Experience with preventive education for alcohol use, smoking, and substance abuse among university freshmen in Japan

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Introduction: School children are required to receive preventive education on alcohol use, smoking, and substance abuse. However, since few studies are available on the effect of this part of the curriculum after graduation from high school, it remains unclear whether such education is adequate for adolescents.
Methods: We conducted a cross-sectional questionnaire-based survey of all freshmen enrolled at Shinshu University in 2010 (n = 2114). Students were questioned about their experience with preventive education in elementary, junior high, and high school.
Results: 2024 students returned completed questionnaires (response rate = 95.7%). The percentage of students reporting preventive education in the three topics increased gradually from elementary school (approximately 50%) to high school (approximately 90%). The percentage differed significantly by gender regarding alcohol use (P = 0.0322) and substance abuse (P = 0.0276) in elementary school programs, and regarding substance abuse (P = 0.0224) in junior high school programs. In addition, when students were stratified into the university's eight faculties, the proportion of students reporting preventive education experience in the three topics differed by approximately 10% between the highest and the lowest figure.
Conclusion: We found that approximately 10% of the students had either not received preventive education concerning these three topics in high school or did not remember receiving such education. We suggest that all freshmen should receive preventive education after entering university.

Keywords: cross-sectional survey, questionnaire, schools

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1. Introduction

Alcohol consumption and smoking are generally regarded as harmful habits, and the use of alcohol and tobacco by underage persons is strictly controlled in Japan. Furthermore, the use or possession of specific substances is prohibited by law because these habits are believed to cause abuse or dependence. Alcohol and substance use have the potential to trigger serious criminal acts; hence, precautionary measures are required. This is regarded as a matter of urgency, especially for youngsters (Miyoshi et al., 2009 Shimane et al., 2009).

One of these precautionary measures is compulsory preventive education provided in elementary school (ES), junior high school (JHS) and high school (HS). Structured preventive education for alcohol use, smoking, and substance abuse is described in manuals published recently by the Japanese Society of School Health (2005). Because crimes related to substance abuse are increasing among younger children, additional guidance on preventive education for substance abuse has been issued by the Ministry of Education, Culture, Sports, Science, and Technology (2002).

Because little evidence exists about the value of such education after graduation, it is unclear whether educating adolescents about alcohol use, smoking and substance abuse has been effective. We lack sufficient basic information with which

to construct a preventive education curriculum for university students. Because university students have a considerable likelihood of encountering harmful substances and lack of preventive education may lead to criminal behavior, it is important to evaluate past preventive education among university students.

In this study, we used a self-report questionnaire to obtain basic information about past experience with preventive education for alcohol use, smoking, and substance abuse among university freshmen.

2. Methods

This study was conducted between May and July 2010. The subjects were freshmen (n = 2114) who had enrolled at Shinshu University in April 2010. The questionnaire-based survey was carried out during a lecture in the Campus Life and Health program held in the first semester; all freshmen were required to attend this program as part of their initial health education. Students were given the questionnaires 10 min after the lecture began and were asked to complete it. The questionnaires were collected immediately after the lecture. The questionnaire items included faculty affiliation and gender. In addition, the students were asked "Have you ever attended preventive education lectures on alcohol use/smoking/substance abuse?" at the schools that they attended (ES, JHS, and HS). The possible answers were "Yes," "No," or "Do not remember." A total of 2024 students completed the questionnaire (response rate = 95.7%; males, females, and unknown were 1304, 713, and 7, respectively), and responses were stratified according to the university's eight faculties; arts (n = 161), agriculture (n = 189), economics (n = 200), education (n = 282), engineering (n = 453), medicine (n = 254), science (n = 213), and textile science and technology (n = 272).

The questionnaire was used as an attendance record; therefore, student names were also recorded. The questionnaire included a statement that the answers given would not lead to any disadvantage for the students, that the answers would be used only for statistical purposes, and that participation was voluntary. Therefore, written informed consent was not required. The names were kept anonymous during data input.

Chi-square test was used to compare categorical data; and $P < 0.05$ was considered statistically significant. Analyses were carried out using PASW 18 software for Windows (SPSS Institute Inc., USA).

3. Results

Figure 1 shows the educational experience in each of the three topics of preventive education (alcohol use, smoking, and substance abuse) during ES, JHS, and HS. For ES, approximately half of the students answered "Yes" and half answered "Do not remember" with respect to the three topics. The percentage response of "Yes" was approximately 90% for JHS and HS, while that for both "No" and "Do not remember" was below 10%. Similar trends were seen for all three preventive education topics. In addition, the students who responded "No" and "Do not remember" for HS tended to answer "No" and "Do not remember" for ES and JHS. Similarly, students who responded "Yes" for HS also tended to answer

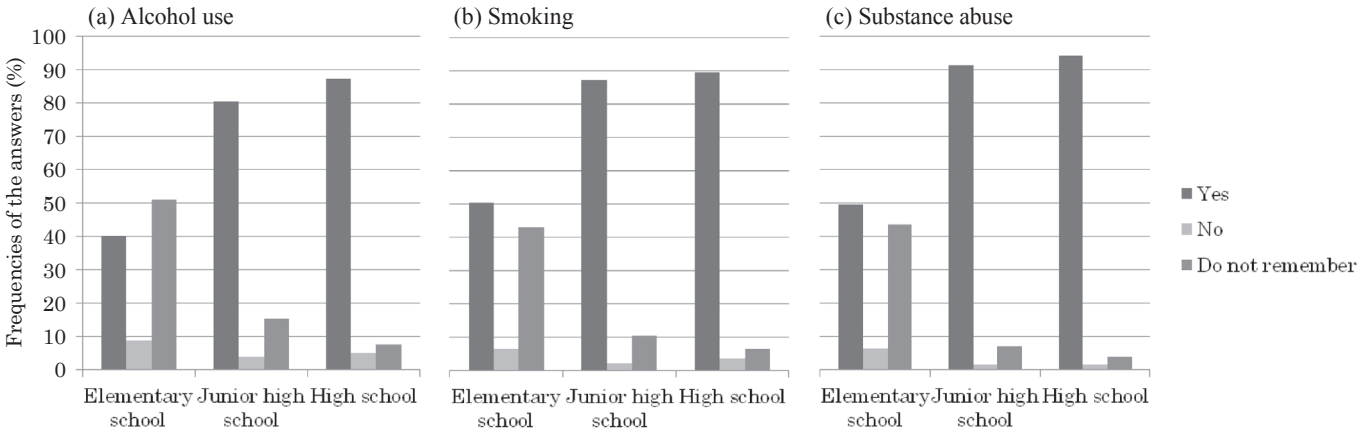

Figure 1 Frequency of the answers in the questionnaire on preventive education experience of university freshmen with alcohol use, smoking, and substance abuse.

The frequency of "Yes" answers for all the three topics (a) alcohol use, (b) smoking, and (c) substance abuse increased as school grade increased, reaching 80%–90% for Junior High School and High School.

"Yes" for ES and JHS for all three topics (data not shown).

Table 1 shows significant differences between the numbers of males and females who reported having received preventive education for alcohol use (P = 0.0322) and substance abuse (P = 0.0276) at ES, and substance abuse (P = 0.0224) at JHS, while there were no significant differences among other combinations of school level and topic.

Table 2 shows the proportions of students answering "Yes" stratified according to the 8 university faculties to which they belonged. The data show that there was variation dependent on the faculty (e.g., for alcohol use the range was 80.7%–89.4%, for smoking 81.9%–92.2%, and for substance abuse 87.0%–97.2% during HS). However, when we divided the students into two groups based on their enrollment in science (n = 1381) or humanities (n = 643), we found no difference in the proportions of "Yes" answers between the two (data not shown).

4. Discussion

Several investigations that included surveys of preventive education or attitudes toward prevention have been carried out during university attendance

Table 1 Comparison of preventive education experience by gender and educational level.

School	Topic	Answer	Male (n = 1304)	(%)	Female (n = 713)	(%)	P*
Elementary school							
	Alcohol	Yes	548	42.0	258	36.2	0.0322
		No	108	8.3	65	9.1	
		Do not remember	640	49.1	388	54.4	
	Smoking	Yes	662	50.8	350	49.1	ns
		No	78	6.0	50	7.0	
		Do not remember	559	42.9	312	43.8	
	Substance	Yes	673	51.6	325	45.6	0.0276
		No	79	6.1	53	7.4	
		Do not remember	546	41.9	333	46.7	
Junior high school							
	Alcohol	Yes	1045	80.1	575	80.6	ns
		No	52	4.0	28	3.9	
		Do not remember	202	15.5	109	15.3	
	Smoking	Yes	1130	86.7	629	88.2	ns
		No	24	1.8	19	2.7	
		Do not remember	147	11.3	64	9.0	
	Substance	Yes	1172	89.9	666	93.4	0.0224
		No	23	1.8	11	1.5	
		Do not remember	106	8.1	35	4.9	
High school							
	Alcohol	Yes	1128	86.5	627	87.9	ns
		No	67	5.1	33	4.6	
		Do not remember	106	8.1	50	7.0	
	Smoking	Yes	1167	89.5	639	89.6	ns
		No	46	3.5	28	3.9	
		Do not remember	88	6.7	43	6.0	
	Substance	Yes	1222	93.7	675	94.7	ns
		No	21	1.6	13	1.8	
		Do not remember	59	4.5	22	3.9	

Incomplete answers are not included in the Table. *Chi-square test

Table 2 Preventive education experience of university freshmen stratified by 8 faculties.

School	Topic	Average proportion of education experience(%)	Faculty with the lowest proportion of education experience(%)	Faculty with the highest proportion of education experience(%)
Elementary school				
	Alcohol	40.2	33.5	44.9
	Smoking	50.4	44.1	56.7
	Substance	49.8	46.9	52.6
Junior high school				
	Alcohol	80.6	72.0	84.1
	Smoking	87.4	81.1	91.8
	Substance	91.3	83.5	95.4
High school				
	Alcohol	87.3	80.7	89.4
	Smoking	89.8	81.9	92.2
	Substance	94.3	87.0	97.2

(Hirata, 2010). However, these studies did not address whether or not the students had experienced preventive education before enrolling in the university. Therefore, we investigated preventive education experience among university students and found that the proportion of students reporting such experience increased as the school level advanced. Approximately half of the students reported not remembering having received preventive education during the ES period; hence, the latter experience at JHS and HS was more important for the freshmen's knowledge of preventive education. We also found that approximately 10% of the students answered "No" or "Do not remember" even for the HS period. We assumed that these students did not have the opportunity to attend the lectures, had forgotten attending them, or chose not to attend the lectures that were offered. They also tended to answer "No" or "Do not remember" for the ES and JHS periods. We conclude that approximately 10% of the university freshmen may not have recognized the risks posed by the behaviors that are covered in preventive education.

The proportion of students that received preventive education was higher in this investigation than the preventive education statistical data provided by the Japanese Ministry of Education, Culture, Sports, Science and Technology (2010). For example, the Ministry data show a proportion of preventive education of substance use of approximately 50% at ES, 70% at JHS, and 70% at HS in 2009. The subjects in our study were university students, and we hypothesize that they took educational guidance more eagerly than the general population. This results in a higher proportion of students remembering their educational experience. We also compared the proportions of students reporting educational experience according to gender and faculty. Differences in the proportions were seen between males and females for the ES and JHS levels. Such differences may be related to changes in the structure of health and physical education programs according to gender starting in the upper grades of ES. Because half of the students answered "Do not remember" for the ES period, the differences between males and females may reflect not the educational experience but a gender-dependent educational memory difference. This confounding effect of gender difference should be taken into account in future studies. Furthermore, we found variation among the eight faculties in the proportion of students that reported having received preventive education. The variation was approximately 10% for all three topics at the HS level. This may reflect differences in preventive education between the schools from which the faculties attract their students. Thus, we found that the proportions of students reporting preventive education were not distributed uniformly, with considerable disparity among the groups. These results indicate that preventive education covering alcohol use, smoking, and substance abuse may be necessary for all students after university entrance because not all freshmen were educated about the risks posed by these activities.

This study has two major limitations. First, we focused on the experience of preventive education and did not evaluate the actual knowledge of and attitudes toward alcohol use, smoking, and substance abuse. Further investigation will be needed to clarify these aspects. Second, the responses given in this self-reported questionnaire may have been subject to recall bias because the information provided was based on the memory of each subject. Therefore, our data may be an over- or underestimation of the actual proportions of experience with preventive education. The memory about preventive education at the HS level is likely to be the most reliable and accurate.

5. Conclusion

We investigated past experience of preventive education regarding alcohol use, smoking, and substance abuse during the ES, JHS, and HS periods among university freshmen in 2010. The strengths of this study were a high response rate and the fact that the data were collected very recently. The results show that approximately 10% of the students had not received educated in these three topics or did not remember such education, even for the HS period. Furthermore, the proportions of students reporting educational experience differed among males and females, and depended on the university faculties in which the students were enrolled. On the basis of these results, we propose that all freshmen should be educated in these three topics after entering university to increase the proportion of students who have received preventive education. This may help to reduce the number of students that will acquire potentially harmful habits. Our results may be useful in constructing a health education curriculum for university students.

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