Study of the Smoking Behavior of Medical Doctors in Fukui, Japan and Their Antismoking Measures

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We conducted a survey on smoking among all members of the medical association in Fukui Prefecture, using a questionnaire to be filled in by the subjects. The survey was conducted from December of 1996 to February of 1997, and the return rate was 90.8%. The main results of this survey were as follows: the prevalence of current smoking among medical doctors was 26.0% (male: 27.8%, female: 5.2%), which was lower than that of adults in the general population. The prevalence of past smoking among doctors 20 to 34 years old by age cohort was highest and that among doctors 35 years old and higher declines as age cohort increased. Doctors' participation in activities for the prevention of smoking in the general society was also found to be at a low level. J Epidemiol, 2000 ; 10 : 157-162

medical doctor, prevalence of smoking, guidance for patients, antismoking measures, social activity

INTRODUCTION

Medical doctors play the core role in health and medical treatment, and it is no exaggeration to say that their behavior can have an important influence on their patients and people in their communities. However, the prevalence of current smoking among adults in Japan, including that among doctors, is higher than in advanced countries of Europe and America, where antismoking measures have been actively taken 9.

To strengthen antismoking measures in Japan, active involvement by doctors, in this issue will be required in the future.

Several reports on the actual status of smoking among doctors and medical students have been issued so far, but in the majority of them, the size of the subject groups was too small, such as a group in one medical school or one hospital, and the return rates of questionnaires were low 2-5.

The object of this study was to clarify the actual status of smoking among members of all medical associations in one prefecture, their consciousness of smoking, and countermeasures taken in their hospitals, in order to promote better antismoking measures.

MATERIALS AND METHODS

The survey was conducted by distributing questionnaires to 874 members of the medical associations in Fukui Prefecture, with the cooperation of the chairmen of the Prefectural Medical Association and the District & Municipal Medical Associations, in December of 1996. The questionnaires were collected by February of 1997 and were analyzed.

Method of collection: Two envelopes, large and small, with the questionnaire were distributed with the questionnaire via the medical association secretariat for each area to each member. Each filled-in questionnaire was to be enclosed in a small envelope with no name, and then enclosed in a large envelope.

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and returned. The return rate was around 65% at first. To increase the return rate, members who had not returned their questionnaires were urged by several telephone calls and by mail asking for their cooperation. As a result, the number of respondents increased to 794, bringing the final return rate to 90.8%.

Only the small envelopes, with questionnaires enclosed, were sent to the National Institute of Public Health. This method was adopted to ensure anonymity of the subjects.

Items of inquiry were: (1) smoking status of the subjects in the past and the present, (2) whether or not they give guidance to their patients to quit smoking, and what kind of guidance, (3) regulations on smoking in their medical institutions, (4) sex, age, and so forth. After excluding 85 responses which contained no answers or no entry for sex or age, 709 effective responses (male: 651, female: 58) were analyzed.

For statistical processing, SPSS 7.5 for Windows was used, and t-tests and chi-square tests were conducted to determine statistical significance. The significance level was set at 5% difference.

RESULTS

1. Smoking status of medical doctors

(1) Actual status

The prevalence of current smoking among doctors as a whole was 26.0% (male: 27.8%, female: 5.2%). And the prevalence of current smoking by sex and by age is shown in Table 1.

As the number of female physicians was small and the analyses stratified by age and other factors were unable, so it is difficult to classify the prevalence of smoking by sex. The prevalence of smoking by sex were excluded from subsequent analyses.

The highest prevalence of current smoking (32.7%) was seen among doctors who were 40 to 49 years old.

As to the average age of all respondents was 54.7 (range: 27-99, standard deviation: 14.5), with average for male subjects 55.1 (range: 27-96, standard deviation: 14.4), and for female subjects 50.0 (range: 28-99, standard deviation: 15.2). The average age of general practitioners was 57.6 (range: 32-94, standard deviation: 13.0), and of salaried doctors 48.8 (range: 27-99, standard deviation: 14.3).

(2) Experience of smoking by doctors

The number of doctors who have ever smoked even one cigarette was 587 (82.8%), 86.6% of male and 33.3% of female doctors. The average age of first smoking was 19.8 (male: 19.7, female: 22.1), and a significant difference in the first-experience age between male and female was recognized (p<0.05).

The number of doctors with currently established smoking habits (smoking every day for six months or more) was 426 (60.0%), and the average age for acquiring smoking habits was 22.2 (range: 9-60, standard deviation: 5.5).

The prevalence of past smoking by age cohort, calculated from the ages when smoking habits started and ended, according to the responses of the doctors who had experienced habitual smoking, is shown in Figure 1.

In each current age cohort, the smoking habit was formed between 20 and 24 years of age (n=247, 58.0%), 2-3 years after their first smoking experience, and the prevalence of past smoking peaked between 20-34 years of age, depending on age cohort (20-24 years old for the currently 25-54 cohorts, and 25-34 years for the over 55 cohorts), declined from these summits (Figure 1).

2. Guidance for patients to quit smoking

(1) Smoking behavior of doctors and guidance given to patients

Table 1. Smoking behavior by sex and age.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age</th>
<th>Never smoke (%)</th>
<th>95% C.I.</th>
<th>Former smoker (%)</th>
<th>95% C.I.</th>
<th>Current smoker (%)</th>
<th>95% C.I.</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>20-29 years</td>
<td>2 (50.0)</td>
<td>1 (25.0)</td>
<td>24.8-30.8</td>
<td>22.4-28.8</td>
<td>4 (100.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30-39 years</td>
<td>42 (46.7)</td>
<td>25 (27.8)</td>
<td>39.8-41.6</td>
<td>35.1-37.1</td>
<td>90 (100.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40-49 years</td>
<td>45 (23.2)</td>
<td>79 (40.7)</td>
<td>55.3-56.5</td>
<td>23.8-29.2</td>
<td>194 (100.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50-59 years</td>
<td>18 (17.6)</td>
<td>57 (55.9)</td>
<td>27 (26.5)</td>
<td>102 (100.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>60+ years</td>
<td>39 (14.9)</td>
<td>162 (62.1)</td>
<td>60 (23.0)</td>
<td>261 (100.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (%)</td>
<td>146 (22.4)</td>
<td>324 (49.8)</td>
<td>181 (27.8)</td>
<td>651 (100.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>20-29 years</td>
<td>3 (100.0)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>3 (100.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30-39 years</td>
<td>9 (75.0)</td>
<td>70.3-79.7</td>
<td>2 (16.7)</td>
<td>12 (100.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40-49 years</td>
<td>19 (95.0)</td>
<td>94.5-95.5</td>
<td>—</td>
<td>20 (100.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50-59 years</td>
<td>6 (85.7)</td>
<td>81.4-90.0</td>
<td>—</td>
<td>7 (100.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>60+ years</td>
<td>14 (87.5)</td>
<td>85.9-89.1</td>
<td>1 (6.3)</td>
<td>16 (100.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (%)</td>
<td>51 (87.9)</td>
<td>4 (6.9)</td>
<td>3 (5.2)</td>
<td>58 (100.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

95% C.I.: 95% confidence interval, Current smoker: Daily smokers + Occasional smokers
In answer to the question, "What is done in antismoking guidance?", significant differences between doctors who smoke and doctors who do not were recognized in the number of doctors who checked "Explaining the risks of smoking in detail to patients" (smoking doctors: n=98, 53.3%, non-smoking doctors: n=372, 70.9%)." and "Only giving advice to quit smoking to patients" (smoking doctors: n=99, 53.8%, non-smoking doctors: n=213, 40.6%) (both p<0.05) (Table 2).

As to the influence of doctors' smoking behavior on antismoking guidance to their patients, more doctors who habitually smoke tended to answer "Smoking may not be prohibited for certain diseases" (smoking doctors: n=44, 23.9%, non-smoking doctors: n=96, 18.3%) and "Whether or not to smoke should be decided by the patients themselves" (smoking doctors: n=90, 48.9%, non-smoking doctors: n=120, 22.9%) (both p<0.05).

Table 2. What is done in antismoking guidance, and what impedes conducting antismoking guidance for patients, Percent of doctors checking each response (Multiple answers possible).

<table>
<thead>
<tr>
<th>What is done in antismoking guidance</th>
<th>Smoking doctors N=184</th>
<th>Non-smoking doctors N=525</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explaining the risks of smoking in detail to patients</td>
<td>53.3</td>
<td>70.9*</td>
</tr>
<tr>
<td>Only giving advice to quit smoking to patients</td>
<td>53.8</td>
<td>40.6*</td>
</tr>
<tr>
<td>Setting a target date for patients to quit smoking, and giving consultation and guidance</td>
<td>1.1</td>
<td>3.2</td>
</tr>
<tr>
<td>As more active consultation, being involved in planning for quitting smoking</td>
<td>0.5</td>
<td>2.3</td>
</tr>
<tr>
<td>Giving educational materials to patients and guiding them to quit smoking by themselves</td>
<td>2.2</td>
<td>4.6</td>
</tr>
<tr>
<td>Referral to medical specialists on smoking</td>
<td>0.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Prescription of nicotine chewing gum</td>
<td>15.8</td>
<td>16.0</td>
</tr>
<tr>
<td>Deciding on consultation dates for outpatients to check the progress of quitting smoking</td>
<td>0.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What impedes conducting antismoking guidance to patients</th>
<th>Smoking doctors N=184</th>
<th>Non-smoking doctors N=525</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too much time is required for guidance.</td>
<td>26.1</td>
<td>30.1</td>
</tr>
<tr>
<td>Medical fees for counseling are not covered by medical insurance</td>
<td>13.0</td>
<td>14.5</td>
</tr>
<tr>
<td>My being indifferent in the issue of smoking</td>
<td>9.2</td>
<td>10.3</td>
</tr>
<tr>
<td>My having insufficient medical education on smoking</td>
<td>8.7</td>
<td>10.9</td>
</tr>
<tr>
<td>My not having confidence in giving guidance because I have never seen any successful case</td>
<td>10.3</td>
<td>6.5</td>
</tr>
<tr>
<td>Patients refuse guidance from the beginning</td>
<td>9.2</td>
<td>12.2</td>
</tr>
<tr>
<td>Although patients do not refuse guidance, they are too weak-willed to quit smoking, or their daily environmental factors, such as stress in their workplace, make it difficult</td>
<td>39.7</td>
<td>51.4*</td>
</tr>
</tbody>
</table>

* p<0.05
As to the guidance for patients who need to quit smoking as part of their treatment, the opinion which doctors had were: "To do the guidance toward patients" (smoking doctors: n=167, 90.8%, non-smoking doctors: n=481, 91.6%), "Not to do the guidance toward the patients" (smoking doctors: n=6, 3.3%, non-smoking doctors: n=11, 2.1%) and "To have no idea" (smoking doctors: n=5, 2.7%, non-smoking doctors: n=10, 1.9%), there was no significant difference between doctors who smoke and who do not.

(2) Asking patients about their smoking behavior, and test items

The number of doctors who always ask a new patient about his/her smoking history was (smoking doctors: n=57, 31.0%, non-smoking doctors: n=234, 44.6%) (p<0.05), and the number of doctors who recorded patients' smoking habits in their medical records was (smoking doctors: n=52, 28.3%, non-smoking doctors: n=191, 36.4%) (p<0.05). Only six (0.8%) doctors conducted a measurement of nicotine and tests of urine, saliva, breath, and so forth.

(3) Content of antismoking guidance and its problems

The majority of doctors (n=474, 66.9%) explained in detail the risks of smoking to their patients, but a few conducted in-depth guidance for patients to quit smoking. The number of doctors who prescribed nicotine-containing antismoking chewing gum was 113 (15.9%), and there was no significant difference in prescription of nicotine chewing gum between doctors in clinics and hospitals, or between general practitioners and salaried doctors.

Regarding antismoking programs such as "Smoke Busters" developed by the Osaka Cancer Prevention and Detection Center and the antismoking seminar "You can quit smoking in five days" organized by the Tokyo Adventist Hospital, although 8.2% and 8.0% of the doctors knew of them, respectively, only a few, 10 (1.4%) and 4 (0.6%) respectively, used those programs in their practices.

The actual status of antismoking guidance for patients in daily treatment, percentage of doctors "who do not give guidance" was (n=121, 17.1%), "who conduct guidance for 1-2 minutes" was (n=338, 47.7%), "who conduct guidance for 3-5 minutes" was (n=153, 21.6%), and "who conduct guidance for 5 minutes or more" was (n=40, 5.6%).

As to obstacles to giving guidance, as shown in Table 2, the most cited was "Although patients do not refuse guidance, they are too weak-willed to quit smoking, or their daily environmental factors, such as stress in their workplace, makes it difficult" (smoking doctors: n=73, 39.7%, non-smoking doctors: n=270, 51.4%) (p<0.05).

The second-ranked obstacle was "Too much time is required for guidance." (smoking doctors: n=48, 26.1%, non-smoking doctors: n=158, 30.1%), and the third-ranked obstacle was "Counseling is not covered by medical insurance" (smoking doctors: n=24, 13.0%, non-smoking doctors: n=76, 14.5%).

3. Smoking activism by doctors

Forty-three doctors (6.1%) answered "Yes" to the question of whether they participate in activities other than their medical practice to promote a nonsmoking society. Among them, the most often named activity was "Directly appeal to the community people about the problem of smoking as their social activities on this issue." (n=30, 4.2%)

DISCUSSION

In this survey, we repeatedly asked persons concerned in the Prefectural and District & Municipal Medical Associations for their collaboration in increasing the return rate of questionnaires. We asked the chairmen of the Prefectural and District & Municipal Medical Associations to request cooperation from their members each time a meeting was convened. The members who did not submit at the first return were repeatedly requested to do so by telephone or mail. As a result, a very high return rate was achieved, making this survey much more reliable than past similar surveys of medical doctors. The results of this survey will give important suggestions on guidance for patients and antismoking measures in medical institutions.

In this survey, scrupulous attention was paid to assurance of anonymity, and responses that did not respect the defined procedures were excluded from the analysis.

As shown in Table 1, the prevalence of current smoking among doctors was 26.0% (male: 27.8%, female: 5.2%), much lower than that among adults in the general population, as revealed by a survey conducted by Japan Tobacco Inc. (male: 51.2%, female: 9.8%) and by the National Nutrition Survey in 1997 (male: 52.7%, female: 11.6%).

Various surveys have been conducted in the past on the prevalence of smoking among doctors, although the size of the subject groups were smaller. This survey showed lower prevalence of current smoking among doctors than did a survey conducted by the Yokosuka City Hospital in 1988 (prevalence of current smoking among doctors: 40.44%), a survey of members of the Medical Association of Toyama Prefecture (prevalence of current smoking among doctors: 39.0%) and, a survey of workers at Sendai Red Cross Hospital (prevalence of current smoking among male doctors: 29.0%) and the survey of members of the medical association of Toyonaka City, Osaka (prevalence of current smoking among doctors: male 36.9%, female 8.0%).

As to the prevalence of current smoking by age and rank, in the survey by Kawane et al., the prevalence of current smoking among doctors under 35 years old was 35.0%, declining to 19.4% among those 35-49 years old, and to 6.9% among those 50 years old or more.

In this survey, the results were the reverse, with a lower
prevalence of smoking among younger doctors.

The number of subjects in their twenties was small in this survey, so the results of this survey may not reflect the actual prevalence of smoking among doctors in their twenties, compared with surveys conducted in hospitals affiliated with medical colleges, where the number of doctors in this age group was large. However, it may also be the case that doctors of the younger generation better understand the harmful effects of smoking through their medical education, and quit smoking before the habit is firmly established.

Considering that the prevalence of smoking among younger people in the general population has not decreased but rather increased \(^6,7\), young physicians are particularly expected to provide leadership on smoking control activities in the society.

Anyway, although the prevalence of current smoking among doctors is lower than that among adults in the general population, it remains higher compared with the prevalence of current smoking among doctors in other advanced countries of the world \(^8\).

To the question on smoking experience among doctors, if they have ever smoked even one cigarette in the past, 82.0% answered "Yes." According to a survey in the U.S.A., 51.1% of doctors had some smoking experience, but only 6.3% of them were habitual smokers who currently smoked every day \(^8\). When comparing these results to the results of this survey, that 21% of doctors smoke every day, it is quite obvious that the prevalence of current smoking among doctors in Japan remains higher.

As mentioned above, it becomes clear that the prevalence of smoking among doctors peaks at ages 20-34, then declines as age increases, to a level substantially lower than among adults in the general population. However, the prevalence of past smoking by age cohort, revealed by a survey on smoking status of workers in certain workplaces in Osaka Prefecture, rapidly increases to age 20, peaks at ages 20-34, then slowly declines \(^9\).

It has been said that prevalence of smoking among doctors declines ahead of that among adults in the general population \(^10\). Therefore, it is expected that the prevalence of smoking among adults in the general population will decline to a level similar to that among doctors in the future.

However, a similar survey on the prevalence of past smoking among nurses by age cohort yielded the exact opposite of the results of this survey, and the prevalence of past smoking among nurses by age cohort, although they are medical workers as well, was shown to increase with age \(^12\). Therefore, it would be necessary to address the issue of smoking among nurses more vigorously than that of smoking among doctors in the future, in order to promote antismoking measures at actual sites of medical practice.

The prevalence of past smoking among doctors who were born in 1955 (actually, age cohorts 1953-1957, for five years around 1955) and after has fallen remarkably. In the above-mentioned survey of workers in certain workplaces in Osaka, the prevalence of past smoking was also shown to decline from birth cohort 1957 and after \(^10\).

To develop comprehensive antismoking measures to be promoted mainly by medical institutions, it is important to lower the prevalence of current smoking among doctors aged 45-49, who are the core of medical association members. It is necessary to carefully watch to see if the prevalence of current smoking among doctors in this age group will decline as that among doctors in the age group of 50 or more has done.

The guidance for patients to quit smoking, in general, is influenced by doctors' personal smoking habits. Although doctors who smoke are lenient on their patients' smoking, their attitude toward patients who need antismoking guidance for medical treatment is based on a doctor's basic ethics, which shows the conscience of doctors.

Though both doctors who smoke and those who do not smoke were give simple antismoking guidances to the patients, smoking doctors tend to explain the risks of smoking to patients in detail. Another active antismoking guidances were hardly given to the patients by smoking or non-smoking doctors except prescription of nicotine chewing gum. On the other hand, in the U.S.A., when physicians address smoking cessation with patients, most reported advising patients to stop and explaining the dangers of smoking. Approximately one quarter reported setting dates to stop smoking, making referrals, and recommending use of nicotine-chewing gum "most of the time." One third assisted patients with smoking cessation plans and provided self-help materials. Very few (11.6% of 464 respondents) arranged follow-up contact as a regular practice \(^10\).

As to prescribing nicotine chewing gum, only 15.8% of doctors in Japan do so, according to this survey. As can be seen, antismoking guidance at actual medical sites is confined to giving information to patients. However, while prescription of nicotine chewing gum, one type of pharmacotherapy for smoking, is not widely practiced in Japan in comparison with the U.S.A., 15.8% of doctors do prescribe nicotine chewing gum even though it is not covered by medical insurance. So, if it is covered in the future by medical insurance, it is expected to be used widely and be established as a new treatment for prevention of smoking.

Compare the tobacco controls of Japan with those of the U.S.A., it is necessary for the doctors in Japan have to do the in-depth guidance to patients to quit smoking in order to reduce the risk of smoking.

In comparison with the actual status of antismoking guidance for patients in daily treatment in Japan, according to a survey conducted in Massachusetts, 35% of medical residents, 26% of attending physicians, and 27% of general practitioners working in their communities give new outpatients guidance for 5 minutes or more, and 18%, 9%, and 16% of them, respectively, give repeating outpatients guidance for 5 minutes or
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In Massachusetts in the U.S.A., the top three reasons for not giving guidance were "Too much time is required for guidance," "Patients refuse to accept guidance," and "Patients' behavioral patterns or daily environmental factors, such as stress in their workplace, make it difficult," similar to the reasons pointed out in this survey. So, these are the elements considered to be important obstacles both in Japan and the U.S.A. 15.

Other obstacles, such as that doctors are "indifferent to the issue of smoking" and "have insufficient medical education on smoking," are pointed out in Japan, but the results of a similar survey in the U.S.A. revealed that these were not considered important obstacles to giving patients antismoking guidance 15.

The situations in Japan and the U.S.A. cannot be compared, as the details of practice and the number of survey subjects are not known. However, insufficient time for physicians would probably be an obstacle in both countries. Systematic education of patients would be required to solve these issues.

Antismoking measures in medical institutions depend on at least partly doctors' attitudes toward smoking. Since doctors can be aware of the harmful influence of smoking more than anybody and can effectively give guidance to their patients and to society as a whole, and are entrusted to do so by society 16, they are now requested to give appropriate antismoking education and treatment to their patients, and to publicly discuss the issue of smoking.

In 1991 the Japan Medical-Dental Association for Tobacco Control started its activities in Japan. To promote a nonsmoking society, medical workers, including doctors, who have an influential voice in issues of health, should actively participate in activities to prevent smoking, but this survey shows activism by doctors still to be at a low level.

Finally, although the return rate for this survey was extremely high, the results of the survey do not sufficiently reflect the actual current smoking status of the younger generation of doctors because of the age composition of the medical associations surveyed, where middle- and senior-aged members account for a large percentage. The actual status of smoking among young doctors, who are to decide the smoking status of the next generation, should be researched in the future.

ACKNOWLEDGEMENT

We deeply appreciate the collaboration of Dr. Teruo Nakagami, Chairman of the Medical Association of Fukui Prefecture, and its members, without whom the present study would not have been possible.

REFERENCES