The Ecology of Medical Care in Japan


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Abstract

Background  Studies on the ecology of medical care have been reported only from the USA. No similar investigation has been made for Japanese population.

Objective  To sketch health care seeking behavior of people in Japan based on a prospective health diary recorded for one month.

Material and Methods  A population weighted random sample from a nationally representative panel of households was used to estimate the number of health-related symptoms, self-care, and health care utilization per 1,000 Japanese population per month. Variations in terms of age, sex, and region were also examined.

Results  Based on 1,286 households (3,477 persons: 2,451 adults and 1,026 children), on average per 1,000 persons, 862 had at least one symptom, 307 visited a physician's office, 232 a primary care physician, 88 a hospital-based outpatient clinic, 49 a professional provider of complementary or alternative medical care, 10 a hospital emergency department, and 6 a university-based outpatient clinic. Seven were hospitalized, 3 received professional health care in their home, and less than 1 was admitted to a university hospital. Children had more physician and emergency visits, and rural people were more likely to be hospitalized compared with the average figures. Females were more likely than males to have symptoms and to visit their physician while the reverse was true for emergency visits.

Conclusions  Compared with the data from the USA, more people visit physician offices and hospital based outpatient clinics in Japan. Results of this study would be useful for further delineation of health care seeking behavior of people in the context of a health care system unique to Japan.

Key words  Ecology, Medical care, Physician visit, Primary care, Health diary

Introduction

More than 40 years have passed since White et al. reported the first study on the ecology of medical care based on the population of the USA and UK. They showed that the main bulk of the health service utilization occurred at physician visits (250 out of 1,000 per month) with hospitalization only 9 incidences out of 1,000. This ecology model has been replicated over the decades, with findings that were consistent with those of White et al. Furthermore, this model has...
been widely referred to by policy makers and educators.\textsuperscript{6-9}

Unlike the medical system in the USA, Japan has a universal health care system, which allows free access to everyone. In a recent study, it was reported that Japan, compared to the USA, spent considerably less money on health care in terms of total health spending per capita (US$ 2,012 vs. 4,631) and percent of gross domestic product (GDP) (7.8\% vs. 13.0\%).\textsuperscript{10} Thus, it is speculated that the Japanese people’s health care seeking behavior and health service utilization could be different from that in the USA. However, no well-designed studies on patients’ health seeking behavior for health-related symptoms were previously conducted, although there were reports limited to very small sample sizes.\textsuperscript{11,12}

The objective of this study was to examine health care seeking behavior of people in Japan using a nationally representative panel of households.

**Materials and Methods**

**Study design**

Prospective cohort design was employed.

**Sample**

A nationally representative panel, comprised of 210,000 households, belonging to Japan Statistics & Research Co. Ltd., was used. Taking into consideration the size of the cities, towns and villages, a population weighted random sample of 5,387 households was chosen and each household was sent an offer letter with a return envelope. Of the total, 1,857 agreed to participate. The sample size was readjusted to 1,464 households to make it nationally representative.

**Data collection**

Questionnaires and diaries were used for data collection. The questionnaires were scripted to note individuals’ baseline characteristics including past medical history. The diary was to keep record of any health related events, symptoms, health-seeking behavior, and actual use of health services along with other variables of interest. For children younger than 13 years and those who could not write on their own, parents/other eligible persons were asked to fill out the questionnaires and diaries for them. The advantages of health diaries are that they can allow continuous and live recall of events. Utilization of diaries has shown higher compliance\textsuperscript{13} and has been found to be useful where the researcher does not have direct access to the situation.\textsuperscript{14} It is a highly suitable methodology for literate populations.\textsuperscript{15}

After obtaining informed consent by post, health diaries (divided into two parts, each two weeks duration), questionnaires for recording baseline data and gift vouchers of about 30 US$ per person were sent to each member of the 1,464 households in September 2003. The diaries were recorded from October 1, 2003 till October 31, 2003. A manual accompanied the health diaries to facilitate recording the required information. The diary was in the form of a softbound A4 book. The participants were asked to return the first part of the diary after entries were made for 15 days while the second part was returned after the completion of the study period. A phone call per week per family was made as a reminder.

Ethical approval was obtained from the Research Ethics Committee of Kyoto University Graduate School of Medicine, Japan.

**Statistical analysis**

Descriptive analyses, along with confidence intervals, were performed to estimate the number of different health care seeking behaviors per 1,000 of the population in a month.

**Results**

Of 1,464 households, 1,359 households (3,658 persons) returned both parts of the diary at
Fig. 1 Monthly prevalence estimates of symptoms and health care utilization in Japanese population

Each box does not necessarily represent a subgroup of the larger box, i.e., some values are overlapping. The values are based on 1,000 persons.

The conclusion of the time period. The data were complete for 3,477 persons out of the total 3,568 persons. Most of the respondents were females (53.2%) and adults (70.5% ≥ 18 years old). Area-wise, 17% were from large cities, 24% from medium-sized cities, 38% from small towns, and 21% from rural areas.

Figure 1 shows the incidence of different health care seeking behavior in the model of ecology of medical care. Of 1,000 people in Japan, our estimates on average in a month show 862 had at least one symptom, 307 visited a physician’s office, 232 a primary care physician, 88 a hospital-based outpatient clinic, 49 a professional provider of complementary or alternative medical care, 6 a university-based outpatient clinic, and 10 an emergency department. Seven were hospitalized, 3 received health care in their home, and less than 1 (0.3) was admitted to a university hospital.

Table 1 shows the variation of health care seeking behavior in terms of age, sex, and area of living. Children had more physician and emergency visits, and rural people had more hospitalization compared with the average figures. More females had at least one symptom, physician and outpatient visits, while the reverse was true for emergency room visits. People living in large cities were more likely to receive home health care and visit emergency departments, while rural people were more likely to be hospitalized.

Discussion

The results derived from our study reflect the overall pattern of health care seeking behavior in Japan as of 2003. This is the first study to provide nationally representative data. It showed that 86.2% of the respondents had at least one symptom while 30.7% used health service in a month. As a whole
the results are comparable to that of the previously reported studies from the USA, although this study is based on a cohort, which is nationally representative, while those from the USA drew on different sources providing synthesized data. Compared with the most recent report by Green et al., which was representative of the whole USA population, people in Japan more often visited their physician’s office (307 vs. 217) and hospital-based outpatient clinics (88 vs. 21) than their American counterparts. The same was true for Japanese children in terms of physician visits and emergency care. However, health service uses in other categories were very similar. It would be interesting to know how these costlier health service uses are more frequent in Japan compared to that in the USA, in spite of lower per capita health care expenditure and % of GDP spent for it.

Since we did not collect data on health outcomes of individual persons, we cannot make judgments on the appropriateness of particular health care seeking behavior. There is a possibility that a significant proportion of professional medical care utilization could be in fact managed by self-care. The reverse, i.e., serious health problems cause by delayed physician consultation because of time spent by self-care, might have also occurred. Overall disease burden is not known from our data, because of the lack of data on diagnoses. In this sense, it is uncertain from the current data whether the right patients get to the right care at the right time. Thus it is obvious that further research incorporating data from medical facilities is necessary.

The figures generated here in this study are not necessarily to weigh the relative importance of primary, secondary, and tertiary care utilization.
tertiary cares. Nor can this study make recommendations for rationalization of health care expenditure in different settings. This study, as mentioned above, reflects the spectrum of health care utilization, but not the total burden of health care because the disease-specific data and hospitalization details, which consumes the bulk of the expenditure, remain unknown.

This study has important strengths. First, it is based on a nationally representative cohort, which is helpful in generalizing the findings. Second, the summary findings are nested since the whole scenarios are based on a single cohort. Third, all age groups were included to gain a clear picture of Japanese society.

There are, however, several limitations to our study. First, data was collected during a single month, the month of October. Seasonal variation of disease incidence and prevalence could result in estimates different from the current data. Second, we could not ascertain the proportion of people obtaining primary or subspecialty care from a physician’s office or outpatient department of hospitals. Nor we could estimate the frequency of referrals to specialists.

Health care seeking behavior will certainly change in the future due to Japan’s rapidly aging society, the growing health awareness of the general public, changes in the insurance system, and abundant health information. The results of this study would be useful for further delineation of health care policy and medical education to meet the demand and needs of people in Japan.

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References