

Original Article

Evaluation of first-year smoking prevention and cessation education at the time of university admission: A study on changes in knowledge regarding subjective harmful effects of smoking and attitude toward smoking

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ABSTRACT

Purpose: At Matsuyama University, all departments hold lectures regarding smoking prevention and cessation during freshman orientation. To examine changes in the amount of knowledge regarding the subjective harmful effects of smoking as well as in the attitude toward smoking before and after lectures, questionnaire surveys were conducted to assess the educational effects of such lectures.

Methods: Among students who attended the Matsuyama University freshman orientation in 2016, we included 560 students who provided consent and responded to a questionnaire survey. Examination items included age, gender, presence or absence of a smoking habit, when the individual began smoking (smokers only), amount of knowledge regarding smoking (individual subjective evaluation), attitude toward smoking among non-smokers, and attitude toward smoking cessation among smokers. Changes in the amount of knowledge and attitude before and after the lectures were examined using a Wilcoxon signed-rank test, and an intergroup comparison of the amount of knowledge was performed using the Steel–Dwass test.

Results: With smoking prevention and cessation education, 38 of 60 students who had responded that they “might smoke” before the lectures changed their attitude to “will not smoke”. No significant differences were observed in the amount of knowledge between them and 483 students who responded that they “will not smoke” before and after the lectures. Moreover, 22 students who did not change their attitude to “will not smoke” even after the lectures were markedly less mindful about smoking; however, the amount of knowledge these students possessed after the lectures was significantly lower than that possessed by the other group of students. On the other hand, students who were smokers showed no change in their attitude to quit smoking.

Conclusion: Smoking prevention and cessation education during university admission was found to be useful. Moreover, continuous lectures with easy-to-understand content and increasing the amount of knowledge with regard to the harmful effects of smoking were shown to effectively raise awareness about smoking prevention and cessation.

Keywords: University student, freshman, smoking prevention education, smoking cessation education,

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INTRODUCTION

Smoking is the largest preventable risk factor for non-communicable diseases such as cancer, cardiovascular disease, diabetes, and chronic obstructive pulmonary disease (COPD). In addition, it is a primary factor in the increase in low birth weight, and passive smoking can cause various diseases; thus, health hazards of smoking should be avoided¹⁾. According to an overview of the 2015 National Health and Nutrition Survey²⁾, at present, 18.2% of the overall population has a smoking habit (30.1% among men and 7.9% among women). Moreover, among habitual smokers, the reported rate of individuals who wish to quit tobacco use is 27.9% (26.1% among men and 33.6% among women). A majority of smoking students had begun smoking during their adolescence; in contrast, only an extremely low proportion of those who had not smoked by 19 years of age smoked later on in their lives^{3,4)}. Furthermore, youth tend to become dependent sooner than adults, and the earlier an individual starts smoking, the more serious the dependency, and the more difficult it is to quit smoking^{5,6)}. Most freshmen are minors, and universities that foster young students who represent the next generation take on the mission of sending students out into the society in a healthy state; therefore, as part of smoking prevention measures at universities, it is extremely important to provide education to not create new smokers, particularly on smoking prevention education among freshmen⁷⁻⁹⁾.

At Matsuyama University, designated smoking corners have been put in place within the campus to separate smokers; however, during breaks, numerous students smoke. Therefore, with an aim to prevent freshmen from smoking soon after university admission and to help smoking freshmen quit smoking, all departments have held lectures on smoking prevention and cessation during freshman orientation since 2014. On examining the effects of such lectures as well as changes in student attitudes toward smoking, we collected and report our findings here.

METHODS

1. Target students

Students who replied to a questionnaire at the freshman orientation of Matsuyama University in 2016 were included.

2. Questionnaire survey

The questionnaire was anonymous and included questions on age, gender, presence or absence of a smoking habit, and when an individual began smoking (smokers only), along with an individual subjective evaluation of the amount of existing knowledge regarding smoking (according to a 5-point scale, wherein 1 indicated “little” and 5 indicated “a lot”), attitude of non-smokers toward smoking (according to a 5-point scale, wherein 1 indicated “don’t want to smoke” and 5 indicated “might smoke”), and attitude of smokers toward smoking (according to a 5-point scale, wherein 1 indicated “don’t want to smoke” and 5 indicated “want to smoke”). Students were asked to respond to the same questions before and after attending the lectures to determine their knowledge about smoking as well as their attitude toward smoking and cessation.

3. Statistical analysis

Statistical analysis was performed using JMP ver. 11 (SA Institute, Japan). Changes in the amount of knowledge and attitude before and after the lectures were examined using a Wilcoxon signed-rank test, and an intergroup comparison of the amount of knowledge was performed using the Steel–Dwass test. The significance level was set at 5%.

4. Ethical considerations

The survey was conducted with due consideration to the protection of personal privacy, and students were thoroughly explained that the survey was anonymous to protect their personal information, that the survey will not reflect their scholastic grades, that participation is voluntary, and that all data obtained will be processed as statistical figures.

RESULTS

1. Basic information

Questionnaire responses were obtained from 560 students, including 299 (53.4%) males and 261 (46.6%) females, who were divided according to their pre-lecture smoking status and attitude into group A, “smokers” ($n = 17$, smoking rate: 3.0%); group B, “individuals who might smoke” ($n = 60$), and group C, “non-smokers” ($n = 483$). After the lectures, 15 students from group A responded that they will continue smoking, 1 student wanted to quit, and 1 did not respond. Of the 60 students in group B, 38 changed their attitude to “will not smoke” (group B-1), while 22 maintained their attitude that they “might smoke” (group B-2), and all students in group C responded that they “will not smoke” (Fig. 1).

Group A included 15 males and 2 females, of whom, 6 had begun smoking in primary school, 9 in junior high school, and 2 after failing the university entrance exam (i.e., 88.2% students had started smoking in either primary or junior high school).

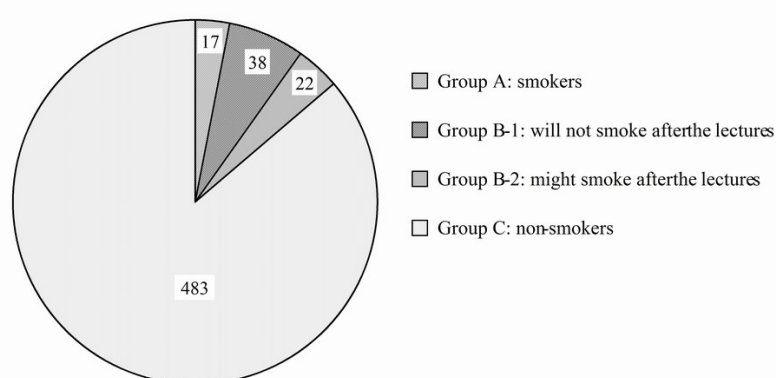


Figure 1. Attitude toward smoking among all freshmen

2. Knowledge about the harmful effects of smoking

Compared with before the lectures, a significant increase in the amount of knowledge regarding the harmful effects of smoking was observed in all freshmen (mean \pm SD) after the lectures, from 2.974 ± 0.968 to 4.134 ± 0.728 ($p < 0.0001$). Moreover, on individually examining each group, all groups showed a significant increase in the amount of knowledge. Intergroup comparisons of the amount of knowledge after the lectures revealed significant differences between groups B-1 and B-2 as well as between groups B-2 and C (Fig. 2). However, no significant difference was seen between groups A and B-2 probably because of the small numbers in group A.

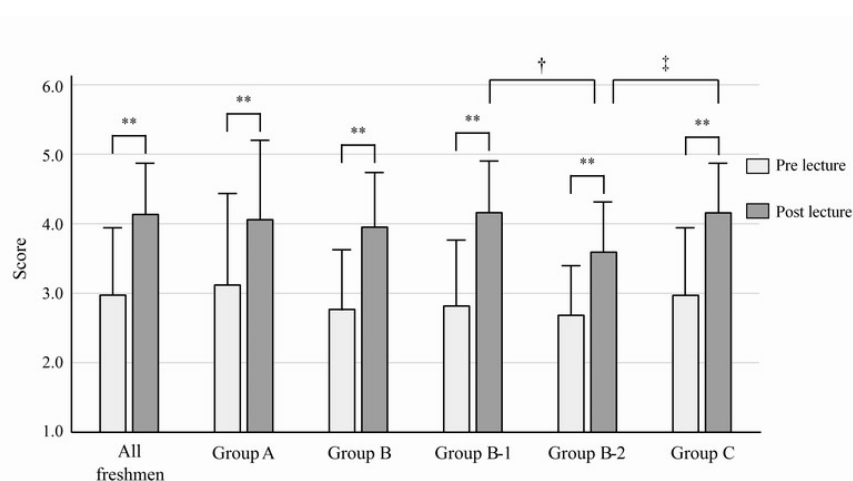


Figure 2. Comparison of the amount of knowledge regarding the harmful effects of smoking
 $^{**}p < 0.01$ Wilcoxon signed-rank test, $^{\dagger}p < 0.05$, $^{\ddagger}p < 0.01$ Steel–Dwass test

3. Attitude toward smoking and smoking cessation

Compared to attitudes before the lectures, a remarkable decrease was noted in attitudes toward smoking among all freshmen after the lectures (Fig. 3). Moreover, no changes were noted in attitude toward smoking cessation in group A (smokers) (Fig. 4). In group B, including students who revealed that they might smoke, a significant decrease was observed from 3.467 ± 1.268 to 1.600 ± 0.906 ($p < 0.001$) (Fig. 5). It was thought that students in group B-1, wherein they showed a change in attitude to “will not smoke”, were markedly affected by the lectures; in contrast, students from group B-2, wherein they maintained their attitude that they “might smoke”, were significantly less mindful about smoking (Fig. 6).

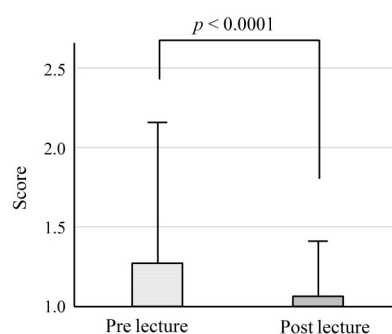


Figure 3. Changes in attitude toward smoking among all freshmen

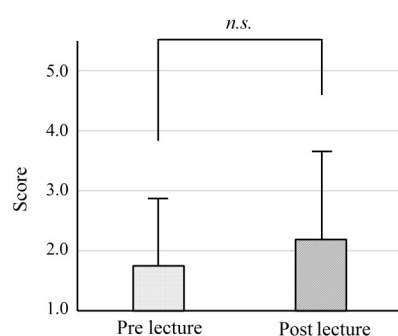


Figure 4. Changes in attitude toward smoking in group A

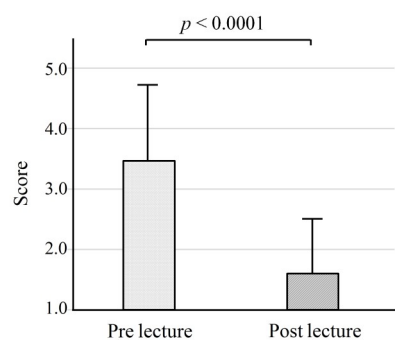


Figure 5. Changes in attitude toward smoking in group B

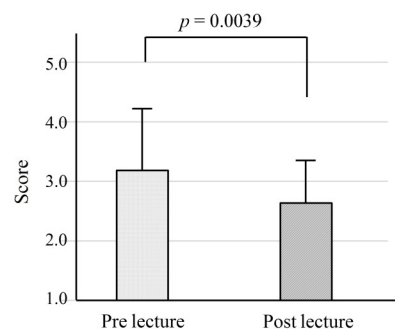


Figure 6. Changes in attitude toward smoking in group B-2

DISCUSSION

There was a limitation in the present questionnaire survey. We have difficulties in evaluating by the examination question form as to whether the students recognize objectively the fact that their smoking habit is responsible for a number of diseases such as cancer, cardiovascular disease, diabetes and COPD. It was predicted that the learning attitude influences the fluctuation of the amount of knowledge. However, it was also hard to evaluate their learning attitude in the present preliminary study. Therefore, the subjective evaluation method has been adopted.

With regard to smoking dependency in youth, the younger their age, the greater the dependency^{5, 6)}, and it has been pointed out that the age of minors who smoke is reduced^{10, 11)}. In the present survey conducted during orientation at the time of admission to Matsuyama University, a majority of smokers had begun smoking during primary and junior high school; thus, smoking prevention and cessation education should be initiated and continued from lower primary school grades.

Of the 17 students who were smokers, 1 student wished to quit smoking after the lectures, but 15 students (1 student provided no response) responded that they would continue smoking. Through this, we can infer that despite gaining a high level of knowledge regarding the harmful effects of smoking, once the habit of smoking develops, turning the attitude of smokers toward non-smoking can be challenging. Moreover, only three students sought help at the university to quit smoking in the past 2 years (two students succeeded in quitting smoking).

Furthermore, of the 60 students who mentioned that they might smoke before the lectures, 38 students responded that they would not smoke after the lectures. The 22 students who mentioned that they might smoke even after the lectures were significantly less mindful about smoking; these 22 students had significantly less knowledge about the harmful effects of smoking compared with students from other groups; thus, we believe that increasing the knowledge in such students results in them not smoking.

Taken together, holding ongoing lectures with easy-to-understand content during the early stages of university admission might increase the effects of education on attitude toward smoking and help raise awareness about smoking prevention as well as to help smokers become non-smokers. It is necessary for the present authors to continue the questionnaire survey. A sound conclusion should be drawn as to the possible differences between male and female students by increasing the numbers for the statistical analysis based on an intergroup comparison.

CONCLUSION

Holding lectures on smoking prevention and cessation during university admission was effective. In addition, holding ongoing lectures with easy-to-understand content improves the amount of knowledge regarding the harmful effects of smoking, effectively raises awareness regarding smoking prevention to change pro-smoking attitudes to an anti-smoking conscience.

CONFLICTS OF INTEREST

There is no conflict of interest to disclose in relation to the content in this presentation.

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