Linking Global Youth Tobacco Survey (GYTS) Data to Tobacco Control Policy in Maldives

Abstract

Background The government of Maldives has taken steps to control the tobacco use in the country mainly through awareness creation and encouraging community participation. Any form of tobacco use promotion and advertising of tobacco products have been banned in the local media. The government of Maldives ratified the World Health Organization Framework Convention on Tobacco Control (WHO FCTC) in the year 2006. Maldives conducted the Global Youth Tobacco Survey (GYTS) in the years 2003 and 2007 in an effort to track tobacco use among adolescents.

Methods The GYTS is a school-based survey of students aged 13-15 years. The GYTS was conducted in the regions urban (capital Male') and the rural (atoll community). Representative national estimates for Maldives were used in this study in 2003 and 2007.

Results Between 2003 and 2007, a significant reduction in the proportion of students currently smoked cigarettes is observed (a fall from overall prevalence among 13-15 year olds of 6.9% to 3.8%). Reported use of other tobacco products also decreased during the period from 8.3% to 3.5%. Over the period, peer cigarette smoking reduced significantly although exposure to SHS at home and in public places did not change and stayed significantly high. There is very high demand from these children to ban smoking in public places (almost 90% of the children expressed this desire in both years). The ability to purchase cigarettes in a store did not change significantly and in fact the proportion that were not refused purchase of cigarettes in store because of their age increased from 78.5% to 83.2% during the period.

Conclusions

The GYTS data from 2003 and 2007 has shown that there is a reduction in youth tobacco consumption. While there is a reduction in tobacco use, accessibility to tobacco use for young children and exposure to second hand smoking both at home and in public places are seen to remain quite high with almost no change. The fact that despite these facilitating factors a reduction has occurred shows that eliminating such enabling factors, the youth tobacco use can be brought to almost a complete halt. With vigorous awareness campaigns and levying of regulations, young persons are still in access to and exposed to tobacco consumption. Strict legislative anti tobacco measures are needed for more effective enforcement of such regulations.

Keywords: cigarette smoking, other tobacco use, adolescents, tobacco control.

Tobacco use is one of the major preventable causes of premature death and disease in the world. A disproportionate share of the global tobacco burden falls on developing countries, where 84% of 1.3 billion current smokers live. The government of Maldives has taken steps to control tobacco use in the country mainly through awareness creation. The government has encouraged community participation and action towards control of use. Small island communities have initiated and declared total ban of tobacco use. A school anti-tobacco national campaign was launched in the year 2000 by the President. In 2006 the Government of Maldives ratified the World Health Organization (WHO) Framework Convention on Tobacco Control (WHO FCTC).[1] Following the ratification, an anti tobacco act has been drafted and submitted to the parliament.

World Health Organization Framework Convention on Tobacco Control

The WHO FCTC is the world's first public health treaty on tobacco control. The WHO FCTC encourages countries to develop and implement action plans to include public policies, such as bans on direct and indirect tobacco advertising, tobacco tax and price increases, promoting smoke-free public places and workplaces, and placing health warning labels on tobacco packaging. The WHO FCTC also calls on countries to establish surveillance programs of "the magnitude, patterns, determinants, and consequences of tobacco consumption and exposure to tobacco smoke.[1]

Global Tobacco Surveillance

In 1998, WHO, the U.S. Centers for Disease Control and Prevention, and the Canadian Public Health Association developed the Global Tobacco Surveillance System (GTSS) to assist WHO Member States in establishing continuous tobacco control surveillance and monitoring[1,2.] The GTSS includes collection of data through three surveys:

the Global Youth Tobacco Survey (GYTS) for youth, and the Global School Personnel Survey and the Global Health Professions Student Survey for adults. The GYTS provides systematic global surveillance of youth tobacco use. Countries can use GYTS data to enhance their capacity to monitor tobacco use among youth; guide development, implementation, and evaluation of their national tobacco prevention and control program; and allow comparison of tobacco-related data at the national, regional, and global levels.

The purpose of this paper is to use data from the GYTS conducted in Maldives in 2003 and 2007 to examine changes in different tobacco control measures which can be used to monitor tobacco control efforts in the Maldives and relevant articles in the WHO FCTC.

METHODS

Procedures

The GYTS is a school based survey that uses a two –stage cluster sample design to produce representative samples of students in grades associated with ages 13-15. The sampling frame includes all schools containing any of the identified grades. At the first stage, the probability of schools being selected is proportional to the number of students enrolled in the specified grades. At the second stage, classes within the selected schools are randomly selected. All students in selected classes attending school the day of the survey is administered are eligible to participate. Student participation is voluntary and anonymous using self-administered data collection procedures. The GYTS sample design produces representative, independent, cross-sectional estimates for each site. Data in the paper are limited to students aged 13-15 years old.

SUDAAN, a software package for statistical analysis correlated data, was used to compute standard errors of the estimates and produced 95% confidence intervals which are

shown as lower and upper bounds. Difference in proportions were considered statistically significant at the $p<0.05$ level.

Participants

During 2003, the GYTS was conducted in selected schools in Male' (the urban capital) and selected schools in the atolls (rural). The overall response rate of 94.3% with a school response rate of 90.9%, class response rate of 100% and student response rate of 83.4% were reported. The samples were independently selected as representative of students in grades 8-10 from each selected school.

For the 2007 Maldives GYTS, the same sampling procedure as in 2003 was followed both in the urban (Male') and rural (atolls). In 2007 altogether 40 schools were selected, 15 schools in Male' and 25 schools in the atolls with a total of 3764 students sampled (1840 and 1924 respectively from the two regions). The overall school response rate for Male' was 100% and student response rate was 90.3%. The school response rate for the atolls was 96% with a student response rate of 85.5%. In the 2007 survey a total of 3306 participated which included 1662 from Male' and 1644 from atolls. The grades represented were grades 7, 8, 9 and 10. Both the Male and the atolls samples were combined to produce a weighted national estimate that is representative of students aged 13-15 years. For the purpose of this report the two regional GYTS have been combined into a national estimate to be identified as Maldives GYTS 2007.

GYTS Questionnaire

The 2003 and 2007 Maldives GYTS questionnaires were self-administered in classrooms. School, class, and student anonymity was maintained throughout the GYTS process. The Maldives country-specific questionnaires included data on prevalence of cigarette smoking, and use of other tobacco products both smoking and smokeless (eg. bidis, cigars, pipes, hubble bubble, chewing tobacco with arecanuts etc)), perceptions and attitudes

about tobacco, access to and availability of tobacco products, exposure to secondhand smoke, school curricula and anti-tobacco media messages, media and advertising, and smoking cessation. The final questionnaire was translated into local language Dhivehi for administration.

RESULTS

Prevalence

The 2003 survey estimated a total prevalence 21.6 % of the students ever smoked (even one or two puffs) which in 2007 was found to be reduced to 16%. This reduction was seen to be the result of a marked decrease in the number of girls ever smoked (Table 1). In 2007, among ever smokers, 30.5% reported they initiated smoking before age 10, with no significant difference between boys and girls. This is a significantly higher estimate compared to that found in 2003. In 2007, 3.8% of students aged 13 – 15 years currently smoked cigarettes (a current smoker is defined as a student who smoked a cigarette on at least one day in the month prior to the survey), with the rate for boys significantly higher than girls. Between 2003 and 2007, the overall current cigarette smoking changed significantly with a decrease by about 3%. The decline is contributed by a fall from 9.0% to 6.6% for boys and from 3.1% to 0.9% for girls. Between 2003 and 2007 students currently used tobacco products other than cigarettes (such as bidis, cigars, pipes, hubble bubble, tobacco chewing with betel nuts, etc), also fell from 8.3% to 3.5% with a marked decline seen among boys (from 10.2% to 4.3% for boys and from 5.2% to 2.7% for girls). Despite the decline in prevalence never smokers likely to utilize smoking in the next year stayed the same for boys but a fall from 9.3% to 3.8% was seen for girls.

Cessation

Between 2003 and 2007 current smokers who wanted to stop smoking now increased from 42.5% to 69.1% with boys more likely to stop than girls. However, percent of cigarette

smokers who feel like having a cigarette first thing in the morning increased from 15.8% to 23.8%. In both years more girls than boys expressed the need. However, in 2007 there is a significant increase in the percent of boys expressing this need (from 10% to 22.6%) For girls there is a slight fall (from 31.3% in 2003 to 29.8% in 2007).

Exposure to Secondhand Smoke (SHS)

Exposure to second hand smoking is high for the children as almost half of the participants reported one or more parents smoke. This proportion increased from 40.3% in 2003 to 48.5% in 2007. Proportion of students who reported they are exposed to smoking in public places stands high as reported by 69.2% in 2003 and 68% in 2007. However, girls reporting this exposure in public places decreased from 70.9% in 2003 to 65.4% in 2007. Students who reported that all or most of their best friends smoke significantly declined from 13.2% in 2003 to 4.6% in 2007. Thus, peer smoking can be considered an influential factor in the reduction of smoking prevalence among these children. Almost 90% of the students were in favour of banning smoking in public places. Between 2003 and 2007, the desire to ban smoking in public places stayed the same.

Media and Advertising

The government of Maldives through a health policy regulation has placed a ban on any form of tobacco advertisements or promotions locally. This has been enforced quite successfully since the mid 1990s. There is however no ban levied on international media and internet which today's youth have wider access to.

Those who have seen any advertisement or promotions of cigarettes in newspapers or magazines in the past month prior to the survey declined from 74% in 2003 to 47% in 2007. Students who reported they possessed an object with a cigarette brand logo also decreased from 13% in 2003 to 8.1% in 2007.

Anti-smoking education and awareness

Students who reported they saw anti-smoking media messages are very high (91.6% in 2003 and 90% in 2007). Students who reported they were taught in class about the dangers of smoking increased from 39.8% in 2003 to 43.8% in 2007. This increase is seen for both boys and girls.

Minors' Access and Availability

Thirty four percent (34%) of current cigarette smokers reported they usually buy their cigarettes in a store. A very high proportion of current cigarette smokers who usually buy cigarettes from a store reported they were not refused purchase because of their age. This proportion in 2003 stood at 78.5% and it increased to 83.3% in 2007. This increase is significantly higher for girls. But it is worthwhile to note here that the number of cases for the denominator is less than 35 for which reason we may not be able to consider these figures statistically significant. In 2003, 10.6% of students reported that they had ever been offered free cigarettes by a cigarette representative (All cigarettes and tobacco products in Maldives are imported; no production takes place in the country. Therefore the question only asked if they have been offered free cigarettes by anyone involved in the sale of cigarettes). This proportion decreased to 7.1% in 2007 with a more significant decrease reported by boys and this overall decline is only due to the decrease for boys.

DISCUSSION

Results from the 2003 and 2007 Maldives GYTS indicate some positive impacts of tobacco use control efforts in the country. Prevalence of cigarette smoking reduced among 13-15 year old adolescents. It came to much policy level officials in both education and health as well as to parents as a shock to know that school going adolescents smoke cigarettes when the results of the first GYTS in 2003 was announced. The results of the two surveys

show that Maldives can bring tobacco use among adolescents by effective and targeted measures can bring a complete stop to use of tobacco products by these youth.

The Maldives GYTS data from 2003 and 2007 shows that access to cigarettes by these minors remains the same. Focus need to be given to better enforcement of the existing regulations of no sale of tobacco products to minors. Priority attention is needed for this in order to comply with the article 16 of the FCTC (Sales to and by minors). The government of Maldives was successful in banning advertisement of tobacco products and tobacco use promotions in the local media. However, children today are more familiar with the internet and other international media. A ban of advertising in such media can have a better impact.

The GYTS data from both 2003 and 2007 shows that exposure to second hand smoking(SHS) is very high, in homes and in public places. Enactment of a legislation banning smoking in public places can play a major role to reduce this exposure. This again has to be considered a priority measure in order to be in line with the article 8 of the FCTC. Such enforcement is expressed by the youth themselves as 90% of students favored ban of tobacco use in public places.

Tobacco products in the Maldives are solely imported. There is no production in the country and the influence of the industry is low. Thus controlling the entry will effectively control the use of tobacco in the country. A comprehensive legislation on controlling the use and importation of tobacco products in the country will be an effective measure in controlling tobacco use among the Maldivian populations.

LIMITATIONS

The findings in this report are subject to the following limitations. Because GYTS is limited to students, the survey is not representative of all adolescents aged 13–15 years, although a high majority of young persons aged 13-15 years attend school. These data apply

only to students who were in school on the day of the survey and who completed the survey. However, as the student response rates were high, bias attributable to absence or non-response was limited. Finally, data were based on the self-report of students, who might under-report or over-report their behaviors or attitudes. The extent of this bias cannot be determined from these data; however, reliability studies in the United States have indicated good test-retest results for similar tobacco-related questions (25).

CONCLUSION/ RECOMMENDATION

The GYTS data from 2003 and 2007 has shown that there is a reduction in youth tobacco consumption. While there is a reduction in tobacco use, accessibility to tobacco use for young children and exposure to second hand smoking both at home and in public places are seen to remain quite high with almost no change. The fact that despite these facilitating factors a reduction has occurred shows that eliminating such enabling factors, the youth tobacco use can be brought to almost a complete halt. With vigorous awareness campaigns and levying of regulations, young persons are still in access to and exposed to tobacco consumption. Strict legislative anti tobacco measures are needed for more effective enforcement of such regulations.

Specifically focused and youth targeted media campaigns and other anti-tobacco programs in schools can be effective measures for curbing the youth tobacco use in the country. Parent – student anti-tobacco advocacy program has proved effective which was initiated by schools in some years back. Restart of such a program can be another effective measure to control and reduce the exposure to smoking at home.

Table 1: Prevalence – MALDIVES 2003 and 2007 (13-15 Years ONLY)

Prevalence	2003			2007		
	Total	Boy	Girl	Total	Boy	Girl
Ever smoked cigarettes	21.6 (17.3 - 26.7)	27.0 (20.8 - 34.3)	13.0 (8.5 - 19.3)	16.0 (12.6 - 20.0)	24.5 (18.6 - 31.6)	8.1 (6.2 - 10.5)
Ever Smokers, first smoked cigarettes before age 10	16.3 (9.2 - 27.3)	14.7 (6.8 - 29.0)	22.5 (11.4 - 39.6)	30.5 (24.7 - 37.0)	29.0 (22.8 - 36.1)	31.3 (14.7 - 54.6)
Current cigarette smoker	6.9 (4.8 - 9.8)	9.0 (6.4 - 12.6)	3.1 (1.1 - 8.5)	3.8 (2.7 - 5.3)	6.6 (4.6 - 9.6)	0.9 (0.4 - 2.0)
Current user of other tobacco products	8.3 (5.5 - 12.3)	10.2 (6.5 - 15.9)	5.2 (2.5 - 10.5)	3.5 (2.2 - 5.5)	4.3 (2.5 - 7.4)	2.7 (1.6 - 4.7)
Never smokers likely to initiate smoking in the next year	10.1 (7.5 - 13.3)	10.6 (7.3 - 15.3)	9.3 (6.0 - 14.3)	6.7 (5.2 - 8.6)	10.6 (7.8 - 14.1)	3.8 (2.5 - 5.6)

Table 2: Factors influencing tobacco use – MALDIVES 2003 and 2007 (13-15 Years ONLY)

Factors	**2003**			**2007**		
	Total	**Boy**	**Girl**	**Total**	**Boy**	**Girl**
EXPOSURE TO SMOKE One or more parents smoke	40.3 (36.3 - 44.5)	36.6 (32.1 - 41.3)	45.3 (38.2 - 52.6)	48.5 (45.5 - 51.6)	49.3 (45.0 - 53.7)	47.6 (44.4 - 50.8)
All or most best friends smoke	13.2 9.9 - 17.2)	17.4 (12.8 - 23.2)	6.2 (3.2 - 11.8)	4.6 (3.4 - 6.1)	5.7 (3.9 - 8.2)	3.4 (2.3 - 5.2)
Exposed to smoke in public places	69.2 (64.8 - 73.2)	67.9 (62.0 - 73.3)	70.9 (64.3 - 76.7)	68.0 (65.2 - 70.6)	70.6 (66.8 - 74.2)	65.4 (61.3 - 69.3)
In favor of banning smoking in public places	89.5 (86.2 - 92.0)	88.8 (84.7 - 92.0)	91.9 (87.1 - 95.0)	90.5 (89.2 - 91.7)	88.1 (85.9 - 89.9)	92.8 (90.4 - 94.6)
SCHOOL During this school year, were taught in any classes abut the dangers of smoking	39.8 (33.7 - 46.2)	38.1 (32.2 - 44.4)	43.0 (31.2 - 55.5)	43.8 (39.0 - 48.7)	39.9 (33.5 - 46.8)	47.2 (39.9 - 54.7)
MEDIA/ADVERTISING During the past month saw any anti-smoking media messages	91.6 (88.5 - 93.9)	89.5 (85.5 - 92.5)	95.1 (90.7 - 97.5)	90.0 (88.6 - 91.3)	88.1 (85.8 - 90.1)	91.7 (89.6 - 93.4)
During the past month saw any advertisement for cigarettes on billboards	NA	NA	NA	NA	NA	NA
During the past month saw any advertisements or promotions for cigarettes in newspapers or magazines	74.6 (70.1 - 78.6)	78.3 (72.6 - 83.0)	68.0 (61.6 - 73.9)	47.0 (44.4 - 49.6)	48.4 (44.4 - 52.4)	45.9 (42.8 - 49.0)
Have an object (t-shirt, pen, backpack, etc) with a cigarette brand logo on it	13.0 (9.3 - 17.8)	16.3 (10.8 - 23.9)	7.0 (4.3 - 11.4)	8.1 (6.3 - 10.3)	9.6 (7.1 - 12.8)	6.4 (4.8 - 8.4)
CESSATION Current smokers who want to stop smoking now	42.5 (24.3 - 62.9)	42.6 (24.9 - 62.3)*	38.6 (5.6 - 86.8)*	65.0 (46.9 - 79.6)	69.1 (46.1 - 85.4)	39.7 (5.8 - 87.5)*
Current smokers who always feel like having a cigarette first thing in the morning	15.8 (6.6 - 33.3)	10.0 (2.4 - 33.7)*	31.3 (10.8 - 63.1)*	23.8 (12.8 - 39.9)	22.6 (9.3 - 45.3)	29.8 4.0 - 81.2)*
ACCESS Current smokers who usually buy their cigarettes in a store were **not** refused purchase because of their age	78.5 (53.0 - 92.2)*	80.4 52.1 - 93.9)*	46.7 (4.9 - 93.7)*	83.2 (63.3 - 93.4)*	84.5 (63.5 - 94.5)*	68.2 (10.3 - 97.6)*
Ever offered a "free" cigarette by a cigarette company representative	10.6 (6.9 - 15.9)	13.7 (8.3 - 22.0)	5.3 (2.7 - 10.0)	7.1 (5.6 - 9.1)	9.0 (6.4 - 12.5)	5.5 (4.1 - 7.4)

REFERENCES

.

1. World Health Organization. WHO Framework Convention on Tobacco Control. Geneva: World Health Organization; 2003. Available at http://www.who.int/tobacco/framework
2. The Global Tobacco Surveillance System Collaborating Group. The global tobacco surveillance system (GTSS): purpose, production and potential. J Sch Health 2005; 75(1): 15-24.
3. Shah BV, Barnwell BG, Bieler GS. Software for the Statistical Analysis of Correlated Data (SUDAAN): User's Manual. Release 7.5, 1997 (software documentation). Research Triangle Park, NC: Research Triangle Institute; 1997.
4. World Health Organization. *Tobacco: Deadly in Any Form of Disguise*. World Health Organization: Geneva, Switzerland, 2006.
5. World Health Organization, Regional Office for South-East Asia. Regional Strategy for Utilization of Global Youth Tobacco Survey Data. New Delhi: World Health Organization; 2005.
6. Ranney L, Melvin C, Lux L, McClain E, Morgan L, Lohr K. Tobacco Use: Prevention, Cessation, and Control. Evidence Report/Technology Assessment No. 140. (Prepared by the RTI International-University of North Carolina Evidence-Based Practice Center under Contract No. 290-02-0016). AHRQ Publication No. 06-E015. Rockville, MD: Agency for Healthcare Research and Quality. June 2006.
7. Jha P, Chaloupka FJ. Tobacco control in developing countries. Oxford, England: Oxford University Press; 2000.