THE GLOBAL YOUTH TOBACCO SURVEY IN THE SEYCHELLES – 2002

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SUMMARY

OBJECTIVES: This survey describes behaviors, knowledge, beliefs, opinions and other variables related to tobacco among students of secondary schools, as well as some information on drinking and marijuana use and relations with cigarette smoking.

METHODS: A two-stage cluster sample design was used to produce a representative sample of all students in grades S1, S2, S3, and S4 from all public and private schools in Seychelles. A questionnaire was self-administered on an anonymous and voluntary basis to all participants. 1321 (91%) of the 1453 sampled students (51 classes from 11 schools) completed a usable questionnaire (121 eligible students were absent and 11 refused to participate). Participants included 205 students aged 12 years or less (62 aged 11) [age category referred as '12-'], 277 students aged 13, 263 students aged 14, 301 students aged 15, and 97 students aged 16 or more (15 aged 17) [referred as '16+'].

RESULTS:
?? Overall, 49% (95% confidence interval: 44%-54%) of students have ever tried a cigarette (35% at age 12- to 72% at age 16+).
?? Overall, 26% (95% CI: 32%-40%) of students have smoked on at least 1 day during the past 30 days (19% at age 12- to 37% at age 16+) and 9% on at least 3 days (6% at age 12- to 18% age 16+).
?? Approximately 20% of all students have tried a cigarette before the age of 12.
?? Tobacco use was not largely different between boys and girls.
?? Over three-quarters of current smokers said they wanted to quit smoking and/or had tried to quit.
?? Approximately 40% and 60% of students have been exposed during the past 7 days to environmental smoke at home and in places other than home, respectively.
?? Three-quarters of all students recognized the direct and indirect hazards of smoke but only one-half of them recognized the addictive nature of smoking (similar results in smokers and non-smokers).
?? Only a minority of both boys and girls associated smoking with a positive image (smokers more often than non-smokers).
?? Most students saw or heard advertisements against tobacco but almost all of them saw actors smoking and/or brand names of cigarettes in movies during the past 30 days.
?? Approximately 60% of students recalled of a discussion on tobacco in class during the past 12 months.
?? 50% (95% CI: 46%-54%) of students have drunk alcohol on at least 1 day during the past 30 days (35% at age 12- to 67% at age 16+) and 20% on at least 3 days (15% at age 12- to 25% at age 16+).
?? Drinking frequency was not largely different among boys and girls.
?? 13% (95% CI: 10%-17%) of students have used marijuana at least once during the past 12 months (8% at age 13 and 28% at age 16+).
?? Smoking, drinking and marijuana use were strongly associated: regular drinking and marijuana use were several times more frequent in current smokers than non-smokers.

CONCLUSIONS: These findings emphasize the need to 1) strengthen school-based education programs to further raise awareness on tobacco and resistance skills among children; 2) tighten relevant regulations and/or legislation (e.g. to protect non-smokers from environmental tobacco smoke); and 3) develop smoking cessation programs accessible to the youth. The frequent clustering of smoking, drinking and marijuana use prompt for a comprehensive approach when addressing these risk behaviors. School-based surveys should be conducted at regular time intervals to monitor tobacco use among students and to assess the impact of tobacco control programs.

INTRODUCTION

The tobacco epidemic

Tobacco use is the largest preventable cause of death and a leading public health problem worldwide (1-3). Smoking causes approximately 30-40 percent of all deaths among the middle-aged population (35 to 69 years) and those killed by tobacco lose in average 20-25 years of the non-smokers' life expectancy (4). According to the World Health Organization, tobacco use caused 4 million deaths per year in 2000 and this figure is expected to rise to 10 million by the year 2030, as tobacco use spreads (particularly in the developing countries). Various mechanisms underlie the epidemic of tobacco: the strongly addictive nature of nicotine -which is as powerfully addictive as heroin or cocaine (5)-, large social acceptance of this culturally ingrained habit, and the low recognition of this health hazard by the public hindered by tobacco industry's advertising and promotion (6,7). Although about 70-80% of smokers want to quit, less than half of smokers succeed in stopping permanently before the age of 60.

In all countries, most adult smokers (often more than 80%) start using tobacco in their teens or earlier. Young people are indeed at particularly high risk of taking up smoking, as they constitute the preferred target of the tobacco industry and because children underestimate, even more than adults, the health hazards of smoking and the strong addictive nature of nicotine. Hence, young people should be a primary focus for intervention strategies to curb the tobacco epidemic.

Tobacco use and tobacco control in Seychelles

In the Seychelles, a population-based survey in 1989 and another one in 1994 showed that approximately 40-50% of men and 7-10% of women smoked at age 25-64 (the prevalence slightly decreased from 1989 to 1994). Male and female smokers smoked an average of 12 and 7 cigarettes per day, respectively (8,9). A survey based on the WHO Health Behavior in School going Students (HBSC) self-administered, anonymous questionnaire performed in 2001 showed that 13% of students aged 15 years reported to smoke cigarettes at least once per week (10). Two local private manufacturers, whose stockholders do not include government and are also not related to the main transnational tobacco manufacturers, produce a substantial part of all cigarettes marketed in the country, possibly one-half or two-thirds.

Measures for tobacco control in Seychelles include, among others, a total ban on advertising in national mass media, billboards and other means for more than 2 decades (enforced), high taxes on cigarettes (amounting to at least 60% of retail price), absence of vending machines nationwide, a ban of smoking in public transports, schools and health facilities (fairly well enforced), and legislation to prohibit sales to minors. Awareness programs take place regularly, including the organization of high-profile nationwide activities for World No Tobacco Day since the early 1990s, awareness programs on the mass media several times per year, integration of health education program on health lifestyles in the school curriculum. A multisectoral National Committee for Tobacco Control (NCTC) has been set up by the Minister of Health in 2001 it is expected to submit a proposal for a national plan for tobacco control in 2003, including a proposal for a comprehensive legislation and a smoking cessation program. The Seychelles has been actively involved in all meetings related to the Framework Convention on Tobacco Control since 1999.

The Global Youth Tobacco Survey (GYTS)

Surveillance systems and studies of the determinants of smoking behaviors are central for designing and monitoring tobacco control programs at a population level. The World Health Organization (WHO), spearheaded by the Tobacco Free Initiative (TFI), the United Nations Children's Fund (UNICEF) and the Office on Smoking and Health in the Centers for Disease Control and Prevention (OSH-CDC), have developed the Global Youth Tobacco Survey (GYTS), a standard instrument to assess smoking prevalence and various other variables related to smoking in the youth aged 13-15 (11). The GYTS has been or is being administered in several dozens of countries worldwide and more countries are expected to join this global survey. The GYTS is not only useful to assess the tobacco situation among the youth at one point in time but repeat surveys over time (e.g. every 5 years) will provide useful information for monitoring the tobacco situation and the impact of interventions.

The GYTS is a school-based tobacco survey that focuses on adolescents aged 13-15 years. The GYTS attempts to address the following issues:
?? Determine the level of tobacco use
?? Estimate age of initiation of cigarette use
?? Estimate levels of susceptibility to become cigarette smokers
?? Estimate exposure to tobacco advertising and counter-advertising
?? Identify key intervening variables, such as attitudes and beliefs on behavioral norms with regard to tobacco use among young people
?? Assess the extent to which prevention programs are reaching school-based populations and establish the subjective opinions of those populations regarding such interventions

The main steps of the Global Youth Tobacco Survey in Seychelles - 2002

The interest of Seychelles to conduct a Global Youth Tobacco Survey (GYTS) was expressed at an informal meeting held by the World Health Organization (WHO) and the U.S. Center of Disease Control (CDC) during the meeting of the Intergovernmental Negotiating Body for the Framework Convention on Tobacco Control (FCTC) in Geneva in March 2002. A representative of Seychelles attended a meeting organized by the WHO and CDC in Harare, 8-10 July 2002, aimed at training participants to the methodology of the GYTS. Following this meeting, the Ministry of Health and the Ministry of Education and Youth in Seychelles convened that a first GYTS could be conducted in Seychelles in October 2002. Preparatory work by the Unit for Prevention and Control of Cardiovascular Disease (UPCCD) in the Ministry of Health, with the support of CDC, took place in August-September 2002, including the finalization of the budget (support of the WHO), selection of a two-stage random sample of students, preparation and pretest of a final questionnaire, printing of the questionnaire and answer forms, and training of 52 field supervisors. The study took place on the 8th October 2002, 8:00-9:00 am, in the selected 51 classes of S1, S2, S3 and S4 on Mahé, Praslin and La Digue (a total of 1453 eligible students). Along with the standard procedure for the GYTS in participating countries, answer sheets were sent by DHL to the CDC in Atlanta for data entry by optic character recognition and an electronic file of the survey data, inclusive sampling weights, was sent back to Seychelles within a few weeks. UPCCD further analyzed the data and issued a report of the results by the end of December 2002. Dissemination of the results to the key persons from the concerned ministries (Ministry of Education and Youth and Ministry of Health) has been organized to take place by end of January 2003. It is expected that results will be examined in an international perspective during a WHO-CDC meeting at the African region level sometimes in 2003.

SUBJECTS AND METHODS

The Seychelles

The Republic of Seychelles, an archipelago of over a hundred of islands, is located in the Indian Ocean, east of Kenya and north of the islands of Mauritius and Madagascar. The population was 81,200 persons in 2001 and approximately 90% of the inhabitants live on the main island, Mahé, while most of the remaining population lives on 2 nearby islands. Tourism and fishing have become the main industries and the real GDP per capita increased from US$2927 in 1980 to US$5731 in 1999. Tropical scourges such as malaria, shistosomiasis or bilharziosis are unknown. Non-communicable diseases, particularly cardiovascular disease, hypertension and diabetes, and cancer have become the most frequent causes of morbidity and mortality as the country experiences rapid epidemiologic and demographic transitions. The infant mortality rate has dropped from approximately 50 to 11 per 1000 births during the past 25 years. Life expectancy currently reaches 68 years for men and 78 years for women. Health care is provided mainly through a national health system operated by the Ministry of Health

Sample and design

All schools containing the grades S1, S2, S3, and S4 were included in the sampling frame. These grades follow pre-crèche, crèche, P1, P2, P3, P4, P5 and P6 95% of students at primary and secondary levels attend public schools (operated by the Ministry of Education and Youth) while the remaining students attend private schools. Data for public schools were obtained from the Ministry of Education and Youth and data for the 3 private schools were obtained from the respective schools and a list was produced with the expected numbers of all boys and girls in each of the S1-S4 classes from all public and private schools. A two-stage cluster sample design was used to produce a representative sample of students. The first-stage sampling frame consisted of all schools containing the grades S1, S2, S3, and S4. Schools were selected with probability proportional to school enrollment size. The second-stage sampling frame consisted of an equal-probability sampling (with a random start) of all S1-S4 classes from the selected schools. All students in the selected classes were eligible to participate in the survey.

Questionnaire

The questionnaire was anonymous and self-administered and it explicitly did not include any information that would permit to identify participants. The questionnaire consisted of "core" and "optional" questions. The core questions have been used in all countries conducting the GYTS study and allow for international comparison of results, while optional questions address specific issues in individual countries. The questionnaire used in Seychelles contained all 56 core questions of the GYTS standard questionnaire and 15 additional questions (4 on smoking, 6 on alcohol drinking, and 5 on the use of illegal drugs).

Data collection

The Ministry of Education and Youth (MOEY) provided assistance in terms of schools registry for the sample selection and organized the necessary contacts to the randomly selected schools. The Ministry of Health (MOH) was responsible for selecting, training and supervising the field supervisors. The field supervisors were mainly selected from students of the School of Health Studies (in the MOH). Fifty-two field supervisors were trained during two half-day workshops organized 1 week before the survey. The participants were assigned to participating schools. They were responsible for the delivery and collection of all the survey documentation forms, answer sheets and questionnaires and for reporting on the number of students not attending class on the date of the survey or refusing to participate to the survey. The survey took place on Tuesday the 8th October 2002 in the whole country (3 islands) and between 8:00 to 9:00 am in most classes. Students were informed on the aims of the survey and that they were free to participate. Most students could complete the questionnaire within 35-45 minutes but a minority of students needed up to 60-90 minutes. One field supervisor was present in each participating class: the supervisor introduced the survey to the students and was the only adult present in class during the conduct of the survey.

Analyses

A weight was associated with each questionnaire to reflect the likelihood of sampling each student within a two-stage sampling frame and to reduce bias by compensating for differing patterns of non-response. The weight used for estimation is given by the equation: $W = W1 * W2 * f1 * f2 * f3 * f4$ where W1 is the inverse of the probability of selecting the school, W2 is the inverse of the probability of selecting the classroom within the school, f1 is a school-level non-response adjustment factor calculated by school size category (small, medium,

large), f2 is a class adjustment factor calculated by school, f3 is a student-level non-response adjustment factor calculated by class, and f4 is a post-stratification adjustment factor calculated by gender and grade. The weighted results can be used to make valid inferences concerning tobacco use and other findings of students in grades S1, S2, S3, and S4. Analyses were made using the Stata 7.0 software (svy* commands). 95% confidence intervals were calculated for all weighted estimates of frequency. Differences between categories of sex, age and current smoking status that reached a P value of <0.05 have been highlighted. The age category '12-' includes the students aged 12 and a few students aged 11. The age category '16+' includes the students aged 16 and a few students aged 17.

RESULTS

1) Participation rates

Table 1 shows the numbers of all students attending grades S1 to S4, students selected to participate in the survey and students who actually participated in the survey. The questionnaire could not be administered to 132 eligible students (121 students were absent and 11 refused to participate).

Table 1a. Students in S1 to S4, students eligible to participate in the GYTS and actual participants, by class level and sex

Class		Students in all classes			Selected for GYTS			Participated to GYTS		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
S1	N	835	793	1628	223	184	407	200	174	374
	%	100	100	100	26.7	23.2	25.0	24.0	21.9	23.0
S2	N	797	753	1550	155	170	325	144	165	309
	%	100	100	100	19.4	22.6	21.0	18.1	21.9	19.9
S3	N	742	765	1507	220	225	445	202	208	410
	%	100	100	100	29.6	29.4	29.5	27.2	27.2	27.2
S4	N	681	753	1434	150	126	276	118	110	228
	%	100	100	100	22.0	16.7	19.2	17.3	14.6	15.9
Total	N	3055	3064	6119	748	705	1453	664	657	1321
	%	100	100	100	24.5	23.0	23.7	21.7	21.4	21.6

At the first stage of the sampling frame (school level), 12 (100%) of the 12 sampled schools participated. At the second sampling frame (student level within each selected class), 1321 (90.92%) of the 1'453 sampled students completed usable questionnaires. The overall response rate was therefore 100% * 90.92% = 90.92%.

Table 1b. Age on the day of the survey (as indicated by the students in the answer forms, 15 missing data)

| Age	Boys	Girls	Total
11	37	21	62
12	96	106	205
13	124	147	277
14	160	193	364
15	146	151	301
16	47	32	82
17	10	4	15
Total	620	654	1306

2) Tobacco use

The proportion of students who ever tried a cigarette, even a puff, increased from 35% at age 12- to 72% at age 16+ and was higher in boys than girls. Approximately 1 out of 5 students tried their first cigarette at the age of 11 or less. Overall, 26.1% of all students smoke a cigarette on at least on day during the past 30 days ('current smoker'). This proportion increased from 18.9% at age 12- to 37.2% at age 16+. However, the proportion of students who smoked more regularly was lower. For example, the proportion of students smoking on at least 3 days during the last 30 days was 9.4% overall (5.7% at age 12- and 17.5% at age 16+). Tobacco use was higher, although not by large, among boys than girls. The proportion of students who did not smoke during the past 30 days but thought of trying to smoke within the next 12 months (i.e. students susceptible to start smoking) increased from 4% at age 12- to 11% at age 16+. The proportion of all current smokers who smoked at least 2 cigarettes on the days they were smoking increased from 22% at age 12- to 42% at age16+.

Table 2. Tobacco use

| | Total | Sex | | | Age | | | | | |
		Boy	Girl	P	12-	13	14	15	16+	P
Experimentation of cigarettes (among all students)										
Ever tried a cigarette	49.1	56.1	42.8	*	34.6	41.3	48.2	60.8	71.7	*
Tried a first cigarette, even 1-2 puffs, at age of 11 or less	20.7	26.4	15.2	*	22.6	24.2	19.7	16.2	24.5	ns
Current use ot tobacco (among all students)										
Smoked cigarettes on at least 1 day during past 30 days ('**current smoker**')	26.1	31.2	21.4	(*)	18.7	22.8	23.6	33.1	37.2	*
Smoked cigarettes on at least 3 days during past 30 days	9.4	12.8	6.1	*	5.7	5.6	9.0	13.3	17.5	(*)
Smoked cigarettes on at least 10 days during past 30 days	5.9	8.4	3.5	(*)	3.1	3.9	4.8	8.7	13.4	(*)
Susceptible to start smoking (among non current smokers)										
Thought of starting within next 12 months	5.8	5.2	6.3	ns	3.9	6.3	3.9	7.3	10.6	ns
Would smoke a cigarette if offered one by a best friend	5.9	6.2	5.7	ns	3.4	6.8	3.1	8.9	11.5	ns
Number of cigarettes smoked on days smoking (among current smokers)										
Proportion smoking at least 2 cigarettes per day on days smoking	25.3	32.3	15.9	*	21.7	19.3	22.5	27.0	41.9	*

12-: age 12 or less; 16+: age 16 or more.
*: $P<0.05$; (*): P : marginally significant

Fig 1. Number of days smoking over past 30 days
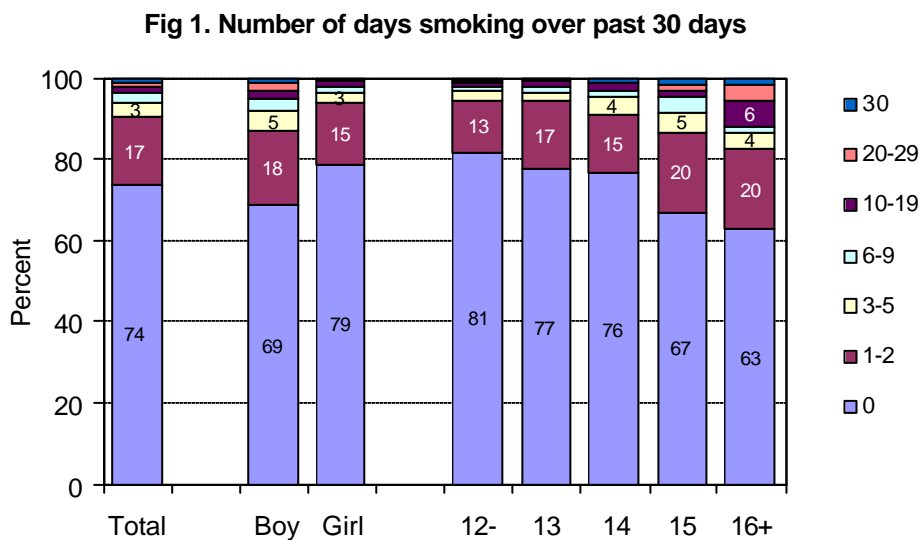
3) Cessation

Over three-quarters of current smokers wanted to stop smoking during the past 12 months and a similar proportion reported to have tried to stop during the past 12 months. These proportions did not differ substantially by sex or age. As many as 4 out of 5 current smokers believed that they could stop it they wanted to.

Table 3. Cessation

| | Total | Sex | | | Age | | | | | |
		Boy	Girl	P	12-	13	14	15	16+	P
Thought they would probably or definitely quit in 1 year	61.4	62.6	59.8	ns	82.2	70.0	62.8	50.7	50.6	ns
Thought they would probably or definitely quit in 5 years	70.3	71.7	68.5	ns	75.8	88.1	71.7	64.3	50.1	ns
Wanted to stop during the past 12 months .	77.4	81.0	73.0	ns	88.4	80.2	82.5	69.8	73.4	ns
Tried to stop smoking during the past 12 months	76.8	77.6	75.8	ns	77.7	78.3	84.3	72.7	77.5	ns
Thought they would be able to stop if they wanted to	82.0	80.3	84.4	ns	74.7	72.9	87.5	85.5	74.8	ns

4) Environmental tobacco smoke

Approximately 4 out of 10 students stated that they were exposed to environmental tobacco smoke at home and approximately 60% in public places. The proportions, expectedly, did not depend on sex and age but were larger for current smokers than non-smokers. Approximately two-thirds of students reported to support a partial or total ban of smoking in enclosed places. The proportions were higher in older age categories and did not differ significantly between smokers and non-smokers.

Table 4. Environmental tobacco smoke

| | Total | Sex | | | Age | | | | | | Current smoker | | |
		Boy	Girl	P	12-	13	14	15	16+	P	No	Yes	P
One or both parents smoke	31.6	28.2	34.9	ns	30.2	34.7	30.2	29.9	39.9	ns	29.2	36.2	ns
Someone smoked in your presence in your home over past 7 days	43.2	41.1	45.3	ns	43.7	42.5	40.9	46.4	47.4	ns	38.5	56.2	*
Someone smoked in your presence in places other than home over past 7 days	59.7	58.8	60.6	ns	54.3	59.8	57.2	65.6	62.7	ns	55.1	72.5	*
Is in favour of total or partial ban of smoking in enclosed places	62.0	60.8	63.2	ns	46.3	52.1	65.4	74.9	72.4	*	64.1	57.6	ns

5) Knowledge on health hazards and addiction of tobacco

Approximately two-thirds of students stated that smoking and environmental tobacco smoke is harmful for one's health. Only one-half of students reported that it would be difficult to quit smoking once someone has started. Knowledge was slightly lower (although not significantly) in boys than girls, in the younger than older age categories, and in current smokers than non-smokers.

Table 5. Knowledge on health hazards and addiction of tobacco

| | Total | Sex | | | Age | | | | | | Current smoker | | |
		Boy	Girl	P	12-	13	14	15	16+	P	No	Yes	P
Thought smoking is dangerous for one's health	76.9	74.2	79.4	ns	60.4	75.1	80.7	83.6	79.1	ns	79.3	71.3	ns
Thought smoke from other people's cigarettes is harmful to you	73.4	70.8	76.0	ns	58.1	70.5	79.4	79.4	77.8	ns	76.8	67.1	ns
Thought it would be difficult to quit once someone has started to smoke	54.9	50.0	59.6	ns	42.8	48.9	59.1	64.6	52.4	ns	54.9	53.0	ns

6) Attitudes related to cigarette smoking

Only approximately 1 out of 10 students thought positively (e.g. 'successful', 'intelligent', 'sophisticated', etc) of a man or a woman who smokes. The proportion was however higher among smokers than non-smokers and marginally larger among boys than girls. Approximately one-third of students thought that smoking makes people more comfortable at social gatherings, and the proportion was higher among smokers than non-smokers. Approximately 15% of students thought that cigarettes makes boys more attractive and 10% of students thought that smoking makes girls more attractive. These proportions were higher, although not by large, among smokers than non-smokers. Approximately 40% of students thought that boys who smoke have more friends and approximately 20% of students thought that girls who smoke have more friends.

Table 6. Attitudes related to cigarette smoking

	Total	Sex			Age						Current smoker		
		Boy	Girl	P	12-	13	14	15	16+	P	No	Yes	P
Thought that a man smoking looks 'successful', 'intelligent', or 'real man' vs 'lacks confidence', 'loser', or 'stupid'	12.7	16.3	9.3	(*)	14.6	9.7	10.3	14.9	21.6	ns	6.4	26.8	*
Thought that a female smoking looks 'successful', 'intelligent', or 'sophisticated' vs 'lacks confidence', 'loser', or 'stupid'	10.6	12.6	8.7	ns	15.0	7.8	9.4	8.6	17.2	ns	5.9	17.9	*
Thought that smoking cigarettes makes people more comfortable at social gatherings	30.7	30.6	30.8	ns	16.9	27.0	33.3	43.0	27.6	ns	26.6	43.2	*
Thought that smoking cigarettes makes boys more attractive	15.3	15.5	15.0	ns	17.2	17.1	15.8	12.7	12.7	ns	10.9	25.9	*
Thought that smoking cigarettes makes girls more attractive	10.4	10.9	10.0	ns	12.2	11.5	12.3	6.0	12.5	ns	8.0	16.2	*
Thought that boys who smoke cigarettes have more friends	40.2	34.0	46.2	*	43.5	39.0	39.9	36.4	45.4	ns	40.1	43.7	ns
Thought that girls who smoke cigarettes have more friends	19.6	19.6	19.6	ns	20.3	22.3	18.8	16.1	24.7	ns	17.6	22.9	ns

7) Media and advertising for and against smoking

Almost 9 out of 10 students saw advertisements against smoking during the past 30 days, irrespective of sex, age or smoking status. Almost all students saw, during the past 30 days, actors smoking in movies and cigarette brand names when watching TV programs.

Table 7. Media and advertising for and against smoking (during past 30 days)

	Total	Sex			Age						Current smoker		
		Boy	Girl	P	12-	13	14	15	16+	P	No	Yes	P
Saw or heard a few or a lot of advertissments against tobacco (TV, billboards, etc)	89.2	88.2	90.1	ns	82.5	89.7	90.7	91.0	90.9	ns	89.5	90.2	ns
Saw an actor smoking when watching a movie, video or TV	96.1	94.4	97.7	ns	92.6	96.2	96.5	98.6	94.9	ns	97.1	95.7	ns
Saw cigarette brand names when watching sport or other programs on TV	81.4	81.4	81.3	ns	78.2	84.3	81.2	80.7	84.1	ns	79.8	87.2	ns

8) Access and availability

Approximately two-thirds of current smokers got at least 1 cigarette from a store during the past 30 days. Shopkeepers did not refuse to sell cigarettes to students (minors) in two-thirds of students who attempted to buy cigarettes from a shop.

Table 8. Access to cigarettes (among current smokers, during past 30 days)

	Total	Sex			Age					
		Boy	Girl	P	12-	13	14	15	16+	P
Got 1 or more cigarettes from a store	63.8	71.2	53.7	(*)	53.1	59.3	68.2	66.6	69.9	ns
Spent more than 10 rupees for cigarettes	15.1	18.2	11.0	ns	14.3	13.0	15.0	15.6	22.8	ns
Shopkeeper did not refuse to sell cigarette (among students who tried to buy in a shop)	65.9	67.9	62.5	ns	51.1	48.2	61.2	80.9	61.7	ns

9) Exposure to education on tobacco

Approximately 60% of students reported to have had a lesson in class on the dangers of smoking during the past 12 months and approximately 40% reported to have had a lesson during which there was a discussion about the reasons why young people start smoking. Approximately 50% of students reported to have had a discussion on the harmful effects on smoking with anyone in their family during the past 12 months.

Table 9. Exposure to education on tobacco

|	Total	Sex			Age						Current smoker		
		Boy	Girl	P	12-	13	14	15	16+	P	No	Yes	P
Teacher or other person talked in class about danger of smoking during past 12 months	57.3	56.3	58.2	ns	47.1	60.0	63.5	57.8	56.6	ns	58.0	56.6	
Discussion in class on why young people start smoking during past 12 months	41.2	41.4	41.0	ns	38.4	44.7	43.2	37.4	40.3	ns	40.3	42.4	
Anyone in your family discussed the harmful effects of smoking with you	54.0	54.2	53.8	ns	45.2	53.8	61.1	54.6	51.8	ns	55.3	52.0	

10) Use of alcohol and marijuana and relation with smoking

One-half of students drunk alcohol on at least 1 day over the past 30 days (39% of students aged 12- to 65% of students aged 16+). One out of 8 children drunk on at least 3 days (16% at age 12- to 25% at age 16+). High proportions of students reported to have been drunk at least once (46%), respectively 3 times (20%). The proportion of students who reported drinking were much higher in current smokers than in non-smokers, e.g. 76% vs 40% among students drinking on at least 1 day during the past 30 days and 36% vs 8% among students drinking on at least 3 days during the past 30 days. The proportion of students who reported to have used marijuana at least once during the past 12 months ranged from 14% in students aged 12- to 28% in students aged 16+. The proportion of students who reported to have used marijuana was much higher among current smokers than non-smokers (36% vs 4%).

Table 10. Use of alcohol and marijuana and relation with smoking

|	Total	Sex			Age						Current smoker		
		Boy	Girl	P	12-	13	14	15	16+	P	No	Yes	P
Drunk alcohol on at least 1 day during past 30 days	50.0	51.0	49.1	ns	39.4	47.6	44.6	61.2	64.5	*	39.7	75.5	*
Drunk alcohol on at least 3 days during past 30 days	16.5	18.2	14.9	ns	15.6	13.5	14.7	20.6	24.6	*	8.1	36.2	*
Has been drunk at least 1 time (lifetime)	46.0	47.9	44.1	ns	34.7	41.2	44.1	52.7	68.6	*	34.5	75.8	*
Has been drunk at least 3 times (lifetime)	19.7	21.9	17.6	ns	14.7	14.0	18.4	25.3	36.1	*	11.8	39.8	*
Has taken marijuana or hashish at least once over past 12 months	13.2	18.6	7.9	ns	13.8	7.9	8.5	17.5	27.5	*	3.9	36.1	*
Has taken marijuana or hashish at least twice during past 12 months	7.5	10.7	4.5	ns	8.0	4.1	5.2	8.1	21.9	*	2.0	21.5	*

Fig 2. Alcohol drinking (number days during past 30 days)
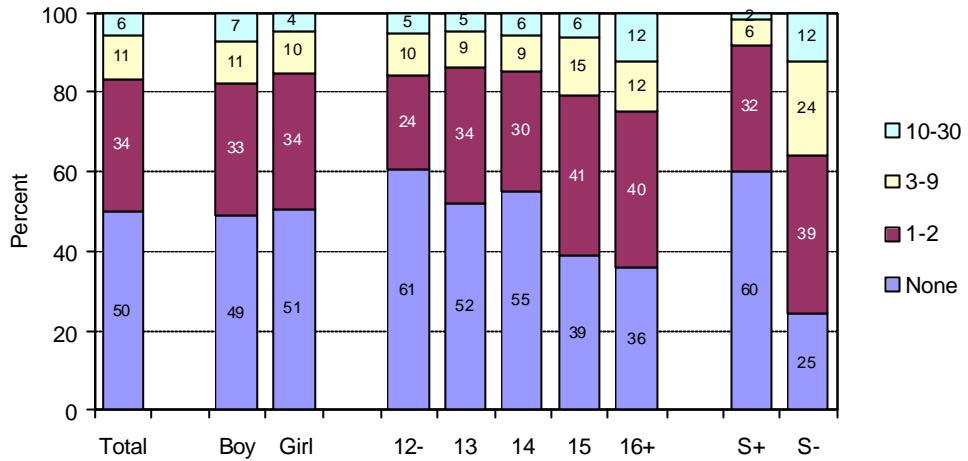
Fig 3. Number of times being drunk (lifetime)
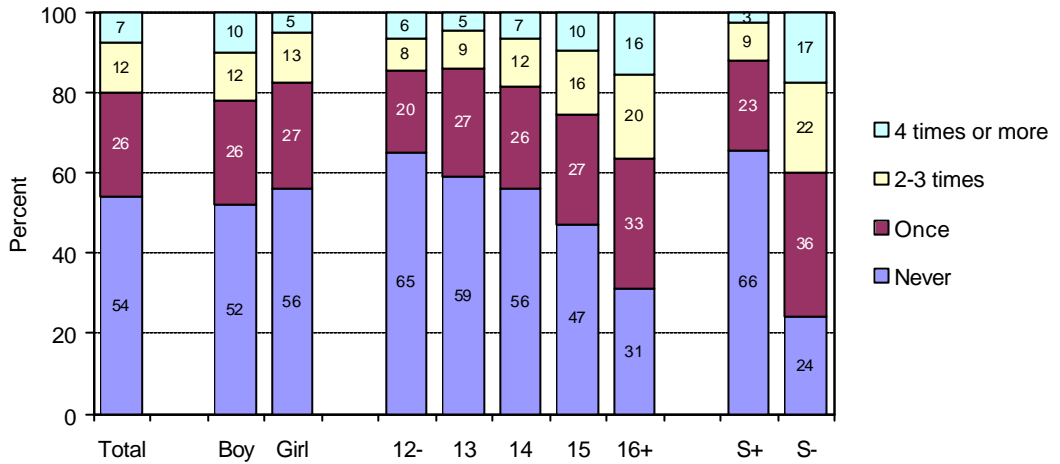
Fig 4. Marijuana or hashish (number of times during past 12 months)
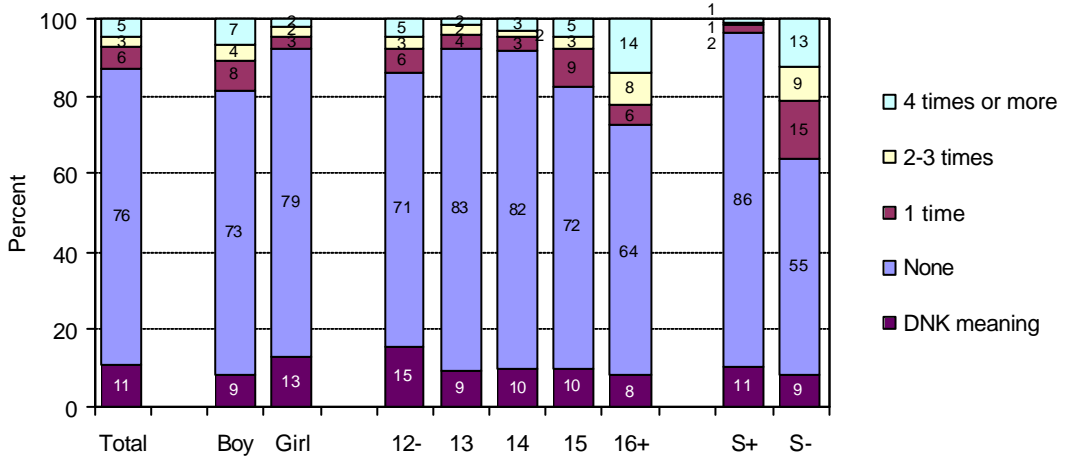
NB: S+ denotes current smokers (i.e. who have smoked cigarettes on at least 1 day during the past 30 days); S-
denotes students who are not currently smoking.

SUMMARY OF SELECTED MAIN FINDINGS

?? Overall, 49% of students have ever tried a cigarette (35% at age 12- to 72% at age 16+).
?? Overall, 26% of students have smoked on at least 1 day during the past 30 days (19% at age 12- to 37% at age 16+) and 9% on at least 3 days (6% at age 12- to 18% age 16+).
?? Approximately 20% of all students have tried a cigarette before the age of 12.
?? Tobacco use was not largely different between boys and girls.
?? Over three-quarters of current smokers said they wanted to quit smoking and/or had tried to quit.
?? Approximately 40% and 60% of students have been exposed during the past 7 days to environmental smoke at home and in places other than home, respectively.
?? Three-quarters of all students recognized the direct and indirect hazards of smoke but only one-half of them recognized the addictive nature of smoking (similar results in smokers and non-smokers).
?? Only a minority of both boys and girls associated smoking with a positive image (smokers more often than non-smokers).
?? Most students saw or heard advertisements against tobacco but almost all of them saw actors smoking and/or brand names of cigarettes in movies during the past 30 days.
?? Approximately 60% of students recalled of a discussion on tobacco in class during the past 12 months.
?? 50% of students have drunk alcohol on at least 1 day during the past 30 days (35% at age 12- to 67% at age 16+) and 20% on at least 3 days (15% at age 12- to 25% at age 16+).
?? Drinking frequency was not largely different among boys and girls.
?? 13% of students have used marijuana at least once during the past 12 months (8% at age 13 and 28% at age 16+).
?? Smoking, drinking and marijuana use were strongly associated: regular drinking and marijuana use were several times more frequent in current smokers than non-smokers.

DISCUSSION

Tobacco use

It is well established that most smokers (often more than 90% of them) start smoking, in many countries, before the age of 18, with substantial proportions of smokers starting at a very young age, e.g. before the age of 10 (1,2,5). Early smoking initiation relates to several factors, including an inclination of children for experimentation, social and peer pressure, and advertising strategies by tobacco companies that preferentially target the young. This early initiation of smoking underlies the need to give particular attention to the youth when considering tobacco control measures.

The findings related to tobacco use in Seychelles are consistent with these international trends: approximately 20% of students in Seychelles have tried a cigarette before the age of 12, two-thirds of students have tried a cigarette by the age of 16, and one-third of students smoked on at least 1 day during the past 30 days ('current smokers') at aged 15-16 (**Table 2**).

Prospective studies in Seychelles and other populations should clarify the extent to which 'experimenters' and occasional smokers will eventually become addicted and turn into long-term smokers. This proportion is likely to be driven by various factors in Seychelles, including (but not limited to) policies that discourage tobacco smoke on one hand (e.g. a total ban on all forms of advertisement of tobacco products since several decades) while, on the other hand, a tradition of social tolerance may favor early experimentation of various behaviors (e.g. large proportions of teenagers using alcohol or marijuana, as found in this study [**Table 10**] or reporting sexual intercourse as shown recently in another youth study).

It should also be observed that tobacco use was not largely different between male and female students, in contrast to the largely higher proportions of male than female adult smokers in Seychelles (8,9). One can therefore anticipate an increasingly higher prevalence of smoking among adult females over the next decades. Also, it must be mentioned that other tobacco products (e.g. cigars, pipe, bidies, smokeless tobacco) are not available in the country and questions on the use of these products among children are not relevant currently.

Overall, a substantial proportion of students report to smoke and a large proportion of students have tried their first cigarette at a very young age. This emphasizes the need to further develop and sustain school-based awareness programs and relevant tobacco control policies.

Smoking cessation

It has been well demonstrated that, in most countries, the proportion of smokers who whish to stop is high (often around 80%) while long-term quit rates are typically low. This emphasizes the powerful addictive nature of nicotine. The findings in Seychelles confirm this trend with over three-quarters of current smokers who wish or have tried to quit smoking (**Table 3**). On the other hand, the fact that as many as two-thirds of the current smokers believe that they will stop smoking within 1 or 5 years clearly shows that a large proportion of them underestimate the powerful addictive nature of nicotine. The underestimation of the addictive nature of nicotine also appears from the answers to the questions exploring knowledge on addiction of tobacco (**Table 5**). These findings emphasize the need to provide more information on the addictive nature of tobacco through the school-based health education programs as well as the need to develop relevant counseling and cessation programs available to the youth.

Environmental tobacco use

It is now well demonstrated that environmental tobacco smoke increases the risk of cardiovascular disease, cancer and other smoke-related diseases among non-smokers exposed to cigarette smoke (1-2). The data in Seychelles showed that students were largely exposed to environmental tobacco smoke: approximately 40% of all students have been exposed to smoke during the past 7 days at home and 60% in other places (**Table 4**). Expectedly, these proportions were higher among current smokers than non-smokers, which emphasizes that having parents, friends or other role models who smoke is an important determinant of smoking initiation. The dangers of environmental tobacco smoke were however well recognized by a large majority of students, inclusive the current smokers (**Table 5**). These findings suggest that more education is needed to incite smokers to restrict their smoking to locations where non-smokers are not exposed to smoke (e.g. outside their home) and the need to develop relevant regulations to ensure that non-smokers are not exposed to environmental smoke.

Knowledge on tobacco products

An important determinant of smoking (among adults and children alike) is the underestimation of the hazardous health effects of smoking, a situation that has been exploited and fostered by the tobacco industry. The study in Seychelles shows that three-quarters of all students recognized that tobacco smoke is hazardous to both smokers and non-smokers exposed to environmental smoke (**Table 5**). This knowledge was not largely different between smokers and non-smokers. This fairly high level of appropriate knowledge may reflect, among other factors, the facts that education on tobacco has been integrated in the school curriculum for several years and that advertisements against tobacco appear regularly on the national mass media. For example, anti-smoking messages were aired on prime time on several days per week for several months on the single available national TV channel (including at the time of this survey). However, only one-half of all students (irrespective of their smoking status) recognized that it would be difficult to quit smoking once someone has started, which reflects the extent to which students underestimate the addictive nature of tobacco. These findings suggest that health education programs should be further strengthened (including relevant training of trainers) so that all students are able to recognize the health hazards of smoking, including the powerful addictive nature of nicotine. Such health education should be started early (e.g. before the age of 10) in view of the substantial proportion of students who experience cigarettes at an early age.

Attitudes related to cigarette smoking

A powerful determinant of smoking among the youth relates to the belief that cigarette smoking is an attribute of grown-up persons and that smoking confers sophistication and glamour to those engaging in this behavior, as skillfully depicted in advertisements by the tobacco industry. Data in Seychelles showed that only 1 out of 10 students associated smoking with a positive image, such as being successful, intelligent or sophisticated (**Table 6**). This proportion was expectedly higher, although not largely, among smokers than non-smokers (approximately 25% vs 6%). Similarly low proportions of students thought that boys, respectively girls, who smoke are more attractive. The finding that only few students had a positive attitude toward smoking may relate to sustained campaigns against smoking (billboards, murals, TV programs) while advertising for tobacco products has been totally banned in the country for several decades (acknowledging that advertising for tobacco does appear in movies or TV programs produced abroad). Further education programs could further remove the false images associated with smoking among the minority of students not yet convinced while ongoing educational programs are also necessary youth to counteract the positive image of smoking conveyed through movies or some imported TV programs.

Media and advertising for and against smoking

As many as 9 out of 10 students saw advertisements against smoking during the past 30 days, without substantial difference by sex, age or smoking status. This may reflect a large exposure of most students to the numerous anti-smoking programs on the national mass media (which also occurred during the months preceding the survey). It should also be noted that promotion of tobacco products (e.g. provision of free cigarette samples, sponsoring of cultural or sport events by tobacco companies) does not occur in Seychelles and sponsoring of cultural or sportive events by tobacco companies, which was already minimal in the past, has been banned recently. However, almost all students saw actors smoking or cigarette brand names in movies or imported TV programs. These findings emphasize the need to ensure that advertisement and promotion of tobacco products remain totally prohibited (e.g. by enacting relevant legislation since restrictions have relied on informal policies so far) and the need to take measures to counter tobacco advertisements that appear through the Internet, movies and imported TV programs.

Access and availability

The survey showed that a majority of smokers could buy cigarettes from shopkeepers despite a regulation that prohibits the sale of cigarettes (and alcohol) to minors. This may relate to the facts that cigarettes are sold in virtually all the numerous small shops throughout the country and that the sale of cigarettes by units is permitted. Although it is known that restricting the supply of cigarettes is not a very effective measure to curb tobacco use, measures should be taken to enforce the current regulation that prohibits the sale of cigarette to minors. Also, the sale of cigarette by units should be prohibited (to both adults and children).

Exposure to education on tobacco

Around 60% of children reported that they had a discussion on tobacco in class during the past 12 months. This is consistent with the fact that tobacco is a topic included in the normal curriculum for primary and secondary students (within the 'Personal and Social Education' program). The fact that 40% of students did not remember a discussion on tobacco during the past 12 months stresses the need to administer such health education more often (e.g. every year) and the need to provide the relevant training to teachers to better equip them to teach these topics. Also, the fact that only one-half of the students reported a discussion on tobacco in their family suggests that parents should be encouraged to provide appropriate advice for not smoking to their children.

Use of alcohol and marijuana and relation with smoking

The proportion of students reporting drinking alcohol during the past 30 days was very high, e.g. up to 60% at age 15-16 (**Table 10**). The proportions were similar in boys and girls. This high prevalence of drinking among students is not unexpected because drinking frequency is very high in the adult population as well (12,13). Similarly to the trend observed for cigarette consumption comparing consumption by the youth and adults, alcohol consumption was found to be as frequent among boys and girls in this survey, while much more male than female adults used to drink in the recent past.

The use of marijuana was also quite common and approximately 20% of the students aged 15-16 used marijuana during the past 12 months (**Table 10**). Boys used marijuana more often than girls.

Importantly, the data show that cigarette smoking was strongly associated with both alcohol drinking and marijuana use. The proportion of students drinking or using marijuana was indeed approximately 4 or more times higher among current smokers than non-smokers. The finding that large proportions of students engage in any of these risk behaviors suggests substantial social tolerance to these habits (none withstanding the large efforts by the authorities to curb smoking, drinking and marijuana use over the past years). These findings emphasize that cigarette smoking, alcohol drinking and marijuana use share several common determinants and attributes and that these behaviors are likely to be better understood and handled through a comprehensive and integrated approach.

RECOMMENDATIONS

Since most smokers start smoking before the age of 18, preventing young people to take up smoking is a main pillar of any strategy to curb the tobacco epidemic (together with interventions to reduce smoking among smokers of all ages). The GYTS in Seychelles in 2002 has identified prevalence estimates as well as key personal, social and environmental factors related to smoking habits among the youth in Seychelles as well as some information on alcohol and marijuana use and its relation with cigarette smoking. This information can be useful for designing and monitoring tobacco control programs aimed at preventing children and teenagers from starting to smoke and helping young smokers to quit.

The control of the tobacco epidemic requires a comprehensive approach, including educational, legislative, fiscal and environmental measures. While recognizing the importance of specific tobacco control measures targeting the youth, on the ground of protecting minors from addiction and heath hazards, it must however also be realized that tobacco control measures should generally apply similarly to children and adults. Indeed, measures that apply differentially to adults and children can convey to children the message that smoking is a privilege of adults and enhance the wish of children to adopt a behavior that is perceived to be restricted to adults. In fact, restricting/focusing tobacco control strategies only to the youth (and making smoking a decision of adults) is the very latest strategy advocated by the tobacco industry in its attempt to gain apparent civil respectability while effectively expanding at the same time cigarette sales by increasing the number of new smokers (i.e. mainly the young).

Keeping in mind that tobacco control measures should be comprehensive and target the youth and adults alike, the following issues are particularly important with respect to young persons:

- All forms of tobacco use should be prohibited in all school premises and in all enclosed public places to prevent exposure of non-smokers (children and adults) to environmental tobacco smoke. Relevant legislation should be developed and enforced.
- Educational programs should aim at encouraging adults, particularly parents, to abstain from smoking inside the home and other private places (that escape to regulations) in presence of non-smokers (including children).
- The sale of cigarettes by units should be banned (for both adults and children).
- The existing regulation in Seychelles that prohibits shopkeepers to sell tobacco to minors should be enforced.
- The total ban in Seychelles on advertising and promotion of tobacco products and sponsoring by tobacco companies should keep being strictly maintained. Because this ban currently relies on informal policies in Seychelles, appropriate legislation should be developed.
- Innovative educational programs to raise awareness on the hazards and the addictive nature of tobacco, targeting both adults and children, should be further strengthened with the aim of shaping new social norms that smoking is not trendy.
- Although education on tobacco is already integrated in the school curriculum in Seychelles, one should ensure that education on tobacco is actually given on a yearly basis to all children at primary and secondary levels in view of the particular high risk of children taking up smoking habits. Educational programs should address not only the harmful health consequences of tobacco use but also provide information on the addictive nature of smoking and the strategies used by the tobacco industry to market cigarettes. Relevant training of teachers should be an integrated part of this educational component.
- A formal tobacco cessation program accessible to the youth should be developed, including counseling and possibly the provision of nicotine replacement therapy or similar treatments.
- The frequent clustering of cigarette smoking, alcohol drinking and marijuana use among students prompt for a comprehensive and integrated approach when addressing these risk behaviors.
- The GYTS or similar surveys should be conducted at regular time intervals to monitor tobacco use among students and to assess the impact of tobacco control programs.
- Other studies should be conducted to determine specific issues related to tobacco, including but not limited to, the effectiveness of prevention programs or the tracking of smoking habits from childhood to adulthood.

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APPENDIX 1: Results tabulated by sex and age (including 95% confidence intervals)
APPENDIX 2: Questionnaire (including percent distribution for all answers)