

Original Article

The Effect of Non-smoking Education Before and After Lectures at the Schools of Dental Hygiene and Dental Technology

Nobutaka Okusa^{1*}, Kazuya Masuno², Takako Toyama³, Kumiko Kaji³, Ayuko Maesoma⁴, Aiko Hamamoto³, Ai Onishi³, Masako Terajima³, Tetsunari Nishikawa², Pao-Li Wang^{2*}

SUMMARY

We studied the effects of non-smoking education using a survey of first-year students in 2016 at the Schools of Dental Hygiene and Dental Technology. Non-smoking education was conducted on 52 subjects (42 School of Dental Hygiene students, 10 School of Dental Technology students). The surveys were conducted both before and after the lecture, with the main questions as follows: age; whether they have experienced non-smoking education lectures; reasons for not being able to stop smoking; understanding of the physical harm of smoking; passive smoking; diseases caused by smoking; the mechanisms of diseases caused by smoking; smoking cessation methods; whether currently smoking; and knowledge of smoking experiences. In terms of the harm caused by smoking, before non-smoking education, all students knew that smoking was harmful to the human body and impacted surrounding people. In the question “Name diseases caused by smoking,” the number of diseases in the answers was tabulated with a score of 0–4. The score for this question was 93 before the lecture and 152 afterwards. For the question “Please explain the mechanisms of diseases caused by smoking,” nine subjects answered they could explain only a little before the lecture, and 33 did so after the non-smoking lecture. Compared with before the lecture, increases in knowledge of smoking and the motivation to stop smoking were seen as a result of lecture attendance.

Key words: smoking, non-smoking education, School of Dental Hygiene, School of Dental Technology

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1. Department of Forensic Dentistry, Osaka Dental University
 2. Department of Innovation in Dental Education, Osaka Dental University
 3. Osaka Dental University School of Dental Hygienist
 4. Department of Oral Health Sciences, Faculty of Health Sciences, Osaka Dental University
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*Corresponding author : Nobutaka Okusa
Department of Forensic Dentistry, Osaka Dental University
8-1 Kuzuha Hanazonocho, Hirakata City, Osaka 573-1121, Japan
Tel & Fax : +81-72-864-3165
E-mail : okusa-n@cc.osaka-dent.ac.jp

INTRODUCTION

It is well-known that smoking can be a risk factor for disease. The issue of harm from smoking is frequently raised in a variety of ways. The number of smokers in Japan has been on a gradual downward trend, with a report by the Ministry of Health, Labour and Welfare,¹⁾ stating that 19.3% of Japanese were smokers in 2016. With measures to prohibit smoking inside public places and facilities gaining ground each year, actual systems in this regard are coming into place. According to a WHO study, although 49 countries have laws obliging the complete prohibition of smoking indoors in public gathering places, under the Health Promotion Act, Japan currently remains obligated to make efforts to prevent passive smoking. The WHO has judged the response of Japan to be the “global minimum level.” With the selection of Tokyo to host the 2020 Olympics, working on strengthening rapid measures to prevent passive smoking has become crucial.²⁾ With the agreement of the WHO and the International Olympic Committee (IOC), except for Japan, all present and future nations hosting the Olympics enforce laws and regulations with penalties. With smoking indoors prohibited in the 2012 London Olympics, and smoking prohibited on the premises at the 2016 Olympics in Rio de Janeiro, there have been measures including penalties to prevent passive smoking. The WHO and IOC have raised the slogan of a “Tobacco-free Olympics”; if the current situation continues in Japan, it might become seen as a country that minimizes the damage to health from smoking. It is apparent that Japan must develop laws in this regard by 2020, but it is also an issue. The Ministry of Health, Labour and Welfare also encourages the promotion of non-smoking in Health Japan 21, and has set a target of reducing the ratio of adult smokers to 12% by 2022.¹⁾ As it is likely that the number of smokers seeking outpatient smoking cessation will increase, after the relevant laws are in place, there must also be progress in measures for medical treatment.

Although medical facilities naturally treat patients suffering from smoking-induced illnesses, health care workers are not capable of persuading smokers, resulting in patients harboring doubts toward the treatment itself. This does not apply only to dentists but also dental hygienists, dental technicians, and health care providers. In particular, passive smoking is a risk factor for cardiovascular³⁾ and respiratory system diseases; for the oral area, it is also said to be a risk factor for cancer and periodontal disease.⁵⁾

With a view of dental hygienist and dental technician school students becoming health care providers following graduation, the authors studied the future direction of non-smoking education, by conducting non-smoking education lectures for these students to become involved in providing support and guidance in smoking prevention,⁶⁾ and surveying knowledge of smoking and the motivation to quit smoking before and after the lectures.

METHODS

1. Subjects

52 students of the University’s vocational schools in their first year in 2016 (42 students of School of Dental Hygiene students, 10 students of School of Dental Technology)

2. Study method

Anonymous, self-administered survey forms were distributed to all subjects before and after the February 2017 non-smoking education lecture. Survey forms were collected after the students completed them.

3. Study details

Questions before the non-smoking education lecture: whether they have experienced non-smoking education lectures, reasons smokers could not stop smoking, the harm of smoking, passive smoking, the mechanisms of diseases caused by smoking, smoking cessation methods, whether currently smoking, and when started smoking

Questions following the non-smoking education lecture: reasons smokers could not stop smoking, the harm of smoking, passive smoking, the mechanisms of diseases caused by smoking, smoking cessation methods,

whether currently smoking, and when started smoking

The study items detailed three diseases caused by smoking and four smoking cessation methods (Table 1). These diseases were tabulated with a 4-stage score, “0,” “1,” “2,” and “3.”

RESULTS

Fifty-two surveys were collected (collection ratio of 100%); 44 subjects were aged 19 or below, 6 were aged 20–29; and 2 were aged 30–39.

1. Non-smoking education

Subjects were asked only before the lecture the question “Have you ever had any non-smoking education?” Twenty-seven (51.9%) replied Yes, whereas 25 replied No (48.1%). (Table 2).

Table 1 Survey Questions (Question 1 – only before the lecture)

Age (years)
1. Have you ever had any non-smoking education?
Yes No
2. Please explain the reasons non-smokers cannot stop smoking.
3. Do you understand that smoking causes physical harm?
Yes No
4. Please explain passive smoking.
5. List three diseases caused by smoking.
①
②
③
6. Please explain the mechanisms of diseases caused by smoking.
7. Please list at least four smoking cessation methods.
①
②
③
④
⑤
8. Do you smoke?
Yes No I quit
9. When did you start smoking?
Before I entered the vocational school
After enrolling

Table 2 Whether Subjects have Experienced Non-smoking Education

	Yes	No
School of Dental Hygiene	24 (46.1%)	18 (34.6%)
School of Dental Technology	3 (5.8%)	7 (13.5%)
Total	27 (51.9%)	25 (48.1%)

Table 3 Explanations of the Mechanisms of Diseases Caused by Smoking (before the lecture – Dental Hygienists and Dental Technicians – abstract)

• Passively inhaling second-hand smoke from people who are smoking nearby, even if I do not smoke.
• If there is someone nearby smoking, even if you are not, you will be harmed when you inhale the smoke.
• People inhale smoke exhaled by people smoking.
• The lungs of people who do not smoke is more impacted by second-hand smoke than those who smoke.
• People around smokers inhale second-hand smoke.
Inhaling smoke next to or in the same space as people smoking; passive smoke is more likely to lead to cancer.
• Inhaling second-hand smoke from other people
• Inhaling smoke exhaled by smokers, and the smoke enters your lungs even if you do not inhale it.
• People inhaling even though they do not inhale the smoke from people smoking
• Smoke from smokers reaches those around them, who inhale it.

2. Reasons smokers could not stop smoking

For the question “Please explain the reasons non-smokers cannot stop smoking,” before the lecture, 50 subjects (96.2%) replied “I can explain,” whereas 2 (3.8%) replied “I cannot explain.” Of the 50 students who replied that they can explain, their reasons were as follows: dependence/addiction, 43 (86.0%); because they cannot stop, 2 (4.0%); nicotine, 3 (6.0%); stress relief, 1 (2.0%); and to derive pleasure, 1 (2.0%).

After the lecture, all 52 respondents replied “I can explain.” The reasons they gave were as follows: dependence/addiction, 43 (82.7%); and nicotine, 9 (17.3%).

3. Harm from smoking

For the question “Do you understand that smoking causes physical harm,” both before and after the lecture, 52 subjects (100%) responded “Yes.”

4. Passive smoking

For the question “Please explain passive smoking,” before the lecture, 42 subjects (80.7%) replied “I can explain just a little”; 3 (5.8%) said “I cannot explain”; and 6 (11.5%) did not respond. Examples of “I can explain” responses included “people around a smoker inhale second-hand smoke”; “if there is someone nearby smoking, even if you are not, you will be harmed when you inhale the smoke”; and “people who are not smoking inhale cigarette smoke.” Examples of “I cannot explain” included “I don’t know”; “I myself smoke”; “I am harmed by the smoke that I inhale”; and “I harm myself by smoking.”

After the lecture, 50 (96.2%) subjects replied “I can explain just a little,” whereas 2 (3.8%) did not respond. Examples of “I can explain” responses included “non-smokers inhale second-hand smoke from cigarettes when a smoker is in the same place”; “people near a smoker inhale second-hand smoke”; and “inhaling second-hand smoke exhaled by smokers.” There were no “I cannot explain” responses.

5. Diseases caused by smoking

For the question “List three diseases caused by smoking,” before the lecture, 14 subjects (26.9%) listed three diseases; 13 (25.0%) replied with two illnesses; and 25 (48.1%) listed one disease.

After the lecture, 49 subjects (94.3%) replied with three diseases; 2 (3.8%) replied with two; and 1 (1.9%) replied with one, for a score of 152.

6. Mechanisms of diseases caused by smoking

For the question “Please explain the mechanisms of diseases caused by smoking,” before the lecture, 9 subjects (17.3%) replied “I can explain just a little,” whereas 43 (82.7%) responded “I cannot explain.” Examples of “I can explain just a little” included “Tar adheres to the lungs and causes harm”; “Smoking destroys lung cells, so, breathing becomes difficult and more cells are destroyed”; and “there are harmful things

Table 4 Explanations of the Mechanisms of Diseases Caused by Smoking (after the lecture – Dental Hygienists and Dental Technicians – abstract)

• The carcinogenic substances in tar cause cancer.
• Smoking causes pulmonary emphysema and opens holes in the lungs.
• If you put nicotine in your body, dopamine (a “happy substance”) reacts and makes you addicted.
• Smoking releases dopamine, which makes you feel happy. If you quit, dopamine is not released anymore and you become irritated.
• It lowers your immunity.
• It even harms people who do not smoke; children’s gums are melanized from passive smoke from their father.
• Smoking is a risk factor that causes a variety of oral diseases, such as bad breath, stomatitis, and oral cancer.
• Periodontal disease impedes blood flow caused by nicotine.
• The substances have adverse effects.
• Smoking destroys resistance in the gums and leads to tooth loss and periodontal disease.

in smoke that cause cancer.” (Table 3)

After the lecture, 33 subjects (63.5%) replied “I can explain just a little,” whereas 19 subjects (36.5%) responded “I cannot explain.” Examples of “I can explain just a little” included “Smoking is a risk factor that causes a variety of oral diseases, such as bad breath, stomatitis, and oral cancer,” “Tar has carcinogenic substances (it causes cancer)”;

and “Smoking constricts capillaries, so, the immune cells, oxygen, and nutrients carried by blood are not sufficiently distributed throughout the entire body. It is, therefore, easier to get sick and harder to recover.” (Table 4)

7. Smoking cessation methods

For the question “Please list at least four smoking cessation methods,” before the lecture, one subject (2.0%) listed 4 methods; 10 (19.2%) listed 3; 14 (26.9%) listed 2; and 17 (32.7%) mentioned 1. Ten (19.2%) subjects did not list any method.

After the lecture, 24 subjects (46.1%) listed 5 methods; 11 (21.2%) listed 4; 3 (28.9 %) listed 15; 1 (1.9%) listed 1. One (1.9%) subject did not list any method.

8. Smoking status

For the question “Do you smoke,” both before and after the lecture, 1 (1.9%) subject answered Yes; 49 (94.3%) replied No; 1 (1.9%) replied “I quit”; and 1 (1.9%) did not reply. (Table 5)

9. When started smoking

For the question “When did you start smoking,” only the smokers replied; 1 subject answered “I started smoking after starting school.”

DISCUSSION

Considering that dental hygienist and dental technician first-year students will become health care providers following graduation, the purpose of this study was to examine the future direction of non-smoking education,

Table 5 Smoking Status

Smoking	1 (1.9%)
Not smoking	49 (94.3%)
Quit	1 (1.9%)
No response	1 (1.9%)

by conducting non-smoking education lectures for these students to become involved in providing support and guidance in smoking prevention, and surveying knowledge of smoking and the motivation to quit smoking before and after the lectures. Results of the study elucidated the fact that most of the vocational school students were non-smokers. The results also indicated the view that even students attending the non-smoking lecture for the first time had significant understanding of the effects of smoking. It is the view of the authors that the students' straightforwardness in expressing their thoughts, because of the anonymity of the survey replies, was likely reflected in these results.

The non-smoking education was conducted partially using a lecture. In the survey before the lecture, the free-form comments were, in certain cases, vague. Following the lecture, however, the comments used more accurate wording, which likely indicates certain effects of the non-smoking education. Concerning the survey question "List three diseases caused by smoking," the fact that the score rose from 93 before the lecture to 152 after the lecture suggests the effect of the lecture.

A lifestyle survey of the first- to fourth-year students at the University's School of Dentistry confirmed that, overall, roughly 10% are smokers.⁷⁾ In comparison, there were almost no smokers among the students at the Schools of Dental Hygiene and Dental Technology, suggesting an extremely high motivation to stop smoking. In particular, the fact that most first-year students at the School of Dental Hygiene are minors could be the reason for their being non-smokers. However, in the upper grades, the number of students smoking might increase because of stress from additional clinical practice and study for national exams. To prevent smoking due to stress, there is a need to continue with non-smoking education as students progress through school, to disseminate the fact that smoking is a risk factor for malignant tumors and periodontal disease, and to chart a path for smokers to quit and non-smokers to not start smoking.

Hosomi et al.,⁸⁾ which concerned non-smoking education for university students, reported that conducting lectures on smoking has the effect of preventing smoking through raising awareness and the acquisition of information concerning the harm caused by smoking. However, as there are reports^{9, 10)} of more students taking up smoking after they turn 20, which is the legal age for smoking, it is thought that there are significant changes in their environment because of entering university around this age. Therefore, there are expectations of promoting the need for non-smoking education as well as smoking prevention, at this time, leading to the prevention of passive smoking and curbing of smoking. Tofukuji et al.¹¹⁾ and El Ansari W et al.¹²⁾ also reported that making an entire university campus smoke-free reduced smoking rates, from 25.2% to 7.6% among men and from 6.9% to 0.8% among women, thereby demonstrating the effectiveness of a smoke-free campus. Owing to such a suggestion that a smoke-free campus has certain effects, results would be expected from converting our campus from having smoking and smoke-free areas to banning smoking. As such, because it would be necessary to disseminate concerns that this would cause more students to smoke off campus,¹³⁾ it is important to share actively the experiences of making university grounds smoke-free. Non-smoking is a significant hurdle for smokers that require their own determination. This is, therefore, an issue of not only individual universities making non-smoking programs to spread awareness through education but also building an approach from a behavioral therapy viewpoint.¹⁴⁾

CONCLUSION

Non-smoking education for first-year students at the Schools of Dental Hygiene and Dental Technology resulted in previously vague knowledge of this issue becoming sharper, following the lectures. For students to remember these results in the long-term, it is important to repeat non-smoking education while they are enrolled in school; a curriculum plan that compels them to maintain this motivation must also be selected.

In the future, we must promote non-smoking by changing the awareness of students through making campuses smoke-free. Moreover, building rapidly a university support system and environment for students who are training to work in the health care field will be an important issue.

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