

## Open-Ended Questions: Are They Really Beneficial for Gathering Medical Information from Patients?

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TAKEMURA, Y., SAKURAI, Y., YOKOYA, S., OTAKI, J., MATSUOKA, T., BAN, N., HIRATA, I., MIKI, T. and TSUDA, T. *Open-Ended Questions: Are They Really Beneficial for Gathering Medical Information from Patients?* Tohoku J. Exp. Med., 2005, **206** (2), 151-154 — Open-ended questions, which allow patients to discuss their concerns freely, are widely considered an efficient method gathering medical information from patients during a medical interview. However, few studies have examined the relationship between the use of open-ended questions and the amount of information obtained from patients during the medical interview. This study examines this relationship using a relatively large sample size under more standardized conditions than in previous studies. The Japanese Group for Research on the Medical Interview undertook this research in 2002-2003. A total of 1,527 medical students conducted medical interviews with standardized patients, and 1,220 met the inclusion criteria for this study. The interview was limited to five minutes. Evaluators (medical school faculty physicians) evaluated the use of open-ended questions during the medical interview. The reliability of the evaluation sheet was also examined. The amount of information obtained was measured through the medical interview evaluation sheet. The use of open-ended questions was positively related to the amount of information elicited from the patients ( $F = 41.0$ ,  $p < 0.0001$ ). This study provides data to support the hypothesis regarding the favorable relationship between the use of the open-ended questions and the amount of information from the patients. ——— interviews; open-ended; information; data collection

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Many studies have demonstrated the importance of the medical interview during clinical practice. Considering the beneficial outcome an appropriate medical interview has on health, the content of a suitable medical interview should be investigated (Blasi et al. 2001; Mead and Bower 2002).

Physicians can obtain as much as 80% of the relevant patient information needed to make an accurate diagnosis through the medical interview (Hampton et al. 1975). It is important to identify which styles of medical interviewing can gather medical information effectively. The open-ended question is believed to be useful for obtaining much information from the patient during the medical interview. An open-ended question such as "What problems brought you here today?" is nondirective, and allows the patient to discuss his/her concerns freely. However, few studies have examined the relationship between the use of the open-ended questions and the amount of medical information obtained through the medical interview in a limited timeframe (Beckman and Frankel 1984; Roter and Hall 1987; Myerson 1990; Marvel et al. 1999). Physicians, especially physicians practicing in the primary care field, often diagnose many common diseases without utilizing advanced medical diagnostic equipments; therefore, it is particularly important for them to utilize effective medical interview skills to obtain adequate health information from patients.

Using a relatively large number of subjects under more standardized conditions than those used in previous studies, this study examines the relationship between the use of the open-ended question and the amount of information gathered from patients.

#### SUBJECTS AND METHODS

The Japanese Group for Research on the Medical Interview undertook this research in 2002-2003. This study followed the Ethical Guidelines for Epidemiological Research by the Japanese Ministry of Education, Culture, Sports, Science and Technology and the Japanese Ministry of Health, Labour and Welfare and all the activities were conducted in accordance with the Research Ethics Committee at the Mie University School

of Medicine. A total of 1,527 fourth year Japanese medical students conducted five-minute-long medical interviews with standardized patients. Prior to the start of the study, standardized patients were trained for several months to consistently portray the scripted cases. The students were unaware of the diagnosis of the standardized patients beforehand.

In order to assess the use of open-ended questions and the amount of medical information gathered by the students during the interview, a medical interview evaluation sheet was devised, using the Delphi survey technique (Hasson et al. 2000). During the interview, one or two medical school faculty physicians (evaluators) observed and measured the use of open-ended question and the amount of information obtained using the medical interview evaluation sheet, which used a two-point scale to quantify the use of open-ended questions and five items related to symptoms: "timing," "location," "severity," "context," and "associated symptoms." Each of the items was assigned one point if it was used or obtained and zero points if it was not used or obtained at all. The variable "Amount of Information" was then defined as follows.

Amount of Information = score of "timing" + score of "location" + score of "severity" + score of "context" + score of "associated symptoms." By this definition, the range of "Amount of Information" was zero to five.

A preliminary study was conducted to determine the inter-rater reliability of the medical interview evaluation sheet. Two evaluators evaluated the 496 medical interviews using this evaluation sheet. The agreement of each scored item regarding the use of the open-ended question was investigated and reliable measurement (Cohen's kappa coefficient) was 0.68. We consider that kappa coefficient value > 0.4 is acceptable and > 0.7 is good agreement. The kappa coefficient for each item assessing the amount of medical information (i.e., "timing," "location," "severity," "context," and "associated symptoms") was ranged between 0.57 and 0.83 and that for redefined Info was 0.41.

The medical interview evaluation manual was distributed to the evaluators and these evaluators had a training to evaluate the medical interview beforehand.

Three hundred and seven students were excluded due to insufficient answers on the evaluation sheet or refusal to participate in this study. Data on a total of 1,220 subjects were eligible for the following analysis.

Statistical analyses included ANOVA method to evaluate the independent association between the use of

the open-ended question and the amount of information. Reported  $p$ -value is two-tailed. All analyses were performed using SAS software version 8 (SAS Institute, Inc. 1999).

### RESULTS

One thousand and eighty-nine out of 1,220 students used the open-ended question (89.3%) during the medical interview.

A positive association was found between the use of the open-ended question during the medical interview and the amount of information obtained (Table 1).

### DISCUSSION

Although the open-ended question is widely considered an efficient method gathering medical information from patients, few previous studies have actually shown that it aids the physician in obtaining medical information during a medical interview (Beckman and Frankel 1984; Roter and Hall 1987; Myerson 1990; Marvel et al. 1999). This study provides data to support this hypothesis using a relatively large sample size.

Indeed, these standardized patients were trained not to provide too much information with the students using open-ended questions. Otherwise, students tend to overuse open-ended questions to obtain information from the patients. In spite of this, students who use open-ended questions obtained more information from the standardized patients.

While some physicians might avoid using the open-ended question due to reluctance to extend the encounter with the patients, this study suggests that using the open-ended question allows physicians to obtain more information, even in limited interview duration. Furthermore, using open-ended questions early in an encounter with a

patient might enhance the efficiency of the interview by reducing late-arising concerns, allowing the physician and patient to prioritize problems at the onset, making the best use of both parties' time, and minimizing implicit assumptions by the physician regarding what the patient wishes to discuss (Marvel et al. 1999). Utilization of open-ended questions during the medical interview may prove to be a beneficial tool for physicians to acquire health information from patients. Therefore, providing physicians with training to improve their medical interview techniques may enhance their ability to obtain a thorough patient history in a timely manner (Langewitz et al. 1998).

The large number of subjects used in this study increases the power of the analyses used in this study. Furthermore, the use of standardized patients in this study controls for the effects of many factors that may influence the outcome. For example, use of standardized patients reduces the uncertainties associated with diagnosis in a real patient care setting. Additionally, the study controls for the stage of a physician-patient relationship by pairing students with standardized patients whom they have not previously encountered. Lastly, it is often assumed that long duration of a medical interview is related to the amount of medical information obtained (Wilson and Child 2002). However, this study limited the duration of all medical interviews to five minutes in order to control for this effect.

There are limitations to this study. The results of this study may not be necessarily generalized to medical interviews between actual physicians and patients, because this study examined medical interviews strictly between students and standardized patients. However, several studies have found no significant differences in the interactions of students with simulated versus actual

TABLE 1. *The relation between the use of open-ended questions and the amount of information obtained through the medical interview*

Open-ended question	Number	Amount of information	F	$p$
Used	1,089	3.82	41.0	< 0.0001
Not-used	131	3.20		

patients (Helfer et al. 1975; Sanson-Fisher and Poole 1980). It might be possible that students who did not use the open-ended question could not perform some of the other medical interview skills to obtain medical information from patients. Unfortunately, we cannot reject this hypothesis by the current available data and further investigation will be needed.

Although such an epidemiological study cannot provide definitive evidence, our findings indicate that the open-ended question may be beneficial on the amount of information elicited from patients during the medical interview.

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