Percentages of Reports of Clinical Trials, Written in Seven Non-English Languages, that have Structured Abstracts

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BACKGROUND: Although structured abstracts are becoming common in English-language journals, little is known about papers written in languages other than English.

METHODS: To identify the percentages of reports of clinical trials with structured abstracts that are written in languages other than English, we used the PubMed to retrieve clinical trial reports written in seven languages other than English from 1987 to 2001.

RESULTS: A total of 23,075 reports of clinical trials written in seven languages other than English were identified. Of the 18,278 reports that included abstracts, the share of structured abstracts in each language was as follows (entire period and 1999-2001 in parenthesis): German, 17.3% (48.2%); French, 16.1% (45.1%); Italian, 21.3% (76.3%); Spanish, 44.7% (74.9%); Russian, 4.9% (17.4%); Chinese, 21.3% (100%), and Japanese, 3.5% (10.4%).

CONCLUSIONS: This study revealed that structured abstracts written in languages other than English have become popular, particularly since the late 1990s. However, the percentages of reports that include structured abstracts differ greatly among these languages.

KEY WORDS: structured abstracts, clinical trials, evidence-based medicine

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In 1987, a new style of abstract, "structured abstracts," was introduced to enable clinical readers of medical journals to quickly determine the applicability and validity of the findings of an article for use in clinical practice1. The value of structured abstracts is being recognized throughout health-care settings in the English-speaking world in conjunction with a new idea, referred to as Evidence-Based Medicine (EBM)2 3. However, little information is available that indicates the percentage of reports of clinical trials that include structured abstracts and are published in non-English-speaking countries. Although English is considered a common language in EBM, the contribution of researchers from non-English-speaking countries is essential in order for EBM to become a valid, practical, and informative system that incorporates the scientific achievements of various cultures4. Therefore, it is very important that the reports published in non-English-speaking countries have structured abstracts so that they can be shared efficiently. We conducted this study to identify the percentage of reports with structured abstracts that are written in languages other than English.
METHODS

We searched PubMed, provided by the U.S. National Library of Medicine, to identify reports of clinical trials and the languages in which they were written. Reports of clinical trials were identified by the tag of "publication type" that means the type of publication in which articles appeared. For the purposes of this study, the following seven languages were checked: Chinese, French, German, Italian, Japanese, Russian, and Spanish. According to Haynes et al., structured abstracts should have the following eight headings: objective, design, setting, patients, interventions, main outcome measures, results, and conclusions. For this study, some articles were assumed to have structured abstracts based upon the style of their IMRADs, which is an acronym for "Introduction," "Materials and methods," "Results," "And," and "Discussion."

The result of the pilot search revealed that the headings used in structured abstracts are not uniform. For example, the words, "aim," "aims," and "purpose," were used as synonyms for "objective" in some of the abstracts, which indicates that an electronic search may not thoroughly extract all relevant data. Therefore, we conducted a visual check of the abstracts by using ProCite, which is personal database software with a sorting function. We searched among abstracts published from 1985 to 2001. The survey of Chinese-language abstracts was done on February 14, 2002; the surveys of abstracts written in other languages were done on January 20, 2002.

RESULTS

Approximately 322,000 reports are registered in PubMed, 86.4% of which are written in English, while 13.6% are written in languages other than English (83% in one of the seven languages listed above). A total of 23,075 reports of clinical trials written in the seven languages and published between 1985 and 2001 were identified in PubMed. Of the 19,262 that included abstracts, 3,087 (16.0%) had structured abstracts. Because the structured abstract was introduced in 1987, the following analysis was conducted on reports published after 1987. Table 1 is a summary of the results.

Of the 18,278 reports of clinical trials that included abstracts, those written in German accounted for the largest percentage (4,210 articles, 23.0%), followed by those written in Japanese (3,829 articles, 20.9%), French (2,817 articles, 15.4%), Italian (2,195 articles, 12.0%), Spanish (2,074 articles, 11.3%), Russian (1,964 articles, 10.7%), and Chinese (1,189 articles, 6.5%). The reports in Japanese were the least likely to include structured abstracts (3.5%). For other languages, the percentages of reports with structured abstracts were as follows: French, 16.1%; German, 17.3%; Italian, 21.3%; Chinese, 23.5%; and Spanish, 44.7%. As a whole, the percentages of reports with structured abstracts began to increase in the late 1990s. The percentages of reports in German and French that included structured abstracts showed a steady increase, and, by 2001, about 50% of the abstracts were structured. By 2001, the percentages of reports in Italian and Spanish that included structured abstracts had increased to about 73.0% and 85.7%, respectively. Of the reports in Chinese published in the past three years, 100% had structured abstracts. Abstracts of Japanese reports were still the least likely to be structured.

DISCUSSION

As for reports of clinical trials written in English, the percentage of those that included structured abstracts (including those determined by IMRAD) increased from 29% in 1990 to 71% in early 1995. Limiting research to the leading general medical journals, we recently observed that approximately two thirds of the articles published in 2001 had structured abstracts. Compared to this number, the percentage of structured abstracts in reports published in other languages is relatively small. For reports written in Japanese, not only is the percentage of structured abstracts relatively small compared to those written in other languages, but also there are problems related to the method for reporting clinical trials. It is difficult to understand the overall trend regarding reports of clinical trials written in Japanese because many of them are not registered in PubMed. A report revealed that, as of 1999, only 6 of 126 major journals in Japan used structured abstracts, which indicates that the awareness of structured abstracts among Japanese researchers is indeed low.

PubMed only shows abstracts written in English, even if an article has two abstracts, one in English and the other in the author's native language. Therefore, there are possibly cases in which an English-language abstract was structured, yet the one in the native language was not, or vice versa. To assess this discrepancy, we examined the abstracts of articles in which texts were written in Japanese and published in 2001.
We found 44 articles reporting randomized controlled trials, all of which had two abstracts, one in English and the other in Japanese. There were 37 articles with unstructured abstracts, both in Japanese and in English; 6 articles had structured abstracts in Japanese and English; one article had a structured abstract in English and an unstructured one in Japanese (Kappa statistics = 0.91, 95% Confidence Intervals: 0.74–1.00). Although this finding may not be directly extrapolated to results concerning articles written in other languages, the discrepancy between the abstracts written in English and authors’ native languages for an identical article is not expected to have been significant.

It is possible that the policy used by PubMed concerning selection of journals causes some sampling bias across countries for articles that have structured ab-
abstracts. For example, the articles written in Chinese are the most likely to have structured English abstracts; however, the actual number of Chinese articles shown in PubMed was the smallest of those in languages other than English. These findings suggest that only selective journals from China are included in PubMed. Because the findings are only valid concerning PubMed, further investigation within each country would be desirable.

There is some controversy whether or not the use of structured abstracts increases the quality of the reports of clinical trials. However, it is plausible that readers benefit from abstracts that clearly summarize a report. This study revealed that structured abstracts written in languages other than English have become popular, particularly since the late 1990s. However, it was also found that the percentage of reports including structured abstracts differs greatly among languages.

Particularly in Japan, researchers, clinicians, editors, and information specialists will have to recognize the importance of structured abstracts with the ever-increasing demand for EBM.

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**References**