: When did you smoke your first cigarette? (never, last week, last month, last year, when I was ... years old); and When did you buy your first packet of cigarettes? (never, last week, last month, last year, when I was ... years old). The number of cigarettes smoked during the previous week was recorded by asking: How many cigarettes did you smoke yesterday ..., the day before yesterday ..., 3 days ago ..., 4 days ago ..., 5 days ago ..., 6 days ago ..., 7 days ago ...; and How much do you spend on cigarettes in a week, in Euro? (0, 1-5, 6-10, 11-20, 21-50, >50). Another question concerned total cigarette consumption: How many cigarettes have you smoked in your lifetime? (0, 1, up to 5, up to 15, up to 25, up to 100, >100).

Several questions were asked to assess the independent variables. Questions on the peer group's characteristics included: Among your 4 best friends, how many smoke? (none, 1, 2, 3, >3); How many people are there in your group? (I don't have a group of friends, 2-4 friends, 5-9 friends, 10-20 friends, >20 friends); What do you think about the group? (It is the ideal group that I really like to belong to; it is an important group that I like to belong to; it is a group I can fit in with; it is a group I tolerate; it is a group that I would prefer not to spend time with); What is your role within the group? (They do nothing without me; I am important in my group; I take part in the group; I adapt to my group; Nothing would change without me). Finally, participants were asked to assess their group's adherence to the rules, in terms of them "sticking completely to the rules," "sticking partially to the rules," "indifferent to the rules," "partially against the rules," "entirely against the rules." The students were also asked about the setting in which they were first tempted to smoke a cigarette: Have you ever been tempted to smoke a cigarette? Where did you smoke your first cigarette? Who did you smoke your first cigarette with? What did you do when you smoked your first cigarette? Respondents were asked to choose between various precoded options, with the aid of graphical illustrations.

As explained earlier in the text, the questionnaire was neither designed to capture a particular construct nor is it possible to attribute the questionnaire an overall validity for a single construct. The portion relating to the model of social influence, which evaluates the amount of environmental exposure to smoking and its acceptance

Table 1. Relative Frequency of Smokers by Sex and Age-Group

	Never Smoked	Smoked Only One Cigarette	Smoked >1 Cigarette	Habitual Smoker	<i>p</i>
Males					
Sixth grade (first yr at middle school) n = 321	93.5% (300)	3.1% (10)	3.1% (10)	0.3% (1)	<0.001
Ninth grade (first yr at high school) n = 502	53.2% (267)	11.0% (55)	16.3% (82)	19.5% (98)	
Total males	68.9% (567)	7.9% (65)	11.2% (92)	12.0% (99)	
Females					
Sixth grade (first yr at middle school) n = 279	95.3% (266)	2.2% (6)	1.8% (5)	0.8% (2)	<0.001
Ninth grade (first yr at high school) n = 263	38.8% (102)	8.0% (21)	21.3% (56)	31.9% (84)	
Total females	67.9% (368)	5.0% (27)	11.3% (61)	15.9% (86)	

(14 items, results shown in Table 2) has a Cronbach's alpha of 0.90 showing a high degree of reliability. In whole, this questionnaire named Questionario Adolescenti e Tabacco (Questionnaire on Adolescents and To-

bacco) was developed specifically for the purposes of this research. The wording referred to the theoretical constructs on social influences and particularly peer group and social pressure to smoke.¹²

Table 2. Adolescents' Perceptions on How Much People Smoke in Their Social Environment; How Much They Approve; How Dangerous It Is; and How Much Pocket Money They Receive (Mean ± Standard Deviation) (*p* for Wilcoxon-Mann-Whitney test)

	All			Sixth Grade			Ninth Grade		
	Sixth Grade	Ninth Grade	<i>p</i>	Never Smoked	Other	<i>p</i>	Never Smoked	Other	<i>p</i>
Who smokes in my social environment (range, 0–10)									
My parents	1.5 ± 2.5	1.9 ± 3.0	0.453	1.4 ± 2.4	2.6 ± 3.3	0.02	1.2 ± 2.4	2.5 ± 3.3	<0.001
My favorite teacher	0.6 ± 1.7	3.2 ± 3.6	<0.001	0.6 ± 1.7	1.2 ± 2.5	0.007	2.6 ± 3.4	3.9 ± 3.7	<0.001
My schoolmates	1.8 ± 2.2	7.2 ± 2.4	<0.001	1.7 ± 2.1	3.1 ± 3.0	0.009	6.6 ± 2.4	7.7 ± 2.3	<0.001
How much I approve of smoking (range, 0–10) in									
My friends	0.6 ± 1.5	3.3 ± 2.9	<0.001	0.5 ± 1.3	1.9 ± 2.9	<0.001	1.9 ± 2.3	4.6 ± 2.9	<0.001
An 11-year-old	0.4 ± 1.3	0.9 ± 1.8	<0.001	0.3 ± 1.1	1.7 ± 2.7	<0.001	0.6 ± 1.5	1.2 ± 2.0	<0.001
A 14-year-old	1.3 ± 2.1	2.9 ± 2.7	<0.001	1.2 ± 2.0	3.7 ± 3.3	<0.001	1.7 ± 2.1	3.9 ± 2.8	<0.001
A 17-year-old	2.7 ± 3.0	4.8 ± 3.2	<0.001	2.5 ± 2.9	5.1 ± 3.8	<0.001	3.4 ± 2.7	6.1 ± 3.0	<0.001
My parents	0.6 ± 1.6	1.5 ± 2.5	<0.001	0.5 ± 1.5	1.7 ± 2.6	<0.001	0.6 ± 1.3	2.4 ± 3.0	<0.001
My schoolmates	0.7 ± 1.7	4.4 ± 3.1	<0.001	0.6 ± 1.6	2.4 ± 3.0	<0.001	2.8 ± 2.5	5.9 ± 2.9	<0.001
My favorite teacher	0.7 ± 1.8	3.4 ± 3.1	<0.001	0.7 ± 1.7	1.2 ± 2.5	0.172	2.4 ± 2.7	4.4 ± 3.3	<0.001
How much people approve of me smoking (range, 0–10)									
Friends	0.5 ± 1.4	3.7 ± 3.1	<0.001	0.4 ± 1.2	2.2 ± 3.0	<0.001	2.7 ± 2.9	4.7 ± 3.1	<0.001
Parents	0.1 ± 1.0	0.6 ± 1.5	<0.001	0.1 ± 0.9	0.5 ± 1.6	<0.001	0.2 ± 0.8	1.0 ± 1.9	<0.001
Teachers	0.2 ± 0.9	2.2 ± 2.7	<0.001	0.2 ± 0.9	0.3 ± 1.2	0.490	1.6 ± 2.3	2.8 ± 2.9	<0.001
How dangerous smoking is (range, 0–10)									
Dangerous	9.1 ± 1.9	7.9 ± 2.1	<0.001	9.2 ± 1.8	7.9 ± 2.8	0.001	8.5 ± 1.9	7.4 ± 2.2	<0.001
How much weekly pocket money I receive									
Euro (€)	11.2 ± 14.3	20.0 ± 22.5	<0.001	11.0 ± 14.2	15.7 ± 14.9	0.066	16.3 ± 18.0	23.3 ± 25.5	<0.001

The age variable was classified in 2 groups: 11- to 12-year-old group and 14- to 15-year-old group. The children's weekly pocket money was classified in multiples of 10 Euro.

For the purpose of the descriptive analysis, the categories of smokers were "never smoked," "tried only one cigarette," "smoked more than once but currently a non-smoker," and "habitual smoker." For the regression analysis, on the other hand, to increase the statistical power and focus on each type of contact with smoking in adolescent age, smoking habit was dichotomized as: "never smoked" or "smoked at least once."

Statistical Methods

A bivariate analysis was initially conducted to illustrate the relationship between demographic, environmental, and behavioral variables, and any experimenting with smoking. Statistical comparisons between 2 groups were drawn using Student *t* test for continuous variables and the Wilcoxon-Mann-Whitney test when variable distributions did not satisfy the assumptions for parametric testing. Statistical comparisons between >2 groups were drawn using the Kruskal-Wallis test when variable distributions did not satisfy the assumptions for parametric testing. The chi-square test was used for categorical variables and Fisher's exact test only for categorical variables with expected frequencies of <5. Relationships found significant on bivariate analyses were subsequently reassessed using a backward selection for the regression analysis, with an exit probability of 0.10. Three different regression analyses were performed with "smoked at least once" as the dependent variable: the first analysis included sixth-grade students, then the analysis was repeated, stratified by gender, for ninth graders. The statistical analyses were performed using the STATA 8.2 software, and a *p* value of <0.05 was considered significant.

RESULTS

The study was conducted on 1383 students, 44.2% (611) of them attending their sixth year at school and 55.8% (772) in their ninth year. The sample as a whole was a mean 13.1 (± 1.6) years old; 59.5% (823) were males and 39.2% (542) were females: 18 did not specify their gender; 94.1% of the adolescents (1301) were Italian. Class grade- and gender-specific prevalence of smoking behavior is shown in Table 1.

Demographic and Economic Factors

In both age groups, nationality did not influence smoking habits. The amount of pocket money was unassociated with the smoking habits of the sixth graders (who received a mean €14.3 \pm 11.2 a week), whereas among the ninth graders (who received a mean €22.5 \pm 20.0 a week) having more pocket money correlated significantly with a higher tendency to smoke (*p* < 0.001): the adolescents who had never smoked received a mean €16.3 \pm 18.0 a week; those who had smoked

only once €19.3 \pm 21.8; those who had smoked more than once €22.2 \pm 22.3; and those who were habitual smokers €25.9 \pm 28.8 (Table 2). There was also a positive correlation between the amount of pocket money the adolescents were given, and the number of cigarettes they smoked in a week ($r^2 = 0.386$; *p* < 0.001).

Perception of Rules on Smoking and of How Much Smoking in General and Their Own Smoking Habit Is Approved/Disapproved in the Adolescents' Social Setting

Table 2 shows an evident association between adolescents smoking and their perception of the smoking rules in their social environment and of the acceptability of their own smoking habits in both the adolescent age groups considered. The proportion of sixth graders who had no smokers among their friends was 67.6% (577), whereas for the ninth graders, it was 32.4% (276); on the other hand, the proportion of sixth graders whose 4 best friends all smoked was 0.2% (1) as opposed to 10.4% (80) in the case of the ninth graders (*p* < 0.001).

Where and When Adolescents Tried Their First Cigarette and With Whom

The situation in which the adolescents in our sample tried their first cigarette differed for the 2 age groups: the sixth graders were more likely to smoke their first cigarette alone (43.8%), or with a group of friends (37.5%), whereas 18.8% did so with a girl- or boyfriend; among the ninth graders, only 8.3% tried their first cigarette alone, whereas 86.9% smoked with their group of friends, and only 4.8% with their girlfriend or boyfriend (*p* < 0.001). The place where they smoked for the first time also differed by age group: the younger adolescents went to the park (33.3%) or smoked at home (29.6%), whereas only 7% of those in the older group smoked at home and 18.0% in the park, the remainder mostly started smoking when they were wandering around (*p* < 0.001).

Multivariate Analysis

Table 3 shows the variables associated with smoking in our sample as a whole, and separately for the sixth- and ninth graders. The analyses for ninth-grade students were stratified by gender. Different variables were found associated with smoking in the 2 age groups, with the exception of the group of friends' refusal to adhere to the rules and not having a central role but with opposite effect in age class. Among ninth graders, the stratification shows the different variables associated with smoking by gender. In males, but not in females, being adolescents who do not have a central role in the group reduces the risk of coming into contact with smoke, and also the adolescent approval of parents, teachers, friends, and others who smoke increases this risk. On the other hand, smoking by parents is a risk factor for females, but not for males. Risk factors common to both genders, albeit with different strengths of association,

Table 3. Logistic Regression Models for Independent Variables Associated With Smoking, and With Smoking as the Dependent Variable

	OR	95% CI		<i>p</i>
		Lower	Upper	
Sixth grade				
Peer group's nonadherence to the rules	1.7	1.1	2.8	0.021
Not having a central role in the peer group	1.5	1.1	2.2	0.042
My approval of a 14-year-old smoking	1.2	1.1	1.4	0.004
Ninth grade				
Males				
Peer group's nonadherence to the rules	2.0	1.5	2.7	0.000
Age	1.9	1.1	3.2	0.019
No. friends who smoke	1.6	1.3	2.1	0.000
My approval of friends smoking	1.2	1.0	1.4	0.027
My approval of parents smoking	1.2	1.1	1.4	0.005
My approval of smoking at school	1.2	1.0	1.4	0.009
My approval of teachers smoking	0.9	0.8	1.0	0.033
My approval of an 11-year-old smoking	0.8	0.7	1.0	0.017
Not having a central role in the peer group	0.7	0.5	0.9	0.013
Females				
No. friends who smoke	2.3	1.6	3.3	0.000
Peer group's nonadherence to the rules	2.1	1.1	3.7	0.016
My approval of smoking at school	1.6	1.3	1.9	0.000
My parents smoke	1.2	1.0	1.4	0.037
My approval of an 11-year-old smoking	0.7	0.5	1.0	0.030

OR indicates odds ratio; CI, confidence interval.

are the number of friends who smoke, the group of friends' nonadherence to the rules, and the approval of smoking at school.

DISCUSSION

This is the first study to compare smoking risk factors between 2 different adolescent age groups, i.e., in the first year of middle school and the first year of further education. As was to be expected, there was a marked difference between the percentage of smokers among sixth- and ninth graders: 1 in 25 girls and in 16 boys in the younger age group had tried a cigarette, although most of them had only done so once in their lives. At this age, there were no significant gender-related differences,

whereas among the ninth graders (who were a mean 14.5 years old), there were more habitual smokers among the girls (31.9%) than among the boys (19.5%). The World Health Organization (WHO) Centers for Disease Control and Prevention Global Youth Tobacco Survey of 2000 found for the first time that female students in the United States and in European regions were smoking at the same rate as male students,¹³ whereas boys continued smoking more than girls in all other regions of the world. In fact, the prevalence of weekly smoking among 15-year-old girls was higher than for 15-year-old boys in 18 mainly western European countries of the 28 that implemented the Health Behaviour in School-aged Children study in 2001/2002, which included Italy.^{14,15} Our data are partially consistent with the findings of "the WHO European tobacco control report¹⁶ and the report on adolescents as part of the Health Behaviour in School-aged Children study,"¹⁷ i.e., the estimated prevalence of adolescent male habitual smokers overlaps (i.e., 19.5% vs. 19.7%), although the WHO's estimated prevalence of adolescent female smokers was lower than that reported by us (i.e., 19.5% vs. 31.9%).

Despite the belief that foreign students are more likely to be ill at ease and consequently to have a greater propensity for risky behavior, we found no differences in smoking habits between Italian and foreign students.

The situation in which adolescents tried their first cigarette was different between the 2 age groups we considered. The younger adolescents tried smoking mainly alone; this usually happened at home, sometime in the park. The older adolescents did not usually try smoking alone; instead, they tended to start smoking with their friends, as a social ritual. The different meaning attributed to smoking by the 2 age groups is clear from the variable measuring whether or not the adolescents' role was central in their peer group: for the sixth graders, not being a group leader coincided with a higher risk of smoking, whereas for the ninth-grade boys not being a leader seemed to have a protective effect. Smoking in early-adolescence could be associated with a shy personality, whereas in mid-adolescence, it could more often be an attempt to gain peer acceptance and achieve the status of group leader.

The present study showed that adolescents perceive smoking differently by age group in all aspects except for their parents smoking. Adolescents have the impression that the parents, teachers, and friends disapprove less of their smoking as the latter grow older, as if they would excuse smoking, or consider it less dangerous, in a 14-year-old than in an 11-year-old. Nolte et al reported a five-fold difference in the proportion of smoking adolescents when their smoking parents disapproved of adolescents smoking as opposed to when they were indifferent (10.4–51.6%).¹⁸ Newman and Ward also found parents' attitudes important in moderating adolescent smoking behavior, regardless of the parents' smoking habits, and they suggested that parents may show signs of becoming more tolerant of their adolescents

smoking as they grow older, as suggested by our data too.¹⁹ The results of our multivariate analysis demonstrated that the mid-adolescents' approval of their parents smoking is associated with their tendency to smoke in the ninth-grade boys, instead in the ninth-grade girls, the perception of amount of cigarettes smoked by parents is associated with the risk of coming into contact with smoke. These findings found female ninth graders (but not sixth graders) more likely to smoke, the more they saw their parents smoking. In mid-adolescence, smoking is not only something new to try; it is a means for acquiring a social identity, and the resources used to do so are drawn from the adolescents' family background. Parents who smoke oblige their children to be passive smokers who become used to breathing in smoke, so they may have no physical aversion to tobacco smoke when they first try a cigarette. Another study on mid-adolescence indicates that parents' smoking habits influence their children's attitude to smoking, and this affects the likelihood of the latter becoming smokers.²⁰

Our data show that the perception of smoking at school and of its general acceptability in this setting is significantly more influential for ninth graders than for sixth graders. This suggests a marked change in the 2 age-groups' school environment, which could predispose adolescents to a similarly marked change in the prevalence of smokers among them. The school environment's power to shape adolescent behavior is well documented,²¹ although the mechanisms by which the context affects their behavior are still debated.

The number of smokers among an adolescent's best friends was a factor significantly associated with the smoking habits of boys and girls in ninth grade on multivariate analysis, whereas it had no influence on the younger age group. This difference could theoretically be explained in 3 ways.¹² First, particularly in the transition from intermediate to higher education, when old groups of friends disperse to form new groups, being a smoker or a nonsmoker can become a factor of exclusion or membership of a new group. Second, based on a contagion or epidemic model,²² face-to-face peer interactions may facilitate the diffusion of substance use among students, but this can only be an issue if the habit of smoking is manifest (whereas our sixth graders tended to smoke alone). Third, young people who experiment with cigarettes and then continue to smoke are more likely to choose friendships that reinforce their behavior, joining groups where others smoke too (which could not happen in early-adolescence because the prevalence of smoking is still very low). Several published studies, some of them longitudinal,²³ have demonstrated that the risk of cigarette smoking in mid-adolescence increases for adolescents whose friends are smokers.

Finally, our data indicated that the only variable associated with smoking and common to both age groups was the peer group's nonadherence to the rules. Although it has been demonstrated that significant changes can occur in an individual's view of the law between early and mid-adolescence (a law loses its absolute meaning as

people grow up, coming to be seen as a tool functional to achieving a community's ends²⁴), being part of a group that goes against the rules, and thus against society, almost doubles the risk of smoking. Risk-taking and deviance are features of a pattern of problem-prone behavior, which may often coincide with adolescence. For instance, measures of deviant and risk-taking behavior have been found to correlate with experimental smoking²⁵ and habitual smoking.²⁶ Our data also showed, however, that risk taking by young adolescents may also be associated with defiance of the rules of a chosen peer group.

In conclusion, this article highlights how experimental and habitual cigarette smoking is rare in sixth graders, but becomes common among ninth graders, meaning that prevention measures are important in the 2 intervening years. The transition from middle school to higher education coincides with a much greater tendency for adolescents to perceive a weakening no-smoking policy at school, which emphasizes the need for action designed to consolidate high schools as smoke-free environments. Parents are reference points for adolescents and a behavioral model. Steps should be taken to ensure a clear and effective communication between parents (especially those who smoke) and their children, to make it plain that the former genuinely disapprove of adolescents smoking, especially for females (whose smoking habits are more strongly influenced by their parents' smoking habits). Different strategies should be used depending on adolescents' perception of their roles in their peer groups: mid-adolescent boys who are more likely to be leaders (particularly in antisocial groups) are at higher risk, thus focused individual intervention would be useful, rather than relying on class or group intervention. Early adolescents with a more marginal role in their peer groups should receive support to help them become better integrated in the group's dynamics.

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