

Tobacco Use, Exposure to Secondhand Smoke and Cessation Training among Third-Year Medical Technology Students in Thailand

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Objective: Compare tobacco use, exposure to second-hand smoke, and smoking cessation training among third-year medical technology students in Thailand between 2006 and 2011.

Material and Method: The medical technology student survey was carried out with Global Health Professions Student Survey (GHPSS) between October and November 2011. The population of the present study was all students in nine medical technology schools. There were 773 students enrolled in this study yielding a response rate of 95.1%.

Results: The prevalence of current cigarette smokers had decreased from 2006 to 2011 (4.8% to 1.4%, respectively). Rates of exposure to second-hand smoke at home were 36.3% in 2006 and 39.7% in 2011, while rates of exposure to second-hand smoke in other places did not change. Most students recognized that they should give patients counseling to quit smoking, but only 20.6% in 2006 and 28.4% in 2011 of them had received formal training in tobacco cessation counseling.

Conclusion: There were low percentages of current cigarette smoking but high percentages of exposure to second-hand smoke among medical technology students. The percentage of cessation training was still low among students. Therefore, medical technology schools should provide formal training in tobacco cessation for all students to help improve their ability in providing advice to patients.

Keywords: Global health professions student survey, Cigarette smoking, Cessation, Medical technology students, Thailand

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Tobacco use is the world's major leading behavioral causes of premature death and diseases⁽¹⁾. The World Health Organization (WHO) estimates tobacco kills approximately five million people annually. The number is expected to exceed eight million by the year 2030, with approximately 70% of the cases found in developing countries⁽²⁾. Overall prevalence of smoking in Thailand has decreased over time, which is partly due to tobacco control policy in the country^(3,4). Health professional students have been found to play an important role in cessation and prevention of tobacco use among their patients⁽⁵⁻⁸⁾. Despite the involvement of health professional students, as the largest group of healthcare professionals in tobacco control, only a few studies have collected information on tobacco use, exposure to second-hand smoke (SHS), and training to provide cessation counseling among health professional students. These studies used different sampling methods, questionnaires, and data

collection procedures, and very few are from low or middle-income countries⁽⁹⁻¹²⁾. The WHO and the U.S. Centers for Disease Control and Prevention (CDC) have attempted to overcome these limitations by developing and implementing the Global Health Professions Student Survey (GHPSS)⁽¹³⁾. The GHPSS is a school-based survey of third-year students pursuing advanced degrees in dentistry, medicine, pharmacy, and nursing. In Thailand, the GHPSS was first conducted in 2006 and covered three additional health professions, public health, physical therapy, and medical technology students. The results of the 2006 GHPSS⁽¹⁴⁾ yielded strong social movements among health professional alliances in tobacco control. Thai government also increased the strength of law enforcement in tobacco control, both in public and schools. Therefore, capacity building activities for tobacco control have been arranged by networks of health professionals including the Medical Technologist Alliance Against Tobacco. Many medical technology schools have been trying to increase the potential of the students in participation of tobacco control by adding the topic of tobacco toxicity and tobacco control into the curriculum and in student activities. However,

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data describing the impact of these interventions has not yet been published. Therefore, the aims of the present study were to compare tobacco use, exposure to SHS, and smoking cessation training among third-year medical technology students in Thailand between 2006 and 2011 GHPSS.

Material and Method

Subjects

This medical technology student survey was a part of Thailand GHPSS 2011, conducted in nine medical technology schools of Thailand during regular lectures and class sessions between October and November 2011. The selected schools are schools that participated in the 2006 survey. GHPSS followed an anonymous, self-administered format for data collection. All third-year students were asked to enroll in this study. The questionnaire was translated and verified from CDC GHPSS questionnaire by staff of the Tobacco Control Research and Knowledge Management Center (TRC), Thailand. A weighting factor was applied to each student record to adjust for non-response. The present study was approved by the Ethics Committee (MUPH 2011-195).

Statistical analysis

SUDAAN, a software package for statistical analysis of complex survey data, was used to calculate weighted prevalence estimates and standard errors (SE)

of the estimates (95% confidence intervals (CI) were calculated from the SEs^(15,16). The difference between 2011 GHPSS and 2006 GHPSS data were assessed by using Fisher's exact test and *p*-value <0.05 were considered significant.

Results

Among all third year students in nine schools, there were 648 and 773 students enrolled in 2006 and 2011 study, and the response rates were 92.8% and 95.1%, respectively. In the 2011 study, the students were 82.4% female and 17.6% male whereas in 2006 study the students were 77.2% female and 22.8% male. Their age ranged from 14 to 30. The majority of students were 19 to 24 years old (96.1% in 2006 study vs. 92.6% in 2011 study). The prevalence for current smokers of cigarettes had decreased significantly from 2006 to 2011 (4.8% and 1.4%, respectively) (*p*<0.01). Only 4.8% and 3.4% of students currently use any tobacco products in 2006 and 2011 study, respectively (Table 1). Rates of exposure to second-hand smoke at home were 36.3% in 2006 and 39.7% in 2011, while rates of exposure to second-hand smoke in other places did not change between 2006 and 2011 (Table 1). The percentage of students that knew that their schools had official smoke ban policies in schools had decreased from 40.9% in 2006 to 23.7% in 2011 (*p*<0.001). Overall, 83.6% in 2011 and 78.6% in 2006 of students agreed that there was enforcement of the

Table 1. Prevalence of current smokers and exposure to second-hand smoke

	GHPSS 2006 ⁽¹⁴⁾ (n = 648) % (95% CI)	GHPSS 2011 (n = 773) % (95% CI)	<i>p</i> -value
Current cigarette smokers			
Total	4.8 (4.4-5.3)	1.4 (1.1-1.9)	0.001*
Female	2.2 (1.8-2.5)	1.4 (1.0-1.9)	0.335
Male	12.9 (11.4-14.5)	1.9 (1.0-3.5)	0.003*
Current users of any tobacco products			
Total	4.8 (4.3-5.3)	3.4 (2.9-4.3)	0.313
Female	2.1 (1.8-2.5)	3.3 (2.6-4.0)	0.225
Male	12.6 (11.2-14.2)	3.6 (2.3-5.5)	0.009*
Exposure to smoke at homes			
Total	36.3 (35.3-38.4)	39.7 (38.0-41.4)	0.383
Female	34.6 (33.4-36.8)	38.7 (36.8-40.6)	0.261
Male	42.0 (39.8-44.3)	43.5 (39.5-47.7)	0.899
Exposure to smoke in other places			
Total	61.7 (60.1-62.2)	61.9 (60.3-63.6)	1.000
Female	64.5 (62.3-66.7)	62.8 (61.0-64.7)	0.509
Male	60.1 (58.9-61.3)	55.2 (51.1-59.3)	0.090

GHPSS = Global Health Professions Student Survey

* *p*-value <0.05 was considered statistically significant

smoke ban policies in schools (Table 2). The students who favored no tobacco sales to adolescents and no smoking in all enclosed public places were significantly higher in 2011 GHPSS than in 2006 GHPSS ($p < 0.05$). However, the students who favored no advertising of tobacco products did not change between 2006 (89.8%) and 2011 (90.6%) (Table 3). The students who agreed that health professionals should get specific training on cessation techniques had increased from 88.6% in 2006 study to 94.4% in 2011 study ($p < 0.001$) (Table 4). However, only 28.4% of students had received any formal training in tobacco cessation in 2011. Nonetheless, the percentage of formal training in tobacco cessation among students was significantly higher in 2011 than in 2006 ($p < 0.01$) (Table 5). Nearly 100% of the students in 2011 indicated that health professionals should be tobacco-free role models for their patients and the public. The percentage of students who agreed that health professionals should give advice or information about smoking cessation was significantly increased in 2011 study (90.6% in

2006 vs. 94.9% in 2011) (Table 4). Furthermore, the overall percentage of students who had been taught about tobacco harmful health effects was higher in 2011 study than in 2006 study (86.7% in 2006 vs. 90.1% in 2011) (Table 5).

Discussion

In Thailand, the GHPSS was first conducted in 2006 among seven groups of health professional students. However, the findings of the 2006 GHPSS yielded strong social movements among health professional alliances. Capacity building activities for improving knowledge and skills in smoking control have been arranged by networks of health professionals including the Medical Technology Professional Alliance against Tobacco. However, data describing the impact of these interventions has not yet been published. The present study revealed the prevalence of current smokers in 2011 was lower than that of 2006 GHPSS⁽¹⁴⁾. However, our results were consistent with previous study in Thai nursing students that decreasing

Table 2. Recognition of smoking ban policy

	GHPSS 2006 ⁽¹⁴⁾ (n = 648) % (95% CI)	GHPSS 2011 (n = 773) % (95% CI)	p-value
Official policy in school buildings and clinics			
Total	40.9 (39.8-42.0)	23.7 (22.3-25.2)	<0.001*
Female	38.8 (36.6-41.1)	23.0 (21.4-24.7)	<0.001*
Male	41.4 (40.2-42.6)	25.8 (22.3-29.6)	0.031*
Policy enforcement in school buildings and clinics			
Total	78.6 (76.0-80.6)	83.6 (80.7-86.1)	0.090
Female	86.5 (83.6-89.0)	85.1 (82.0-87.7)	0.510
Male	75.9 (73.9-77.7)	76.1 (68.5-82.3)	0.609

* p-value < 0.05 was considered statistically significant

Table 3. Favoring attitude in tobacco control

	GHPSS 2006 ⁽¹⁴⁾ (n = 648) % (95% CI)	GHPSS 2011 (n = 773) % (95% CI)	p-value
No tobacco sales to adolescents			
Total	94.6 (92.5-96.2)	97.0 (96.4-97.6)	0.024*
Female	94.2 (91.7-96.0)	97.5 (96.6-98.1)	0.006*
Male	95.8 (91.7-98.5)	94.5 (92.2-96.1)	0.773
No advertising of tobacco products			
Total	89.8 (87.2-92.0)	90.6 (89.6-91.3)	0.703
Female	88.9 (82.8-93.4)	91.3 (90.1-92.3)	0.584
Male	90.1 (87.0-92.5)	86.8 (83.7-89.3)	0.696
No smoking in all enclosed public places			
Total	97.1 (95.4-98.2)	99.4 (99.1-99.6)	0.002*
Female	97.0 (94.9-98.2)	99.5 (99.1-99.7)	0.003*
Male	97.4 (93.5-99.3)	99.1 (97.8-99.9)	0.383

* p-value < 0.05 was considered statistically significant

Table 4. Student concept in tobacco control

	GHPSS 2006 ⁽¹⁴⁾ (n = 648) % (95% CI)	GHPSS 2011 (n = 773) % (95% CI)	p-value
Health professionals should get specific training on cessation techniques			
Total	88.6 (85.9-90.9)	94.4 (93.6-95.2)	<0.001*
Female	89.3 (86.1-91.8)	95.1 (94.2-95.9)	<0.001*
Male	86.4 (80.0-91.4)	90.9 (88.2-93.1)	0.241
Health professionals should be tobacco-free role models for their patients and the public			
Total	97.8 (96.2-98.7)	99.2 (98.9-99.5)	0.035*
Female	98.0 (96.2-99.0)	99.1 (98.6-99.4)	0.191
Male	97.1 (93.5-99.9)	100	0.129
Health professionals should give advice or information about smoking cessation			
Total	90.6 (88.1-92.7)	94.9 (94.1-95.6)	0.003*
Female	91.6 (88.7-93.8)	95.3 (94.5-96.1)	0.020*
Male	87.3 (80.7-91.9)	92.7 (90.2-94.6)	0.147

* p-value <0.05 was considered statistically significant

Table 5. Student Participation in tobacco control

	GHPSS 2006 ⁽¹⁴⁾ (n = 648) % (95% CI)	GHPSS 2011 (n = 773) % (95% CI)	p-value
Students who have taught about tobacco toxicity			
Total	86.7 (83.8-89.2)	90.1 (89.1-91.1)	0.065
Female	87.4 (84.1-90.1)	91.1 (89.9-92.1)	0.066
Male	84.9 (78.5-90.3)	85.9 (82.7-88.5)	0.859
Students who have received formal training in tobacco control			
Total	20.6 (17.6-24.0)	28.4 (26.9-30.0)	0.005*
Female	21.4 (17.9-25.3)	28.8 (27.1-30.6)	0.019*
Male	18.5 (12.9-25.8)	28.7 (25.1-32.6)	0.098

* p-value <0.05 was considered statistically significant

prevalence of cigarette smoking was noted between 2006 and 2011⁽¹⁷⁾. The low prevalence may be due to the tobacco control policy interventions of health professional alliances, the enforcement of the smoke ban policies in Thailand and the increased number of female students in 2011 GHPSS (82.4%) compared with 2006 GHPSS (77.2%). The percentage of current smoking in Thai medical technology students (1.4%) was lower, compared with health professional students in Lebanon (14.8%-27.4%), Republic of Serbia (18.1%-42.5%) and Albania (30.1%-47.1%)^(18,19). However, lowering tobacco use among health professionals should be the eventual goal of tobacco control activities. Medical technology schools should help their students quit cigarette consumption by providing information, encouragement, and any other assistance necessary to support them in their efforts to

quit smoking. The present study is consistent with other Thai studies, that males were more likely than females to smoke cigarettes^(20,21). The percentages of current cigarette smokers decreased among both females and males, compared with the study in 2006 (1.4% vs. 2.2% and 1.9% vs. 12.9%, respectively)⁽¹⁴⁾. This situation was probably due to anti-tobacco campaign in high school level as well as medical technology schools and tobacco control policy in Thailand⁽³⁾. The harmful effects of SHS have been documented for decades. Conclusive evidence provides scientific consensus that SHS is a cause of premature death and disease⁽²²⁾. Although the Public Health Ministry's notification has prohibited smoking in all indoor public and work places and other open-air public places⁽²³⁾, the proportion of health professional students at medical technology schools exposed to SHS in public places

was significantly high (61.7% in 2006 vs. 61.9% in 2011). Therefore, the law stipulation should be enforced more effectively for the creation of smoke-free environments. However, the rate of exposure to SHS at home in the present study (39.7%) was lower than that found in study done among Croatian students (50.4%)⁽²⁴⁾. Only 23.7% of students in 2011 study knew that the schools had official smoking ban policies in school buildings; this finding was lower than that of 2006 study. However, most of the students in both study agreed that there was smoking ban policy enforcement in school buildings and school areas. This indicates that most of the students did not find anti-smoking signs and banners in the schools, so the school must clearly declare the smoking ban policy to everyone and have no-smoking signs or banners throughout the school compound. Enforced smoking bans provide important protection for non-smokers from inhaling SHS. Many countries including Thailand have now implemented smoking bans. The example is Uruguay, which became the first country in the Americas to go 100% smoke-free by enacting a ban on smoking in all public areas and workplaces⁽²⁵⁾. A smoke-free environment has been shown to improve air quality, reduce health problems related from exposure to tobacco smoke, and support and encourage cessation attempts among smokers trying to quit⁽²⁶⁾. Most of the students agreed with tobacco control measures commonly used throughout the country; no tobacco sales to adolescents, no advertising of tobacco products, and no smoking in any enclosed public places. Additionally, 87.0%-99.0% of the health professional students from 10 country pilot studies believed they should have a role in counseling patients to quit smoking⁽¹⁹⁾, as with Thai medical technology students. Smoking cessation rates increase after counseling by health professional students⁽⁵⁾. Most of the students learned about tobacco toxicity, but only 20.6% in 2006⁽¹⁴⁾ and 28.4% in 2011 received formal training in tobacco cessation. The present study in Thailand also confirms that most third-year health professional students did not receive formal training in smoking cessation counseling, similar to health professional students in Albania, India, and Uganda⁽¹⁸⁾. Therefore, the present survey showed that future medical technologists might not be adequately prepared to assist smokers to quit. However, the number of students who had formal training in tobacco cessation of the present study had increased when compared with the 2006 study. This implied that innovative educational programs that facilitate the evidence-based smoking

cessation content should be included in their formal curricula for an effective strategy in enhancing medical technology students' skills to help smokers quit, so that the students may learn how to contribute in tobacco control in their future careers.

Conclusion

The percentage of current cigarette smoker among students was lower than in the 2006 survey. Rate of second-hand smoke exposure was high especially in public places. Most students agreed that health professionals should have mastery and significant role in tobacco control. However, the number of students who had received formal training in tobacco control was small. Medical Technology schools should provide training course in smoking cessation to help improve the ability of their students to help patients quit smoking.

What is already known on this topic?

Tobacco use is considered to increase morbidity and the mortality risk of many diseases. Nowadays, Thai government increases the strength of law enforcement in tobacco control, both in public and schools. Health professional students have been playing an important role in prevention and cessation of tobacco use.

What this study adds?

In Thailand, capacity building activities for improving knowledge and skills in smoking control have been arranged by the networks of health professionals including the Medical Technology Professional Alliance against Tobacco. However, data describing the impact of these interventions have not yet been published. The present study revealed the prevalence of current smokers in 2011 was lower than that of 2006 GHPSS. The proportion of health professional students at medical technology schools exposed to SHS in public places was not significantly decreased. Furthermore, the present study also confirmed that the percentage of cessation training was still low among students. Therefore, the medical technology schools should provide formal training in tobacco cessation for all third-year students to help improve their ability in providing advice to patients.

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Conflict of interest statement

The authors do not have any professional, personal, or family allegiance, bias, inclination, obligation, or loyalty that may in any way affect our objectivity, independence, or impartiality in making this nomination, recommendation, or approval.

Potential conflicts of interest

None.

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การได้รับควันบุหรี่มือสองและการฝึกทักษะในการช่วยเลิกยาสูบของนักศึกษาเทคนิคการแพทย์ชั้นปีที่ 3 ในประเทศไทย

พิศิษฐ์ นามจันทรา, กาญจนา สุริยะพรหม

วัตถุประสงค์: เพื่อเปรียบเทียบการบริโภคยาสูบ การได้รับควันบุหรี่มือสอง และการฝึกทักษะในการช่วยเลิกยาสูบของนักศึกษาเทคนิคการแพทย์ชั้นปีที่ 3 ในประเทศไทยระหว่าง พ.ศ. 2549 และ พ.ศ. 2554

วัสดุและวิธีการ: ทำการสำรวจในนักศึกษาเทคนิคการแพทย์ด้วยแบบสอบถามของ GHPSS ระหว่างเดือนตุลาคม ถึง พฤศจิกายน พ.ศ. 2554 โดยประชากรจากการศึกษาในครั้งนี้เป็นนักศึกษาชั้นปีที่ 3 ทั้งหมดของคณะเทคนิคการแพทย์ จำนวน 9 สถาบัน ซึ่งจากการศึกษาครั้งนี้พบว่ามึนักศึกษาจำนวน 773 คน เข้าร่วมโครงการ ซึ่งคิดเป็นอัตราร้อยละ 95.1 ของนักศึกษาทั้งหมด

ผลการศึกษา: จากการสำรวจพบอัตราความชุกของผู้ที่สูบบุหรี่ในปัจจุบันมีจำนวนลดลงจาก พ.ศ. 2549 เทียบกับ พ.ศ. 2554 (ร้อยละ 4.8 และร้อยละ 1.4 ตามลำดับ) ส่วนอัตราการได้รับควันบุหรี่มือสองจากที่บ้านมีร้อยละ 36.3 ใน พ.ศ.2549 และร้อยละ 39.7 ใน พ.ศ.2554 ขณะที่อัตราการได้รับควันบุหรี่มือสองจากสถานที่อื่น ๆ ไม่มีการเปลี่ยนแปลง นักศึกษาส่วนใหญ่มีความคิดเห็นว่าจะทำให้คำปรึกษาแก่ผู้ป่วยในการเลิกยาสูบ ขณะที่มึนักศึกษาเทคนิคการแพทย์เพียงร้อยละ 20.6 ใน พ.ศ.2549 และร้อยละ 28.4 ใน พ.ศ.2554 เท่านั้น ที่ได้รับการฝึกอบรมในการให้คำแนะนำสำหรับการเลิกยาสูบ

สรุป: การศึกษาครั้งนี้ได้แสดงให้เห็นว่านักศึกษาเทคนิคการแพทย์มีร้อยละของการสูบบุหรี่ในปัจจุบันที่ต่ำแต่มีร้อยละของการได้รับควันบุหรี่มือสองที่สูง อย่างไรก็ตามการได้รับการฝึกอบรมสำหรับแนะนำการเลิกยาสูบยังคงมีร้อยละที่ต่ำอยู่ ดังนั้นสถาบันการศึกษาเทคนิคการแพทย์ ควรที่จะมีการฝึกอบรมทักษะการเลิกยาสูบให้กับนักศึกษาเพื่อเป็นการช่วยพัฒนาทักษะของนักศึกษาในการให้คำแนะนำแก่ผู้ป่วย