(1) Title page

Smokefree Class Competition in Switzerland:

Does it work with negative peer pressure?

Running title: Smokefree Class Competition in Switzerland

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(2) Abstract

(1) Objectives. The Smokefree Class Competition (SCC) is a school-based smoking prevention project, with the idea that school classes who decide not to smoke for a period of six months can win a prize. It is hypothesized that social norms within classes are influenced in a way that non-smoking becomes a standard. However, the project has been criticized for working with negative peer pressure mainly for students who smoke already.

(2) Methods. Data was collected from the Swiss part of the 2002 World Health Organization (WHO) cross-national survey on Health Behaviour in School-Aged Children (HBSC). The representative sample consisted of 6'887 students in 440 classes from grade 6 to 9. A total of 440 teachers delivered information about the class characteristic, e.g. their participation in the SCC. We use multilevel modelling to analyse the effects of class characteristics as contexts on students smoking, active and passive violence, classroom climate as well as well-being.

(3) Results. There are 59 classes participating in the SCC, 25 classes stopped participation, 321 classes did not participate and for 35 classes teachers did not have any information about participation. Mean age of students was 13.7 years, with students in the classes that stopped participation being significantly older than in the other groups. Daily as well as weekly smoking is significantly lower in participating classes compared to the other groups (3% versus 8% daily smoking and 7% versus 18% weekly smoking). Active and passive violence e.g. being bullied, being accepted from class mates and being rejected does not differ between classes as well as between smokers and non smokers within classes.

(4) Conclusions. Smoking is reduced in the participating classes. However, this may be due to the selection bias in classes with mainly non smokers and the selective drop out of classes with many smokers. The SCC seems to create no negative peer pressure on students who smoke.

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Key words: smoking, adolescents, Smokefree Class Competition, peer pressure

(3) Introduction

Young adolescence is a critical period in the smoking onset process (O'Loughlin, Paradis, Renaud, & Gomez, 1998). During the last decade, smoking prevalence increase among adolescents in all Europe, USA and Canada (Currie, Samdal, Boyce, & Smith, 2001). In Switzerland, smoking prevalence for 15 year olds reached 66% in 1998. In 2002, results show a decline in the number of the young people who reported having tried smoking to 62%. However, the proportion of 13 and 15 years old young people reporting smoking daily has amply increased since 1994 (2.1% to 3.3% for the 13 year olds, 11.0% to 16.1% for the 15 year olds).

Early onset of smoking is the strongest single predictor for continued regular smoking (Chassin, Presson, Rose, & Sherman, 1996; Dryfoos, 1990; Lando et al., 1999; Stanton, McClelland, Elwood, Ferry, & Silva, 1996) and correlates with a heavier smoking (Breslau & Peterson, 1996; Schmid, Delgrande Jordan, Kuntsche, & Kuendig, 2003). A greater part of the young adolescents smoking daily stay smokers in their young adulthood (83% after 3 years) (Schmid, 2001).

During many years, youth smoking prevention programs consisted in informing them on the harmful effects smoking has on health (Swiss Federal Office of Public Health, 2000). Programs that focus solely on information and fear arousal strategies show only limited effects on attitudinal or behavioural changes in pupils (Bailey, 1992; Lynch & Bonnie, 1994; Reid, McNeill, & Glynn, 1995).

The idea of the Smokefree Class Competition is distinct to the traditional approaches, because instead of using fear arousal strategies to hinder pupils from smoking, the desired non-smoking behaviour is reinforced: Non-smokers are rewarded if they stay smokefree (Smokefree classes competition's homepage). According to learning theory a positive reinforcement enhances the probability of producing a desired behaviour. In this way non-smoking becomes a popular and worthwhile behaviour, and social norms within the peer groups are influenced in a way that non-smoking becomes more common in classes than smoking.

Smokefree Class Competition is a smoking prevention programme that aims at two main goals (Smokefree classes competition's homepage):

- Delay or prevention of the onset of smoking.
- Cessation of smoking of pupils who have already experimented with smoking in order to hinder them from becoming regular smokers.

Target groups are pupils aged 11-14, since this is the age group where pupils start to experiment with smoking. In Switzerland, 6th to 9th graders can participate in the competition, which includes an age range from 12 to 15 years.

The idea for the "Smoke-free Class Competition" arose in Finland, where it has been carried out annually since 1989/1990. In the school-year 1997/1998 the "Smoke-free Class Competition" was carried out on a European level for the first time. Since then the number of participating countries has increased each year and in the school-year 2002/2003 fifteen European countries have implemented the programme in their country with a total N of 21,000 classes with approximately 550,000 pupils (Hanewinkel, 2003).

In Switzerland, the competition took place for the first time during the school-year 2000-2001. In 2002, 2'592 school classes participated in the programme with a total of about 47'000 pupils (12% of the concerned age section).

The basic rules of the competition are the same in each country (Smokefree classes competition's homepage):

- Classes decide to be a non-smoking class for a period of six months.
- Pupils sign a class contract and an individual contract promising not to smoke during the competition. The contracts serve to underline their commitment.
- The responsibility for the control of smoking lies mainly with the pupils themselves: pupils monitor their smoking status and report regularly, whether they have smoked or not. In Switzerland, classes winning main prizes have to submit themselves to biological tests in order to confirm their abstinence. Since 2004, however, biological testing is no longer applied.

The national prizes vary in the participating countries. In Switzerland, the 4 main prizes and about a hundred other prizes are travellers checks.

The effectiveness of the competition was evaluated in Finland, Germany and in the Netherlands. In Finland, the quasi-experimental repeated measurement design showed a reduction in the smoking rates in the participating classes compared to non-participating classes of 55% (OR=1.55; $p<0.05$) (Vartiainen, Saukko, Paavola, & Vertio, 1996).

The German evaluation (Wiborg & Hanewinkel, 2002) was conducted in 1998-1999. In order to evaluate the effectiveness of the competition, a sample of 131 participating and non-participating classes (number of pupils 2,142; mean age 12.9 years, SD = 0.98) was compared with regard to their smoking behaviour. Smoking status was determined by self-assessment on three occasions: (a) prior to the beginning of the competition, (b) 1 month after the competition, and (c) 1 year after the start of the competition.

The results from pre-test to post-test show that smoking increased by 7.5% in the comparison group, while it decreased by 0.2% in the intervention group (OR = 2.19; P < 0.001). In the follow-up measurement, a clear increase in smoking prevalence occurs in all groups; however, the pupils in the intervention condition still have a significant lower increase of smoking (OR = 1.45; P < 0.01). Moreover, with regard to the non-smokers at baseline, pupils in the comparison group showed significantly higher prevalences in smoking than the intervention group in the post-test measurement, 7.8 versus 13.9% (OR = 1.98; P < 0.001), as well as in the in the follow-up measurement, 17 versus 21.3% (OR = 1.36; P < 0.05).

A third evaluation study based on a randomised controlled trial was carried out in the Netherlands with adolescents in lower education (Crone et al., 2003). Students with lower education smoke more often and perceive more positive norms, and social pressure to smoke, than higher educated students. The sample consisted of 26 Dutch schools that provided junior secondary education. 1,444 students were in the intervention and 1,118 students in the control group, all in the first grade, average age 13 years. In the intervention group, 9.6% of non-smokers started to smoke, in the control group 14.2%. This leads to an odds ratio of 0.61 (95% CI= 0.41 to 0.90) to uptake smoking in the intervention group compared with the control group. Intervention consisted of three lessons on knowledge, attitudes and social influence and the Smokefree Class Competition. One year after the intervention 25% of the pupils from the intervention group smoked weekly compared to 29% of the pupils of the control condition, which is statistically no longer significant.

There has been considerable debate about the application of the Smokefree Class Competition in terms of long-term effectiveness, baseline differences between participating and non-participating classes and ethical considerations, mainly that the competition works with negative peer pressure (cf. Association Classes Non Fumeurs, 2004). The peer pressure is put on the most vulnerable students in the class: the smoking students. If a class is not able to stay in the competition and has therefore no possibility to win the price, pressure will be put on the smoking students, who hinder winning the desired price. Pressure may take the form of violence and bad classroom climate. The Swiss Canton of Geneva recently refused taking part in the Swiss wide competition mainly because of these considerations. The present study may add some insight to the question, if participation and failure in participation is linked to this negative peer pressure.

Based on a representative sample of all 6th to 9th grade school classes, with self-reports from students and their teachers, and information collected independently from the competition in the framework of a large-scale study on health behaviour, we are able to analyse correlates of the participation in the Smokefree Class Competition, and to test several hypotheses.

- There exists a difference in the smoking behaviour between classes with no information about participation, non-participating classes, participating classes who stopped participation, and participating classes.
- It is hypothesized that smoking perception within classes that participate are influenced in a way that non-smoking becomes a standard.
- The well being of students who do not smoke is better that the well being of students who smoke already.
- There exists a difference in passive violence, active violence and classroom climate between the four groups of classes.
- Students who smoke already experience passive violence and a negative classroom climate in participating classes who stopped participation, and participating classes compared to classes with no information about participation, and non-participating classes.
- The more teachers smoke, the higher is the likelihood that students smoke.

(4) Method

The data was collected as the Swiss component of the 2001/2002 Health Behavior in School-Aged Children Study (HBSC). This survey collects data of nationally representative samples of adolescents in 35 countries and regions on a wide range of health behavior and health indicators, and factors that may influence them (Currie et al., 2001). The Smokefree Class Competition started in November 2001 and ended in June 2002. The survey took place at the end of the competition, between March and June 2002.

Students Sample

The HBSC study used a cluster sample design with school classes as sampling units. In Switzerland, the Federal Office of Statistics regularly registers the classes of the public schools. For the year 2000/2001 this register included 21 938 classes from grade 5 to 9 with a

total population of *N*=416 822 students. A random sampling of school classes was realised. The sample included 689 classes. Six classes (0.9%) explicitly refused to participate. Another 94 classes (13.6%) refused the participation without further indication of their objection. A total of 589 (85.5%) finally participated. Within the classes the mean number of 18 students (minimum 3; maximum 34; Mode 20) filled in the questionnaire which represents a participation rate of about 90.4% on the individual level. The present analysis is based on the 6th to 9th grades, in which participation in the Smokefree Class Competition was possible. It includes a total number of 440 classes. The total sample on the individual level comprised *n*=6'887 students. It was composed of 3'270 males (47%) and 3'617 females (53%). The mean age is 13.7 years with a standard deviation of 1.3 years. All Swiss cantons are represented in the sample. This sample of students can be seen as being globally representative the population of students in grades 6 to 9 in public schools in Switzerland.

Teachers Sample

During the time the students filled in the questionnaires, teachers were asked to answer a few questions. Within the 589 participating classes, 577 teachers sent back their questionnaires; this represents a participation rate of about 98.0%. In relation to the whole asked sample (689 classes), participation rate is about 83.7%. For the purpose of this analysis we reduced the classes sample to grade 6 to 9; this represents 455 classes. For these classes, 440 teachers answered the questionnaire (97%). The majority were male (68%) and their age ranged from 22 to 64, with a mean age of 43.4 years and a standard deviation of 10.4 years. The teachers sample can be considered as being representative.

Instrument

The data were gathered anonymously through a self-completed questionnaire, which was distributed between March and June 2002. Teachers administered the questionnaires to their pupils in the classroom and answered their own questionnaires. Adolescents completed the questionnaires independently during one school period (approximately 45 minutes) and were provided with envelopes in which to seal their questionnaires upon completion.

Measures

Full descriptions of the questionnaire items assessed during 2001/2002 and their development can be found elsewhere (Currie et al., 2001). National questionnaires are

translations and adaptations of the international standard version, with independent re-translation back to English, to guarantee maximum international comparability. The students dataset includes seven blocks of variables: demographics, smoking behaviour, smoking perception, passive violence, active violence, classroom climate, and well being. The teachers dataset includes 5 blocks of variables: demographics, smoking behaviour, school policy, smoking perception, dealing with smoking in the curriculum. Tables 1 and 2 give a basic description of the variables.

Statistical Analysis

The absolute number and the relative number of respondents in percent is given by participation in the Smokefree Class Competition. Our hypotheses are tested using the software Mplus 3 (Muthén & Muthén, 1998-2004). The decision to use Mplus was based on its features of dealing with different measurement levels for the outcome variables, of taking into account complex sampling, e.g. cluster sampling, of integrating multi-level data (students and teachers), and finally, of modeling different regression models.

(5) Results

A total of 440 classes could be broken down in 35 classes with no information about participation, 321 non-participating classes, 25 participating classes who stopped participation, and 59 participating classes.

Insert Table 1 about here

A total of 6,887 students were found in these different groups (cf. Table1) with an almost equal number of male and female students. The target age groups of the 12 to 15 year olds are almost equally represented in the non-participating classes. Classes who stopped participation, however, consist of older students (43.5% 15 year olds). Almost 18% of the students are not of Swiss origin, whilst in the classes who stopped participation, only 14% represent students from other nationalities.

The smoking behaviour differs largely between the different groups of classes. In total, we find 18.2% smokers and 7.9% daily smokers. Most of the smokers (24%) and most of the daily smokers (10%) can be found in the classes who stopped participation. The participating

classes represent the smallest relative number of smokers (7%) as well as of daily smokers (3%). More than every fifth student perceives that about half of their friends or more are smokers (27%). Smoking perception of friends is much lower in the participating classes (12%) and much higher in the classes who stopped participation (36%).

Different forms of passive violence, such as have been bullied, feeling unsafe, belongings have been destroyed, have been beaten, have been threatened, have been extorted, and have been robbed do not differ between the different groups of classes and are relatively rare. Some forms of active violence, such as have been actively involved in a fight, have taken part in bullying, has beaten, and has stolen differs between the groups of classes. However, there is no one single group of classes, that can be characterized as being at risk for different forms of violent behaviour. Fighting and beating seems to be most prevalent in classes with no information about participation, bullying and stealing is most likely in classes who stopped participation.

The classroom climate is much better in participating classes and classes who stopped participation compared to classes with no information about participation, and non-participating classes. E.g. the agreement to the affirmation that classmates take me as I come is high in participating classes (89%) and classes who stopped participation (86%) followed by non-participating classes (83%) and classes with no information about participation (78%).

Different forms of well being do differ between the groups of classes. The most important differences are found between the classes with no information about participation and the participating classes, with more students feeling well in the participating classes. The feeling of being excluded, however, is at least sometimes present in 23% of the students in the classes who stopped participation and in 17% of the students in participating classes.

Insert Table 2 about here

Each of the 440 classes is represented by one teacher (cf. Table 2). The proportion of female teachers is relatively low (33%) and lowest in the participating classes (20%). More than 19% of the teachers describe themselves as daily smokers. Again, relatively low rates of daily smoking teachers are fount in the participating classes (12%) compared to the non-participating classes (21%). In about 30% of the cases, teachers smoking is prohibited everywhere in school complex, with most restrictive regulation in the cases of the participating classes. The perception of the number of smoking students in the classes differs between the groups of classes. Teachers estimate, that there classes are smoke free in 57% of

the participating classes, in 31% of the classes with no information, in 20% of the non-participating classes and in 4% of the classes who stopped participation. The tobacco theme was treated in detail in class by 29% of the teachers: 46% in the participating classes and 22% in the classes with no information about participation.

Insert Table 3 about here

Daily smoking as well as weekly smoking is more likely when students become older (cf. Table 3). The main difference between the groups of classes is found for the non-participating classes and the participating classes. The likelihood of daily as well as that of weekly smoking is significantly reduced in participating classes compared to non-participating classes.

Insert Table 4 about here

The likelihood of the perception of friends smoking is higher when students smoke daily, are older, and are of other than Swiss nationality (cf. Table 4). When the second level, e.g. the information from teachers in taken into account, a significant link between the perception of students smoking in class and the perception of the students about their friends smoking can be observed. The likelihood of perceiving friends smoking is significantly higher in non-participating classes compared to participating classes.

Insert Table 5 about here

The latent construct of students well-being can be measured with 12 items that load relatively high on the latent factor (cf. Table 5). The absence of feeling lonely, feeling sad, feeling in bad mood, feeling nervous, feeling tired, feeling anxious, feeling furious, feeling excluded, feeling weak and the presence of feelings of self-confidence, worthiness and satisfaction are consistent manifestations of students well-being. Male students are more likely to score high on well-being compared to female students. The less students smoke, the higher is their well-being.

Insert Table 6 about here

Passive violence, active violence and classroom climate are measured with different numbers of items (cf. Table 6). Being bullied, feeling unsafe, destruction of belongings, having been beaten, having been threatened, having been extorted, and having been robbed are the consistent manifestations of the perception of passive violence. Involvement in a fight, having taken part in bullying, having beaten, having threatened, having extorted, having destroyed and having stolen are forms of active violence. Finally, the classroom climate was measured with the items classmates like being together, classmates are nice and helpful and classmates take me as I come. All three latent concepts passive violence, active violence and classroom climate are significantly linked. Passive and active violence as perceived by students does not differ between the four groups of participating and non-participating classes. Female students are less likely to be involved in violent acts. Interestingly, the more students smoke, the more likely they are to experience passive violence and – even stronger – to act with active violence. Participating and non-participating classes do, however, differ in their perception of the classroom climate. The likelihood of a good classroom climate is higher in participating classes than in non-participating classes. Again, the more students smoke, the less they perceive a good, helpful and valuing classroom climate.

Insert Table 7 about here

The analysis stratified by students smoking status does not indicate that students who smoke already experience passive violence in the different groups of classes (cf. Table 7). In non-smokers, less than weekly smokers, weekly smokers and daily smokers we do not find a significant link between the groups and passive violence. However, the classroom climate is better for the non-smokers in the participating classes compared to the non-participating classes. The same is true for the daily smokers. In the participating classes they perceive a better classroom climate than in the non-participating classes. Participating classes who stopped doe not seem to have other levels of passive violence and classroom climate than non-participating classes experienced by the different groups of non-smokers and smokers.

Insert Table 8 about here

The smoking of important others has an influence on the self declaration of students smoking status (cf. Table 8). The more students perceive their friends as smokers, the more likely it is that they see themselves as smokers. In addition, the self declaration of the

smoking status of teachers is significantly linked to the smoking status of their students. The more a teacher smokes, the higher is the likelihood of smoking students in his/her class. The more teachers perceive smokers in their class, the more students are smoking. Again, there exists a difference between the participating classes and the non-participating classes, with a smaller likelihood of smoking in participating classes.

(6) Discussion

The present study adds insight to the question if the Smokefree Class Competition works with negative peer pressure on the basis of a large representative sample of the population of 6^{th} to 9^{th} grade school classes all over Switzerland. Further strengths are the high participation rate and the independent sources of information from teachers and their students as well as their matched analysis.

The four groups of classes, classes with no information about participation, non-participating classes, participating classes who stopped participation, and participating classes do differ substantially in many aspects. The most important difference is that daily as well as weekly smoking is less common in participating classes compared to non-participating classes and that friends smoking is less commonly perceived.

This significant difference between the four groups of classes can be due to (i) the fact that the competition is effective, (ii) the fact that there exists a selection bias with the classes that participate having less smokers, (iii) the fact that there exists a selective dropout with the classes that stopped participation did so because of the large number of smokers and (iv) the fact that in the participating classes students lied about their smoking status and declared themselves non-smoker in order to stay in the competition.

The hypothesis that students declared themselves non-smokers in order to stay in the competition would imply, that students in the participating classes were aware of the possibility to use the health behaviour questionnaire to describe their smoking status. However, neither the students, nor the teachers were aware of the possibility to study smoking status by participation in the competition. In the realm of more than 100 questions addressed to the students about their health and health behaviours in general, smoking questions were placed in the middle of the questionnaire. Information about participation in the competition was collected from the independent source: the teachers.

With the present analysis we can not test to what extend the difference in the smoking rates between the four groups may be attributable to the Smokefree Class Competition, to the

selection bias or to selective drop-out. On the other hand, we are able to analyse different hypothesis about what is happening within these classes. It has been put forward the argument, that the competition works with negative peer pressure mainly on smoking students. Smoking students are those student who are the most vulnerable students in terms of psychological, school and other problems.

In fact, our results support the link between smoking and negative well-being. However, this link is not moderated by the fact, that students are in the classes that participated, that participated but stopped, that did not participate or where no information about participation exists. In addition, passive as well as active violence did not differ between the four groups of classes in our multiple model. The analysis stratified by smoking status supported the observation that classes that stopped participation did not differ significantly from classes that did not participate in the competition.

Teachers can make a difference in their class. The more teachers smoke, the higher is the likelihood that students smoke. If teachers participate in the Smokefree Class Competition the likelihood of smoking in their class is less than in the non-participating classes. Information only, e.g. in which detail the tobacco theme has been treated in class, does not make a difference.

Teachers take part in the Smokefree Class Competition if they perceive the number of smoking students in their class as low. In the new conception of the Smokefree Class Competition classes participate in category A if the class as a whole subscribes to non-smoking for six months, and in category B if some smokers in the class are allowed. These new conditions may motivate teachers to participate even though they perceive smoking students in their class. The new conception has to consider that it may not be easy for teachers to participate and to work against the odds of having smokers in their class. In general, it may be easier to delay or prevent the onset of smoking than to promote cessation of smoking.

Further research is needed to evaluate the effect of the Smokefree Class Competition as well as different variations of the competition, based on randomised controlled trials. Smoking status is the major outcome to be tested and the negative correlation between smoking and participation in this cross-sectional study is an important but not sufficient precondition for effectiveness. Other outcomes such as passive, active violence and classroom climate should also be included in a comprehensive evaluation design. However, based on the absence of a link between these variables and participation, we would not expect the Smokefree Class Competition to work with negative peer pressure.

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(9) Tables

Table 1

Frequency and relative frequency in percent of student level variables by participation in the Smokefree Class Competition

Table 2

Frequency and relative frequency in percent of teacher level variables by participation in the Smokefree Class Competition

Table 3.

Regression analysis of daily smoking (binary) and weekly smoking (binary) on gender, age, nationality and participation in the Smokefree Class Competition controlled for the class cluster design effect

Table 4

Two-level regression analysis of friends smoking (ordered categorical) on gender, age, nationality, daily smoking (student level) and on students smoking in class and participation in the Smokefree Class Competition (teachers level) controlled for the class cluster design effect

Table 5

Structural equation modelling of well-being (latent outcome) on gender, age, nationality, smoking status and participation in the Smokefree Class Competition controlled for the class cluster design effect

Table 6

Structural equation modelling of passive violence, active violence and classroom climate (latent outcomes) on gender, age, nationality, smoking status and participation in the Smokefree Class Competition controlled for the class cluster design effect

Table 7

Structural equation modelling of passive violence and classroom climate (latent outcomes) on gender, age, nationality, smoking status and participation in the Smokefree Class Competition stratified by smoking status and controlled for the class cluster design effect

Table 8

Two-level regression analysis of smoking status (ordered categorical) on gender, age, nationality, friends smoking (student level) and on students smoking in class, participation in the Smokefree Class Competition, teachers smoking and regulation about smoking (teachers level) controlled for the class cluster design effect

Table 1. *Frequency and relative frequency in percent of student level variables by participation in the Smokefree Class Competition*

			Smokefree Class Competition								Total	
			0 Classes with no information about participation (n=35)		1 Non-participating classes (n=321)		2 Participating classes who stopped participation (n=25)		3 Participating classes (n=59)			
			Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Layer %
		Total	533	100.0%	4948	100.0%	391	100.0%	1015	100.0%	6887	100.0%
Demographics	**Gender**	**0 male**	250	46.9%	2344	47.4%	200	51.2%	476	46.9%	3270	47.5%
		1 female	283	53.1%	2604	52.6%	191	48.8%	539	53.1%	3617	52.5%
	Age	**11**	43	8.1%	119	2.4%	0	0.0%	0	0.0%	162	2.4%
		12	98	18.4%	882	17.8%	2	0.5%	76	7.5%	1058	15.4%
		13	194	36.4%	1102	22.3%	73	18.7%	442	43.5%	1811	26.3%
		14	115	21.6%	1143	23.1%	93	23.8%	314	30.9%	1665	24.2%
		15	62	11.6%	1208	24.4%	170	43.5%	141	13.9%	1581	23.0%
		16	21	3.9%	494	10.0%	53	13.6%	42	4.1%	610	8.9%
	Nationality	**1 Switzerland**	443	83.1%	4012	81.1%	336	85.9%	860	84.7%	5651	82.1%
		2 Other country	90	16.9%	936	18.9%	55	14.1%	155	15.3%	1236	17.9%
Smoking behaviour	**Smoking**	**0 I do not smoke**	462	86.7%	3934	79.5%	297	76.0%	941	92.7%	5634	81.8%
		1 Less than once a week	29	5.4%	292	5.9%	36	9.2%	27	2.7%	384	5.6%
		2 At least once a week, but not every day	14	2.6%	269	5.4%	19	4.9%	20	2.0%	322	4.7%
		3 Every day	28	5.3%	453	9.2%	39	10.0%	27	2.7%	547	7.9%
	Smoker	**0 No**	462	86.7%	3934	79.5%	297	76.0%	941	92.7%	5634	81.8%
		1 Yes	71	13.3%	1014	20.5%	94	24.0%	74	7.3%	1253	18.2%
	Weekly smoking	**0 No**	491	92.1%	4226	85.4%	333	85.2%	968	95.4%	6018	87.4%
		1 Yes	42	7.9%	722	14.6%	58	14.8%	47	4.6%	869	12.6%
	Daily smoking	**0 No**	505	94.7%	4495	90.8%	352	90.0%	988	97.3%	6340	92.1%
		1 Yes	28	5.3%	453	9.2%	39	10.0%	27	2.7%	547	7.9%
Smoking perception	**Friends smoking**	**0 None of them**	265	49.7%	2074	41.9%	118	30.2%	568	56.0%	3025	43.9%
		1 Few of them	167	31.3%	1385	28.0%	134	34.3%	327	32.2%	2013	29.2%
		2 About half of them	43	8.1%	555	11.2%	65	16.6%	48	4.7%	711	10.3%
		3 The majority	42	7.9%	681	13.8%	58	14.8%	52	5.1%	833	12.1%
		4 All of them	16	3.0%	253	5.1%	16	4.1%	20	2.0%	305	4.4%
Passive violence	**Being bullied**	**1 I have not been bullied at school**	324	60.8%	3073	62.1%	227	58.1%	618	60.9%	4242	61.6%
		2 That has only happened once or twice	149	28.0%	1240	25.1%	94	24.0%	272	26.8%	1755	25.5%
		3 Two to three times a month	18	3.4%	246	5.0%	24	6.1%	40	3.9%	328	4.8%
		4 About once a week	25	4.7%	172	3.5%	22	5.6%	44	4.3%	263	3.8%
		5 Several times a week	17	3.2%	217	4.4%	24	6.1%	41	4.0%	299	4.3%
	Feeling unsafe	**1 Has never happened**	424	79.5%	4065	82.2%	321	82.1%	838	82.6%	5648	82.0%
		2 Once or twice	71	13.3%	488	9.9%	43	11.0%	100	9.9%	702	10.2%
		3 About once a month	11	2.1%	102	2.1%	9	2.3%	18	1.8%	140	2.0%
		4 About once a week	14	2.6%	133	2.7%	7	1.8%	32	3.2%	186	2.7%
		5 Several times a week	13	2.4%	160	3.2%	11	2.8%	27	2.7%	211	3.1%

			Smokefree Class Competition									
			0 Classes with no information about participation (n=35)		1 Non-participating classes (n=321)		2 Participating classes who stopped participation (n=25)		3 Participating classes (n=59)		Total	
			Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Layer %
	Belongings destroyed	**1 Has never happened**	403	75.6%	3705	74.9%	264	67.5%	769	75.8%	5141	74.6%
		2 Once or twice	97	18.2%	990	20.0%	100	25.6%	204	20.1%	1391	20.2%
		3 About once a month	21	3.9%	138	2.8%	15	3.8%	27	2.7%	201	2.9%
		4 About once a week	6	1.1%	66	1.3%	8	2.0%	7	0.7%	87	1.3%
		5 Several times a week	6	1.1%	49	1.0%	4	1.0%	8	0.8%	67	1.0%
	Have been beaten	**1 Has never happened**	466	87.4%	4327	87.4%	341	87.2%	876	86.3%	6010	87.3%
		2 Once or twice	56	10.5%	451	9.1%	35	9.0%	86	8.5%	628	9.1%
		3 About once a month	2	0.4%	80	1.6%	5	1.3%	23	2.3%	110	1.6%
		4 About once a week	7	1.3%	38	0.8%	2	0.5%	14	1.4%	61	0.9%
		5 Several times a week	2	0.4%	52	1.1%	8	2.0%	16	1.6%	78	1.1%
	Have been threatened	**1 Has never happened**	480	90.1%	4436	89.7%	352	90.0%	932	91.8%	6200	90.0%
		2 Once or twice	40	7.5%	376	7.6%	31	7.9%	58	5.7%	505	7.3%
		3 About once a month	6	1.1%	52	1.1%	7	1.8%	9	0.9%	74	1.1%
		4 About once a week	3	0.6%	41	0.8%	0	0.0%	9	0.9%	53	0.8%
		5 Several times a week	4	0.8%	43	0.9%	1	0.3%	7	0.7%	55	0.8%
	Have been extorted	**1 Has never happened**	522	97.9%	4808	97.2%	379	96.9%	975	96.1%	6684	97.1%
		2 Once or twice	7	1.3%	95	1.9%	8	2.0%	29	2.9%	139	2.0%
		3 About once a month	3	0.6%	14	0.3%	3	0.8%	5	0.5%	25	0.4%
		4 About once a week	1	0.2%	12	0.2%	1	0.3%	3	0.3%	17	0.2%
		5 Several times a week	0	0.0%	19	0.4%	0	0.0%	3	0.3%	22	0.3%
	Have been robbed	**1 Has never happened**	445	83.5%	4104	82.9%	302	77.2%	858	84.5%	5709	82.9%
		2 Once or twice	83	15.6%	728	14.7%	76	19.4%	133	13.1%	1020	14.8%
		3 About once a month	1	0.2%	68	1.4%	7	1.8%	12	1.2%	88	1.3%
		4 About once a week	2	0.4%	20	0.4%	3	0.8%	7	0.7%	32	0.5%
		5 Several times a week	2	0.4%	28	0.6%	3	0.8%	5	0.5%	38	0.6%
Active violence	**Involved in a fight**	**1 I have not been involved in a fight**	361	67.7%	3485	70.4%	289	73.9%	773	76.2%	4908	71.3%
		2 Once	80	15.0%	720	14.6%	51	13.0%	123	12.1%	974	14.1%
		3 Twice	38	7.1%	311	6.3%	20	5.1%	52	5.1%	421	6.1%
		4 Three times	23	4.3%	144	2.9%	8	2.0%	26	2.6%	201	2.9%
		5 Four times or more	31	5.8%	288	5.8%	23	5.9%	41	4.0%	383	5.6%
	Taken part in bullying	**1 I have not been involved in bullying**	323	60.6%	2604	52.6%	190	48.6%	533	52.5%	3650	53.0%
		2 That has only happened once or twice	138	25.9%	1512	30.6%	122	31.2%	328	32.3%	2100	30.5%
		3 Two to three times a month	27	5.1%	327	6.6%	30	7.7%	64	6.3%	448	6.5%
		4 About once a week	23	4.3%	215	4.3%	29	7.4%	45	4.4%	312	4.5%
		5 Several times a week	22	4.1%	290	5.9%	20	5.1%	45	4.4%	377	5.5%
	Has beaten	**1 Has never happened**	406	76.2%	3989	80.6%	325	83.1%	830	81.8%	5550	80.6%
		2 Once or twice	101	18.9%	757	15.3%	42	10.7%	129	12.7%	1029	14.9%
		3 About once a month	16	3.0%	81	1.6%	10	2.6%	23	2.3%	130	1.9%
		4 About once a week	7	1.3%	56	1.1%	7	1.8%	15	1.5%	85	1.2%
		5 Several times a week	3	0.6%	65	1.3%	7	1.8%	18	1.8%	93	1.4%

			Smokefree Class Competition								
			0 Classes with no information about participation (n=35)		1 Non-participating classes (n=321)		2 Participating classes who stopped participation (n=25)		3 Participating classes (n=59)		Total	
			Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Layer %
	Has threatened	**1 Has never happened**	481	90.2%	4592	92.8%	379	96.9%	977	96.3%	6429	93.3%
		2 Once or twice	39	7.3%	258	5.2%	7	1.8%	25	2.5%	329	4.8%
		3 About once a month	7	1.3%	53	1.1%	2	0.5%	5	0.5%	67	1.0%
		4 About once a week	4	0.8%	23	0.5%	1	0.3%	1	0.1%	29	0.4%
		5 Several times a week	2	0.4%	22	0.4%	2	0.5%	7	0.7%	33	0.5%
	Has extorted	**1 Has never happened**	525	98.5%	4846	97.9%	386	98.7%	997	98.2%	6754	98.1%
		2 Once or twice	5	0.9%	67	1.4%	4	1.0%	12	1.2%	88	1.3%
		3 About once a month	1	0.2%	9	0.2%	0	0.0%	2	0.2%	12	0.2%
		4 About once a week	1	0.2%	10	0.2%	0	0.0%	0	0.0%	11	0.2%
		5 Several times a week	1	0.2%	16	0.3%	1	0.3%	4	0.4%	22	0.3%
	Has destroyed	**1 Has never happened**	450	84.4%	4141	83.7%	301	77.0%	887	87.4%	5779	83.9%
		2 Once or twice	64	12.0%	654	13.2%	76	19.4%	107	10.5%	901	13.1%
		3 About once a month	11	2.1%	81	1.6%	12	3.1%	11	1.1%	115	1.7%
		4 About once a week	6	1.1%	37	0.7%	0	0.0%	5	0.5%	48	0.7%
		5 Several times a week	2	0.4%	35	0.7%	2	0.5%	5	0.5%	44	0.6%
	Has stolen	**1 Has never happened**	464	87.1%	4279	86.5%	334	85.4%	922	90.8%	5999	87.1%
		2 Once or twice	48	9.0%	502	10.1%	44	11.3%	55	5.4%	649	9.4%
		3 About once a month	8	1.5%	71	1.4%	6	1.5%	20	2.0%	105	1.5%
		4 About once a week	8	1.5%	47	0.9%	4	1.0%	7	0.7%	66	1.0%
		5 Several times a week	5	0.9%	49	1.0%	3	0.8%	11	1.1%	68	1.0%
Classroom climate	**… being together**	**0 Strongly disagree**	15	2.8%	84	1.7%	4	1.0%	5	0.5%	108	1.6%
Classmates like …		**1 Disagree**	32	6.0%	213	4.3%	22	5.6%	16	1.6%	283	4.1%
		2 Neither nor	88	16.5%	749	15.1%	67	17.1%	92	9.1%	996	14.5%
		3 Agree	221	41.5%	2432	49.2%	207	52.9%	587	57.8%	3447	50.1%
		4 Strongly agree	177	33.2%	1470	29.7%	91	23.3%	315	31.0%	2053	29.8%
	… are nice and helpful	**0 Strongly disagree**	12	2.3%	105	2.1%	4	1.0%	6	0.6%	127	1.8%
		1 Disagree	42	7.9%	264	5.3%	16	4.1%	24	2.4%	346	5.0%
		2 Neither nor	81	15.2%	731	14.8%	61	15.6%	83	8.2%	956	13.9%
		3 Agree	267	50.1%	2568	51.9%	231	59.1%	619	61.0%	3685	53.5%
		4 Strongly agree	131	24.6%	1280	25.9%	79	20.2%	283	27.9%	1773	25.7%
	… take me as I come	**0 Strongly disagree**	19	3.6%	107	2.2%	5	1.3%	9	0.9%	140	2.0%
		1 Disagree	25	4.7%	197	4.0%	9	2.3%	27	2.7%	258	3.7%
		2 Neither nor	73	13.7%	531	10.7%	40	10.2%	75	7.4%	719	10.4%
		3 Agree	241	45.2%	2455	49.6%	238	60.9%	548	54.0%	3482	50.6%
		4 Strongly agree	175	32.8%	1658	33.5%	99	25.3%	356	35.1%	2288	33.2%

			Smokefree Class Competition								Total	
			0 Classes with no information about participation (n=35)		1 Non-participating classes (n=321)		2 Participating classes who stopped participation (n=25)		3 Participating classes (n=59)			
			Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Layer %
Well being	**State of health**	**0 Bad**	6	1.1%	41	0.8%	2	0.5%	7	0.7%	56	0.8%
		1 Fairly good	36	6.8%	455	9.2%	27	6.9%	79	7.8%	597	8.7%
		2 Good	236	44.3%	2354	47.6%	194	49.6%	495	48.8%	3279	47.6%
		3 Excellent	255	47.8%	2098	42.4%	168	43.0%	434	42.8%	2955	42.9%
	Feeling lonely	**1 Yes, very often**	22	4.1%	161	3.3%	13	3.3%	19	1.9%	215	3.1%
		2 Yes, fairly often	27	5.1%	314	6.3%	18	4.6%	44	4.3%	403	5.9%
		3 Yes, sometimes	242	45.4%	2206	44.6%	203	51.9%	459	45.2%	3110	45.2%
		4 No, never	242	45.4%	2267	45.8%	157	40.2%	493	48.6%	3159	45.9%
	Feeling sad	**1 Almost every day**	29	5.4%	195	3.9%	7	1.8%	32	3.2%	263	3.8%
		2 Several times a week	54	10.1%	460	9.3%	43	11.0%	72	7.1%	629	9.1%
		3 About once a week	85	15.9%	818	16.5%	63	16.1%	151	14.9%	1117	16.2%
		4 About once a month	190	35.6%	1528	30.9%	127	32.5%	311	30.6%	2156	31.3%
		5 Seldom or never	175	32.8%	1947	39.3%	151	38.6%	449	44.2%	2722	39.5%
	Feeling in bad mood	**1 Almost every day**	16	3.0%	162	3.3%	6	1.5%	21	2.1%	205	3.0%
		2 Several times a week	91	17.1%	675	13.6%	50	12.8%	101	10.0%	917	13.3%
		3 About once a week	144	27.0%	1350	27.3%	125	32.0%	298	29.4%	1917	27.8%
		4 About once a month	177	33.2%	1703	34.4%	139	35.5%	400	39.4%	2419	35.1%
		5 Seldom or never	105	19.7%	1058	21.4%	71	18.2%	195	19.2%	1429	20.7%
	Feeling nervous	**1 Almost every day**	28	5.3%	171	3.5%	11	2.8%	18	1.8%	228	3.3%
		2 Several times a week	68	12.8%	533	10.8%	40	10.2%	106	10.4%	747	10.8%
		3 About once a week	121	22.7%	1048	21.2%	89	22.8%	215	21.2%	1473	21.4%
		4 About once a month	151	28.3%	1574	31.8%	124	31.7%	347	34.2%	2196	31.9%
		5 Seldom or never	165	31.0%	1622	32.8%	127	32.5%	329	32.4%	2243	32.6%
	Feeling tired	**1 Almost every day**	48	9.0%	451	9.1%	34	8.7%	58	5.7%	591	8.6%
		2 Several times a week	100	18.8%	1028	20.8%	94	24.0%	209	20.6%	1431	20.8%
		3 About once a week	121	22.7%	1182	23.9%	114	29.2%	278	27.4%	1695	24.6%
		4 About once a month	144	27.0%	1233	24.9%	73	18.7%	262	25.8%	1712	24.9%
		5 Seldom or never	120	22.5%	1054	21.3%	76	19.4%	208	20.5%	1458	21.2%
	Feeling anxious	**1 Almost every day**	15	2.8%	92	1.9%	3	0.8%	10	1.0%	120	1.7%
		2 Several times a week	38	7.1%	221	4.5%	16	4.1%	31	3.1%	306	4.4%
		3 About once a week	52	9.8%	425	8.6%	36	9.2%	61	6.0%	574	8.3%
		4 About once a month	121	22.7%	1025	20.7%	77	19.7%	175	17.2%	1398	20.3%
		5 Seldom or never	307	57.6%	3185	64.4%	259	66.2%	738	72.7%	4489	65.2%
	Feeling furious	**1 Almost every day**	20	3.8%	172	3.5%	9	2.3%	30	3.0%	231	3.4%
		2 Several times a week	72	13.5%	655	13.2%	68	17.4%	126	12.4%	921	13.4%
		3 About once a week	117	22.0%	1185	23.9%	105	26.9%	243	23.9%	1650	24.0%
		4 About once a month	169	31.7%	1666	33.7%	141	36.1%	353	34.8%	2329	33.8%
		5 Seldom or never	155	29.1%	1270	25.7%	68	17.4%	263	25.9%	1756	25.5%
	Feeling excluded	**1 Always**	5	0.9%	36	0.7%	1	0.3%	6	0.6%	48	0.7%
		2 Often	20	3.8%	205	4.1%	18	4.6%	35	3.4%	278	4.0%
		3 Sometimes	87	16.3%	735	14.9%	71	18.2%	134	13.2%	1027	14.9%
		4 Seldom	197	37.0%	1955	39.5%	172	44.0%	469	46.2%	2793	40.6%
		5 Never	224	42.0%	2017	40.8%	129	33.0%	371	36.6%	2741	39.8%

		Smokefree Class Competition								Total	
		0 Classes with no information about participation (n=35)		1 Non-participating classes (n=321)		2 Participating classes who stopped participation (n=25)		3 Participating classes (n=59)			
		Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Layer %
Feeling weak	**1 Always**	2	0.4%	29	0.6%	1	0.3%	5	0.5%	37	0.5%
	2 Often	22	4.1%	151	3.1%	10	2.6%	26	2.6%	209	3.0%
	3 Sometimes	64	12.0%	605	12.2%	54	13.8%	98	9.7%	821	11.9%
	4 Seldom	158	29.6%	1770	35.8%	143	36.6%	422	41.6%	2493	36.2%
	5 Never	287	53.8%	2393	48.4%	183	46.8%	464	45.7%	3327	48.3%
Self-confidence	**1 Never**	6	1.1%	60	1.2%	1	0.3%	5	0.5%	72	1.0%
	2 Seldom	27	5.1%	253	5.1%	16	4.1%	43	4.2%	339	4.9%
	3 Sometimes	73	13.7%	811	16.4%	65	16.6%	184	18.1%	1133	16.5%
	4 Often	244	45.8%	2248	45.4%	214	54.7%	522	51.4%	3228	46.9%
	5 Always	183	34.3%	1576	31.9%	95	24.3%	261	25.7%	2115	30.7%
Worthiness	**1 Never**	14	2.6%	154	3.1%	2	0.5%	24	2.4%	194	2.8%
	2 Seldom	33	6.2%	322	6.5%	20	5.1%	57	5.6%	432	6.3%
	3 Sometimes	72	13.5%	635	12.8%	62	15.9%	123	12.1%	892	13.0%
	4 Often	134	25.1%	1285	26.0%	88	22.5%	271	26.7%	1778	25.8%
	5 Always	280	52.5%	2552	51.6%	219	56.0%	540	53.2%	3591	52.1%
Satisfaction	**1 Never**	10	1.9%	94	1.9%	6	1.5%	12	1.2%	122	1.8%
	2 Seldom	33	6.2%	283	5.7%	18	4.6%	56	5.5%	390	5.7%
	3 Sometimes	79	14.8%	789	15.9%	62	15.9%	179	17.6%	1109	16.1%
	4 Often	265	49.7%	2465	49.8%	226	57.8%	545	53.7%	3501	50.8%
	5 Always	146	27.4%	1317	26.6%	79	20.2%	223	22.0%	1765	25.6%

Table 2. *Frequency and relative frequency in percent of teacher level variables by participation in the Smokefree Class Competition*

			Smokefree Class Competition								Total	
			0 Classes with no information about participation (n=35)		**1 Non-participating classes (n=321)**		**2 Participating classes who stopped participation (n=25)**		**3 Participating classes (n=59)**			
			Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Layer %
		Total	35	100.0%	321	100.0%	25	100.0%	59	100.0%	440	100.0%
Demographics	**Gender**	**0 male**	20	57.1%	214	66.7%	16	64.0%	47	79.7%	297	67.5%
		1 female	15	42.9%	107	33.3%	9	36.0%	12	20.3%	143	32.5%
Smoking behaviour	**Smoking**	**1 never smoked**	12	44.4%	129	43.7%	14	56.0%	29	49.2%	184	45.3%
		2 quitted smoking	7	25.9%	73	24.7%	6	24.0%	18	30.5%	104	25.6%
		3 smokes, but not every day	3	11.1%	30	10.2%	2	8.0%	5	8.5%	40	9.9%
		4 smokes every day	5	18.5%	63	21.4%	3	12.0%	7	11.9%	78	19.2%
School policy for the teachers	**Regulations about smoking**	**1 smoking prohibited everywhere**	9	26.5%	96	30.3%	4	16.0%	20	35.1%	129	29.8%
		2 prohibited apart from special zones	20	58.8%	199	62.8%	21	84.0%	35	61.4%	275	63.5%
		3 smoking prohibited only in classrooms	5	14.7%	22	6.9%	0	0.0%	2	3.5%	29	6.7%
Smoking perception	**students smoking in class**	**1 all**	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
		2 majority	0	0.0%	4	1.3%	0	0.0%	0	0.0%	4	0.9%
		3 about a half	2	5.7%	48	15.0%	3	12.0%	1	1.7%	54	12.4%
		4 few	22	62.9%	202	63.3%	21	84.0%	24	41.4%	269	61.6%
		5 no one	11	31.4%	65	20.4%	1	4.0%	33	56.9%	110	25.2%
Dealt with smoking	**Tobacco theme treated in class**	**1 Yes, in detail**	7	21.9%	73	24.9%	10	43.5%	25	46.3%	115	28.6%
		2 Yes, but not in detail	11	34.4%	131	44.7%	12	52.2%	23	42.6%	177	44.0%
		3 No	9	28.1%	54	18.4%	1	4.3%	0	0.0%	64	15.9%
		4 Don't know	5	15.6%	35	11.9%	0	0.0%	6	11.1%	46	11.4%

Table 3. *Regression analysis of daily smoking (binary) and weekly smoking (binary) on gender, age, nationality and participation in the Smokefree Class Competition controlled for the class cluster design effect*

		Daily smoking 0 No; 1 Yes				Weekly smoking 0 No; 1 Yes			
		b	**z**	**sig.**	**R-Square**	**b**	**z**	**sig.**	**R-Square**
Gender	**0 male; 1 female**	-0.04	-0.78		0.22	0.01	0.11		0.21
Age	**11 to 16**	0.39	15.63	*		0.37	17.60	*	
Nationality	**1 Switzerland; 2 Other country**	0.12	2.02	*		0.08	1.62		
Smokefree Class Competition	**0 Non-participating class; 1 Class with no information**	-0.02	-0.16			-0.10	-1.11		
	0 Non-participating class; 1 Participating class who stopped	-0.11	-0.90			-0.16	-1.60		
	0 Non-participating class; 1 Participating class	-0.52	-5.16	*		-0.58	-6.56	*	

Table 4. *Two-level regression analysis of friends smoking (ordered categorical) on gender, age, nationality, daily smoking (student level) and on students smoking in class and participation in the Smokefree Class Competition (teachers level) controlled for the class cluster design effect*

		Friends smoking	0 None of them; 1 Few of them; 2 About half of them; 3 The majority; 4 All of them		
		b	**z**	**sig.**	**R-Square**
Within Level					0.24
Gender	**0 male; 1 female**	0.02	0.27		
Age	**11 to 16**	0.40	11.91	*	
Nationality	**1 Switzerland; 2 Other country**	0.15	2.13	*	
Daily smoking	**0 No; 1 Yes**	2.81	28.26	*	
Between Level					0.28
Students smoking in class	**1 all; 2 majority; 3 about a half; 4 few; 5 no one**	-0.53	-7.60	*	
Smokefree Class Competition	**0 Non-participating class; 1 Class with no information**	-0.09	-0.66		
	0 Non-participating class; 1 Participating class who stopped	0.02	0.14		
	0 Non-participating class; 1 Participating class	-0.36	-3.52	*	

Table 5. *Structural equation modelling of well-being (latent outcome) on gender, age, nationality, smoking status and participation in the Smokefree Class Competition controlled for the class cluster design effect*

		Well being	**Feeling lonely 0.58; Feeling sad 0.76; Feeling in bad mood 0.67; Feeling nervous 0.60; Feeling tired 0.50; Feeling anxious 0.62; Feeling furious 0.61; Feeling excluded 0.57; Feeling weak 0.59; Self-confidence 0.40; Worthiness 0.46; Satisfaction 0.49**		
		b	**z**	**sig.**	**R-Square**
Gender	**0 male; 1 female**	-0.22	-18.19	*	0.09
Age	**11 to 16**	0.00	-0.21		
Nationality	**1 Switzerland; 2 Other country**	-0.01	-0.59		
Smoking	**0 I do not smoke; 1 Less than once a week; 2 At least once a week, but not every day; 3 Every day**	-0.08	-11.85	*	
Smokefree Class Competition	**0 Non-participating class; 1 Class with no information**	-0.04	-1.68		
	0 Non-participating class; 1 Participating class who stopped	-0.01	-0.54		
	0 Non-participating class; 1 Participating class	0.02	1.05		

Table 6. *Structural equation modelling of passive violence, active violence and classroom climate (latent outcomes) on gender, age, nationality, smoking status and participation in the Smokefree Class Competition controlled for the class cluster design effect*

		Passive violence	**Being bullied 0.46; Feeling unsafe 0.46; Belongings have been destroyed 0.54; Have been beaten 0.61; Have been threatened 0.66; Have been extorted 0.56; Have been robbed 0.55**										
		0.12	9.303	*		**Active violence**	**Involved in a fight 0.58; Taken part in bullying 0.52; Has beaten 0.69; Has threatened 0.66; Has extorted 0.54; Has destroyed 0.62; Has stolen 0.55**						
		-0.06	-8.878	*		-0.03	-3.974	*		**Classroom climate**	**Classmates like being together 0.60; Classmates are nice and helpful 0.88; Classmates take me as I come 0.63**		
		b	**z**	**sig.**	**R-Square**	**b**	**z**	**sig.**	**R-Square**	**b**	**z**	**sig.**	**R-Square**
Gender	**0 male; 1 female**	-0.13	-7.912	*	0.03	-0.34	-16.532	*	0.18	0.024	1.537		0.02
Age	**11 to 16**	-0.03	-4.050	*		-0.03	-4.224	*		-0.026	-2.999	*	
Nationality	**1 Switzerland; 2 Other country**	0.02	1.196			0.13	5.256	*		0	-0.002		
Smoking	**0 I do not smoke; 1 Less than once a week; 2 At least once a week, but not every day; 3 Every day**	0.06	6.054	*		0.23	15.927	*		-0.036	-3.696	*	
Smokefree Class Competition	**0 Non-participating class; 1 Class with no information**	-0.02	-0.513			0.03	1.253			-0.079	-1.761		
	0 Non-participating class; 1 Participating class who stopped	0.04	0.973			-0.01	-0.180			0.009	0.189		
	0 Non-participating class; 1 Participating class	0.02	0.933			0.02	0.503			0.12	4.915	*	

Table 7. *Structural equation modelling of passive violence and classroom climate (latent outcomes) on gender, age, nationality, smoking status and participation in the Smokefree Class Competition stratified by smoking status and controlled for the class cluster design effect*

Grouping Smoking	**0 I do not smoke**	**Passive violence**				**Classroom climate**		
		-0.063	-8.767 *					
		b	**z**	**sig.**	**R-Square**	**b**	**z**	**sig.**	**R-Square**
Gender	**0 male; 1 female**	-0.144	-8.955 *		0.033	0.027	1.564		0.015
Age	**11 to 16**	-0.017	-2.825 *			-0.029	-3.288 *		
Nationality	**1 Switzerland; 2 Other country**	0.031	1.589			-0.001	-0.029		
Smokefree Class Competition	**0 Non-participating class; 1 Class with no information**	-0.012	-0.466			-0.079	-1.851 *		
	0 Non-participating class; 1 Participating class who stopped	0.068	1.326			0.013	0.266		
	0 Non-participating class; 1 Participating class	0.015	0.672			0.117	4.708 *		
Grouping Smoking	**1 Less than once a week**	**Passive violence**				**Classroom climate**		
		-0.052	-2.025 *					
		b	**z**	**sig.**	**R-Square**	**b**	**z**	**sig.**	**R-Square**
Gender	**0 male; 1 female**	-0.082	-1.252		0.064	-0.076	-1.27		0.011
Age	**11 to 16**	-0.083	-3.089 *			0.006	0.176		
Nationality	**1 Switzerland; 2 Other country**	0.2	1.723			-0.06	-0.718		
Smokefree Class Competition	**0 Non-participating class; 1 Class with no information**	0.051	0.331			-0.127	-0.898		
	0 Non-participating class; 1 Participating class who stopped	0.03	0.25			-0.039	-0.27		
	0 Non-participating class; 1 Participating class	0.104	0.835			-0.073	-0.758		
Grouping Smoking	**2 At least once a week, but not every day**	**Passive violence**				**Classroom climate**		
		-0.034	-1.935					
		b	**z**	**sig.**	**R-Square**	**b**	**z**	**sig.**	**R-Square**
Gender	**0 male; 1 female**	-0.076	-1.309		0.069	-0.024	-0.363		0.017
Age	**11 to 16**	-0.09	-3.347 *			-0.003	-0.096		
Nationality	**1 Switzerland; 2 Other country**	0.039	0.545			-0.15	-1.677		
Smokefree Class Competition	**0 Non-participating class; 1 Class with no information**	0.126	0.592			-0.025	-0.18		
	0 Non-participating class; 1 Participating class who stopped	-0.088	-1.313			-0.086	-0.498		
	0 Non-participating class; 1 Participating class	0.065	0.379			0.124	1.502		
Grouping Smoking	**3 Every day**	**Passive violence**				**Classroom climate**		
		-0.087	-2.265 *					
		b	**z**	**sig.**	**R-Square**	**b**	**z**	**sig.**	**R-Square**
Gender	**0 male; 1 female**	-0.013	-0.182		0.013	0.101	1.809		0.028
Age	**11 to 16**	-0.05	-1.455			-0.013	-0.431		
Nationality	**1 Switzerland; 2 Other country**	-0.057	-0.782			0.031	0.461		
Smokefree Class Competition	**0 Non-participating class; 1 Class with no information**	-0.181	-1.609			-0.037	-0.332		
	0 Non-participating class; 1 Participating class who stopped	-0.095	-1.064			0.076	0.516		
	0 Non-participating class; 1 Participating class	0.246	1.111			0.363	4.122 *		

Table 8. *Two-level regression analysis of smoking status (ordered categorical) on gender, age, nationality, friends smoking (student level) and on students smoking in class, participation in the Smokefree Class Competition, teachers smoking and regulation about smoking (teachers level) controlled for the class cluster design effect*

		Smoking	**0 I do not smoke; 1 Less than once a week; 2 At least once a week, but not every day; 3 Every day**		
		b	**z**	**sig.**	**R-Square**
Within Level					0.448
Gender	**0 male; 1 female**	-0.032	-0.391		
Age	**11 to 16**	0.164	4.044	*	
Nationality	**1 Switzerland; 2 Other country**	-0.046	-0.414		
Friends smoking	**0 None of them; 1 Few of them; 2 About half of them; 3 The majority; 4 All of them**	1.283	33.939	*	
Between Level					0.723
Students smoking in class	**1 all; 2 majority; 3 about a half; 4 few; 5 no one**	-0.355	-4.285	*	
Smokefree Class Competition	**0 Non-participating class; 1 Class with no information**	0	-0.001		
	0 Non-participating class; 1 Participating class who stopped	0.111	0.864		
	0 Non-participating class; 1 Participating class	-0.556	-2.815	*	
Smoking	**1 never smoked; 2 quitted smoking; 3 smokes, but not every day; 4 smokes every day**	0.083	2.31	*	
Regulations about smoking for the teachers	**1 smoking prohibited everywhere in school complex; 2 prohibited apart from special zones (cafeteria, smoking area); 3 smoking prohibited only in classrooms**	-0.086	-1.107		
Tobacco theme treated in class	**1 Yes, in detail; 2 Yes, but not in detail; 3 No; 4 Don't know**	-0.06	-1.191		