Do Physicians Spend More Time with Non-English-Speaking Patients?

Thomas M. Tocher, MD, MPH, Eric B. Larson, MD, MPH

OBJECTIVE: To determine whether physicians at a general internal medicine clinic spend more time with non-English-speaking patients.

DESIGN: A time-motion study comparing physician time spent with non-English-speaking patients and time spent with English-speaking patients during 5 months of observation. We also tested physicians' perceptions of their time use with a questionnaire.

SETTING: Primary care internal medicine clinic at a county hospital.

PATIENTS/PARTICIPANTS: One hundred sixty-six established clinic patients, of whom 57 were non-English speaking and 109 were English speaking, and 15 attending physicians and 8 third-year resident physicians.

MEASUREMENTS AND MAIN RESULTS: Outcome measures included total patient time in clinic, wait for first nurse or physician contact, time in contact with the nurse or physician, physician time spent on the visit, and physician perceptions of time use with non-English-speaking patients. After adjustment for demographic and comorbidity variables, non-English-speaking and English-speaking patients did not differ on any time-motion variables, including physician time spent on the visit (26.0 vs 25.8 minutes). A significant number of clinic physicians believed that they spent more time during a visit with non-English-speaking patients (85.7%) and needed more time to address important issues during a visit (90.4%), (both $p < .01$). Physicians did not perceive differences in the amount they accomplished during a visit with non-English-speaking patients.

CONCLUSIONS: There were no differences in the time these physicians spent providing care to non-English-speaking patients and English-speaking patients. An important limitation of this study is that we were unable to measure quality of care provided or patients' satisfaction with their care. Physicians may believe that they are spending more time with non-English-speaking patients because of the challenges of language and cultural barriers.

KEY WORDS: translating; language; ambulatory care; time and motion studies; appointments and schedules.

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Received from the Department of Internal Medicine, University of Washington (TMT, EBL), and University of Washington Medical Center (EBL), Seattle, Wash.

Dr. Tocher is now Medical Director of the Community Health Center of Snohomish County, Everett, Wash.

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Address correspondence and reprint requests to Dr. Tocher: Community Health Center of Snohomish County, 1410 Broadway, Everett, WA 98201.

Immigrants and refugees who do not speak English have always been part of the American populace, but the U.S. health care system has only recently begun addressing the special needs of non-English speakers.¹ According to the 1990 United States Census, there are 14 million persons living in the United States who do not speak English well,² and when these persons seek treatment from American physicians, they must interact with a health care system designed to serve English speakers. Anecdotal reports suggest that many physicians believe that non-English-speaking (NES) patients are more challenging to care for and require more time during clinic visits than English-speaking patients. If these perceptions are correct, physicians who were allotted the same amount of time to see NES and English-speaking patients might get less done during appointments with NES patients, and NES patients would be at risk of receiving lower-quality care. Health care organizations that serve large numbers of NES patients would be obligated to change scheduling, productivity, and staffing policies. However, despite the potential size and significance of this issue, we have found no published studies that objectively measure whether NES patients take more time during clinic visits.

We undertook this study to determine whether the time physicians at a county hospital internal medicine clinic spent with NES patients differed from the time spent with English-speaking patients and to compare these results with the physicians' perceptions of their own time use.

METHODS

Setting

We studied patients and physicians at the Adult Medicine Clinic at Harborview Medical Center, a county hospital administered by the University of Washington, from January 1996 through May 1996. This primary care clinic is staffed by attending and resident physicians from the University of Washington Department of Internal Medicine. Adult Medicine Clinic was selected because of the large number of NES patients it serves and because the clinic schedules the same length of time for the appointments of English-speaking and NES patients.

Subjects

Patients. Established patients of attending physicians and third-year residents scheduled for 20-minute follow-up appointments were eligible for the study. We attempted to enroll all eligible NES patients into the study and, for each NES patient, to enroll one to two of the eligible English-speaking patients visiting clinic on the same day. Eligible patients were identified from the daily clinic

schedule in advance by the principal investigator (TMT). Because English-speaking patients were selected partly on the basis of when they arrived, our patient population represented a convenience sample.

Exclusions. New patients and patients without scheduled appointments (e.g., walk-in patients) were excluded because of the difficulty of comparing visit lengths to those of established, scheduled patients. Patients scheduled to see first- and second-year residents were also excluded because the efficiency of less-experienced physicians might improve during the 5 months of data collection, and because patient appointments for first-year residents were scheduled at 30-minute intervals.

We observed 79 NES patient visits and 135 English-speaking patient visits during the study period. We subsequently excluded six English-speaking patients of three physicians who saw no NES patients during the study period in order to minimize variability in time use based on individual physician factors. We also excluded four NES patients and nine English-speaking patients because their data collection forms were incomplete or contained obvious errors. To avoid issues of multiple comparisons, we analyzed only a patient's first visit to clinic during the study period and excluded any subsequent visits. On this basis, 18 NES and 11 English-speaking patient visits were excluded. After all exclusions, 57 NES and 109 English-speaking patient visits remained. The final results were not significantly affected by including or excluding repeat patient visits.

Measures

Time-Motion Methodology. Trained observers collected all time-motion data. Eligible patients were identified on their arrival at clinic and asked to participate in the study using a brief standardized verbal consent. If patients did not speak English, the consent was read to the professional interpreter, who then translated it for the patient. Verbal consent was used because of the potential difficulties of translating a written consent form into all of the languages spoken at Adult Medicine Clinic, and we relied on the training of the interpreters to translate the consent accurately. All the interpreters at Adult Medicine Clinic have passed a state certification in both written and oral interpretation. Of the patients approached, 92.1% of English-speaking patients and 96.3% of NES patients consented to participate.

After obtaining consent, the observers followed patients through the clinic using a digital watch and standardized form to record elapsed time, room location, and person in contact with the patient. To protect patient confidentiality, observers remained in the hallway when patients entered private areas such as examination rooms. Each face-to-face encounter between a patient and a physician or clinic staff member was recorded as a separate contact with the patient. Length of contact was recorded

as the time from when a person came into the patient's presence to when that person left the patient's presence.

Time-Motion Measures. Using the time-motion data, the following measures were collected for each patient at each visit. Total patient time in clinic was calculated as the time from the patient's initial entry into clinic to the patient's final exit from clinic. Wait for first nurse contact and wait for first physician contact were calculated as the time from the patient's initial entry into clinic to the first time during the appointment that the nurse and the physician, respectively, came into face-to-face contact with the patient. Time in contact with nurse and time in contact with physician were calculated as the sum of all separate patient contact times with the nurse and the physician, respectively. Physician time spent on a visit was calculated as the time from the physician's first contact with the patient to the time the physician left the patient's presence for the last time. Number of nurse contacts and number of physician contacts represented the total of separate encounters with the patient by the nurse and physician, respectively, during the visit.

Patient Characteristics. Non-English-speaking patients were identified using the daily interpreter services schedule. Because of Harborview Medical Center's policy of providing professional interpreters when needed for all patient encounters, regardless of ability to pay, the interpreter services schedule identifies virtually all established patients with limited English fluency. Thus, patients were assumed to be English speaking if they were not on the interpreter services schedule and were able to understand the verbal consent in English.

Patient demographic information, including age, gender, race, insurance status, and number of visits to Adult Medicine Clinic during the preceding 12 months, came from physician and hospital billing databases.

We controlled for severity of disease using a modified Charlson Comorbidity Index, a widely used and standardized method of quantifying an individual's comorbidity, which is based on the number and severity of 17 common adult diseases.^{3,4} To determine an individual's comorbidity index, the medical record is reviewed, and a standardized weight is assigned to each of these diseases present. An individual's score is the sum of these weighted values. Comorbidity scores increase not only with the number of diseases present, but also with the weighted severity of each disease. We determined each subject's comorbidity index using the diagnosis and procedure codes of the *International Classification of Diseases, Ninth Clinical Modification* (ICD-9-CM) from the preceding 12 months, obtained from physician and hospital billing databases.

Physician Questionnaire. After time-motion data were collected, we distributed a brief questionnaire to eligible attending and third-year resident physicians asking about their perceptions of time use for NES patients. The physicians were asked, on the basis of their experience in Adult Medicine Clinic, to compare their subjective time use with

NES patients and time use with English-speaking patients. The response categories included perceived time spent with NES patients, perceived time needed to address important issues with NES patients, and perceived amount accomplished during visits with NES patients. The physicians answered using a 5-point Likert scale, with the following responses: much less, a little less, about the same, a little more, and much more.

Statistical Analysis

The associations between NES status and time-motion measures were tested with and without adjustment. Subgroup analyses were performed examining patients of resident physicians only and patients of attending physicians only. The null hypothesis for all statistical tests was that there would be no difference between the English-speaking and NES groups. In a separate analysis, without distinguishing between NES and English-speaking groups, we tested whether there were differences in time use between patients seen by resident and attending physicians. The null hypothesis for this comparison was that there would be no difference between the patients of residents and those of attending physicians.

For unadjusted comparisons, χ^2 tests were performed for categorical variables, and two-sided Student's *t* tests were performed for continuous variables. If a variable had two or more categories, the χ^2 test was performed over all of the categories.

To adjust for differences in patient characteristics, we constructed a multiple regression model that controlled for age, gender, insurance status, number of visits to Adult Medicine Clinic during the preceding 12 months, Charlson Comorbidity Index, and specific physician, with English-speaking patients comprising the reference group. Age was stratified into four categories, and because it did not have a normal distribution, number of visits was corrected using a natural log transformation. The model was not adjusted for race because of its strong association with NES status. Standardized differences and 95% confidence intervals were calculated from multiple linear regression.

Physician responses to the time use questionnaire were analyzed using the single sample proportion test. The expected proportion answering "a little more" or "much more" for perceived time spent with NES patients and perceived time needed to address important issues with NES patients, as well as the proportion answering "much less" or "a little less" for perceived amount accomplished during visit with NES patients was 0.5.

All analyses were performed using SPSS for Windows, Release 6.0 (SPSS Inc., Chicago, Ill).

RESULTS

Patient Characteristics

The NES group included individuals speaking 22 different languages. The five most common of these are listed

in Table 1. Non-English-speaking patients were more likely to be older, and less likely to be white or black (Table 1, all $p < .01$). There was no significant difference in the mean number of visits to Adult Medicine Clinic during the preceding year. The mean Charlson Comorbidity Index was also not significantly different, with both groups having a relatively high score near 1.0. Of the 17 individual diseases comprising the Charlson Comorbidity Index, the only significant difference in frequency between the two groups was for chronic pulmonary disease (7.1% for NES patients, 23.9% for English speaking patients, $p < .05$).

Time-Motion Measures

After analyzing data obtained from more than 12,000 minutes of direct observation, we found no significant differences in any of the time-motion measures between the two groups (Figs. 1 and 2, all $p > .05$). The physicians in this study on average spent a total of 26.0 minutes per visit with NES patients and 25.8 minutes with English-speaking patients and, of that time, were in face-to-face contact 21.6 minutes with NES patients and 20.4 minutes with English-speaking patients. There were no significant differences in the number of physician or nurse contacts between the two groups (Fig. 2, all $p > .05$).

After performing subgroup analyses using the same time-motion measures, the only significant difference was for number of physician contacts per patient for the resident physician patient subgroup (NES patients 2.4, English-speaking patients 1.8, $p < .05$, data not shown). There were no other significant differences in time-motion measures between the two groups of patients of resident physicians and no differences between the two groups of patients of attending physicians. When comparing all resident physician patients (NES and English speaking) to all attending physician patients, resident physicians spent an average of 23.3 minutes in face-to-face contact with patients, compared with 19.7 minutes for attending physicians ($p = .05$). Differences in other time-motion measures between resident physicians and attending physicians were not significant.

Multivariate Analysis

Table 2 shows the standardized differences in seconds and number of contacts, using English-speaking patients as the reference group. The lack of significant differences between the two groups persisted after adjusting for age, gender, insurance status, number of clinic visits, Charlson Comorbidity Index, and individual physician.

After performing subgroup analyses using the same time-motion measures, there were no significant differences in adjusted time-motion measures between the two groups of patients of resident physicians, and no differences between the two groups of patients of attending physicians. In the unadjusted analysis, residents had more face-to-face contacts during visits with NES patients, but this difference was no longer significant after multivariate analysis.

Table 1. Characteristics of the Study Population

Characteristic	Non-English-Speaking Patients (n = 57)	English-Speaking Patients (n = 109)
Language, 5 most frequent, %		
Spanish	19.3	
Vietnamese	15.8	
Russian	12.3	
Hindi	7.0	
Tigrinian*	5.3	
Age in years, [†] %		
30–44	26.8	31.2
45–59	41.1	43.1
60–74	21.4	25.7
≥75	10.7	0.0
Male, %	53.6	46.8
Race, [†] %		
White (includes Hispanic)	19.6	59.4
Black (includes Hispanic)	17.9	36.8
Asian	41.1	0.9
Other‡	21.4	2.8
Insurance status, %		
Medicaid	16.3	7.1
Medicare	20.9	41.7
Private insurance	27.9	27.4
Uninsured	34.9	23.8
Number of visits to clinic from 1/1/95 to 12/31/95, mean (SD)	6.8 (4.9)	6.0 (5.2)
Charlson Comorbidity Index, mean (SD)	0.9 (1.5)	1.2 (1.8)

*Tigrinian is a language spoken in the East African nation of Eritrea.

[†]p < .01 by the χ^2 test.

[‡]Includes Native Americans, Pacific Islanders, and race not recorded.

There were also no significant differences in adjusted time-motion measures when comparing all resident physician patients (NES and English speaking) with all attending physician patients.

FIGURE 1. Mean wait times, all patients.

Physician Questionnaire

Table 3 shows the results of the questionnaire on physician perceptions of time use. A significant number of physicians answered that they spent either "a little more

FIGURE 2. Mean clinic staff contacts, all patients.

Table 2. Multivariate Analysis

Variables	All Patients* Standardized Difference (95% Confidence Interval)
Mean wait times, seconds	
Total patient time in clinic	1.6 (−10.1, 13.4)
Wait for first nurse contact	−1.8 (−6.8, 3.1)
Wait for first physician contact	−1.3 (−11.0, 8.5)
Time in contact with nurse	−2.3 (−4.9, 0.4)
Time in contact with physician	0.5 (−4.8, 5.7)
Physician time spent on visit	−2.3 (−8.9, 4.4)
Mean clinic staff contacts, <i>n</i>	
Nurse contacts	−0.1 (−0.6, 0.5)
Physician contacts	−0.2 (−0.7, 0.3)

*Standardized differences and 95% confidence intervals were calculated from multiple linear regression. Regression models control for age group, gender, insurance status, natural log of clinic visits, physician, and Charlson Comorbidity Index, with English-speaking patients as the reference group. The standardized differences represent the additional time in seconds or number of contacts attributed to non-English-speaking status in the regression model (e.g., non-English-speaking status accounted for 0.5 additional seconds of time in contact with the physician).

time" or "much more time" during a visit with NES patients than with English-speaking patients ($p < .01$). A significant number also responded that they needed either "a little more time" or "much more time" to address important issues during a visit with NES patients ($p < .01$). There were no significant differences in the perceived amount physicians accomplished during a visit with NES patients.

DISCUSSION

This study demonstrates that before and after adjustment for baseline characteristics, there were no significant differences in the time these physicians spent providing care to NES and English-speaking patients. However, a significant number of these physicians perceived that they were spending more time with NES patients, and that they needed more time to address important issues during a visit.

Our observation that there was no difference in the amount of time this group of physicians spent with NES and English-speaking patients was unexpected. However, the responses to our questionnaire were consistent with previous research suggesting that physicians perceive immigrant and refugee patients to be more challenging to care for than native-born patients. Ahmad and colleagues conducted a survey of British general practitioners' attitudes toward Asian patients, who were predominantly immigrants from the Indian subcontinent.⁵ Physicians thought that clinic visits with Asian patients were less satisfying, and that Asian patients were less compliant, visited more frequently, and made visits for trivial reasons. Brod and Heurtin-Roberts, in a qualitative study, found that physicians and nursing staff at an ambulatory medical center perceived Russian émigrés to be demanding, difficult to understand, and unrealistic in their expectations of the U.S. health care system.⁶

Given that the physicians in our study spent on average only 12 seconds more per visit with NES patients, what are some possible explanations for the lack of difference in time spent? In order to stay on schedule, physicians may have hurried through appointments for NES and English-speaking patients equally quickly. Perhaps if the physicians had the luxury of as much time as they needed, they might have spent more time with NES patients. It is also possible that the physicians knew the patients had 20-minute appointments and, consciously or not, allocated approximately the same amount of time to all their patients.

There are a number of potential explanations for the physicians' perceptions that they spent more time with NES patients, and that they needed more time to address important issues. Immigrant and refugee patients often have endured severe hardships, both in their home countries, and in relocating to the United States. These patients often suffer from depression and somatization, and frequently look to their primary care physician as the source of a wide variety of social services.⁶⁻¹² Patients from other cultures use different conceptual models of illness, treatment, and the physician-patient relationship.^{6,7,13,14} The physicians in this study may have been unfamiliar or uncomfortable addressing these issues, and perceived

Table 3. Physician Perceptions of Time Use for Non-English-Speaking Patients

Response Categories	All Physicians (<i>n</i> = 21)*	Residents (<i>n</i> = 8)	Attending Physicians (<i>n</i> = 13)
Perceived spending "a little more" or "much more" time during visit, %	85.7 [†]	100.0 [†]	76.9
Perceived needing "a little more" or "much more" time to address important issues, %	90.4 [†]	87.5 [‡]	92.3 [†]
Perceived accomplishing "much less" or "a little less" during visit, %	52.4	62.5	46.2

*Physicians completed a questionnaire asking them, based on their clinic experience, to compare their perceived time use with non-English-speaking patients to English-speaking patients using a 5-point Likert scale, with the following responses: "much less," "a little less," "about the same," "a little more," and "much more." Responses were received from all 8 resident physicians and 11 of 13 attending physicians.

[†] $p < .01$ by the single sample proportion test, with 0.5 as the expected proportion.

[‡] $p < .05$.

their visits with NES patients as more time-consuming and difficult than visits with English-speaking patients.

These physicians may also have been frustrated while trying to communicate with persons from other cultures. Because of their reliance on interpreters, they may have felt a loss of control over the medical interview and grown impatient with the extra time needed to translate questions and answers. Patients from other cultures often do not tell their stories in the linear, chronological manner of a classic case presentation,¹³ and American physicians may think that such patients are not answering their questions correctly. Waitzkin has written extensively about how encounters between physicians and patients typically progress in a characteristic structure and sequencing.¹⁵ It is possible that because American physicians and NES patients have different cultural expectations of how clinic encounters should progress, the interactions seem labored and awkward—the parties are each acting out their culturally dictated role, but they are not reading the same script.

There are limitations to our findings. We attempted to control for burden of illness using a modified Charlson Comorbidity Index. However, the Charlson Comorbidity Index was designed to quantify morbidity and mortality of hospitalized patients. We believe that it was the best available instrument because other case mix measures designed specifically to measure illness burden require patient surveys that have not been translated and validated in all of the 22 languages represented in this study.^{16,17} Although the selection of control patients was based on convenience, our study lasted 5 months, and we enrolled English-speaking patients with appointments at a variety of days and times. Consequently, we believe there was no systematic bias in the selection of control patients and that these English-speaking patients were a representative sample of the larger clinic population. Our study only followed established patients, who probably were already somewhat familiar with the U.S. medical system. It is possible that the physician perceptions about NES patients taking more time were based on their experiences with new patients, who might have more medical and psychosocial issues to address. Our sample size was relatively small, at 166 patients, and had a power of 60% to detect a 5-minute difference in physician time spent on the visit. We would have needed to recruit 350 patients to achieve a power of 90%, but were unable to do so because of time constraints and the limited number of eligible patients at the clinic. However, we believe it is unlikely that we missed a clinically significant difference, given that the mean difference in physician time spent with the patient was 12 seconds.

Readers should not generalize our findings to all NES patients and all practice settings. Our data come from a single clinic at a medical center that, because of the state of Washington and institutional policies, has some of the most comprehensive interpreter services available in the United States.¹ Every interpreter working at this institu-

tion has passed a written and oral certification examination, and Harborview Medical Center conducts frequent training sessions for interpreters, physicians, and other staff about cross-cultural health care. Most institutions rely on family members or bilingual staff for interpretation, which often leads to significant distortion in the communication process.^{1,18-23} During our study, the Adult Medicine Clinic scheduled interpreters for 22 different languages, and it is unlikely that physicians were acquainted with each of their patients' distinct cultural norms and disease models. In many communities, there is only a single NES community requiring interpreter services. Only one type of interpreter needs to be scheduled, and the opportunity exists for physicians and staff to become familiar with that particular culture.

Finally, our study was limited in that we were unable to measure directly the content of patient visits. We have no information on whether physician-patient interactions differed for NES and English-speaking patients. It is possible that because of the time needed for translation, physicians spent more time asking fewer questions of NES patients, contributing to their perception of needing more time for visits. We did not measure patient satisfaction or comprehension following the visits, and these may have been different for NES patients and English-speaking patients. We also have no direct measure of the quality of care provided to these patients. In an earlier study at the same institution, we found that diabetes care provided to NES patients was comparable in quality to the care provided to English-speaking patients.²⁴ This conclusion is reassuring, but it was based on different patients over a different study period.

One should not conclude that because the visits with these NES patients did not take longer, NES patient visits should automatically be the same length as those for English-speaking patients, and that no special accommodations should be made. In this setting, with a well-organized appointment system of professional interpreters and experienced physicians and staff, physicians did see NES patients in approximately the same length of time as English-speaking patients. However, as we have noted above, comparable visit time does not necessarily translate into comparable content and quality of care. Using objective measures, we were unable to determine whether these patients should have had longer appointments. The subjective impression of the physicians in this study was that they needed more time with NES patients. Health care organizations should assess the needs of their NES populations, respect the judgment of the physicians who care for them, and allow some flexibility in the length of appointments for these patients.

This study found no differences in the time these physicians spent providing care to NES patients and English-speaking patients, although the physicians perceived that they were spending more time with NES patients and needed more time to address important issues. We believe more work still needs to be done studying how

physicians communicate with NES patients. Although there are at least 14 million U.S. residents who do not speak English well,² a 1996 report documented the systematic exclusion of NES patients from biomedical research.²⁵ The physicians in this study, and many others, believe that NES patients are more challenging to care for and consume more time. Future research should directly study cross-cultural physician-patient interaction and determine if there are fundamental differences in the content of communication, patient comprehension, and patient and physician satisfaction with the visit. Quality of care for NES patients may be affected by inadequate communication or lack of time, and this should be studied using objective quality indicators. Research is also needed to determine if physician and patient frustration with cross-cultural interactions is widespread, and if so, to determine the source of these frustrations. Investigators at other institutions should test whether our findings hold true in other clinical settings, and whether using professional interpreters versus family members or clinic staff improves efficiency and quality of care. The goal of all of these studies should be to improve clinical practice, so that physicians can deliver the best possible care to this growing and heretofore underserved part of the American populace.

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REFERENCES

1. Woloshin S, Bickell NA, Schwartz LM, et al. Language barriers in medicine in the United States. *JAMA*. 1995;273:724-8.
2. US Bureau of the Census. Statistical Abstract of the US Census. 115th ed. Washington, DC: US Bureau of the Census; 1995.
3. Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chron Dis*. 1987;40:373-83.
4. Deyo RA, Cherkin DC, Ciol MA. Adapting a clinical comorbidity index for use with ICD-9CM administrative databases. *J Clin Epidemiol*. 1992;45:613-9.
5. Ahmad WIU, Baker MR, Kernohan EEM. General practitioners' perceptions of Asian and non-Asian patients. *Fam Pract*. 1991; 8:52-6.
6. Brod M, Heurtin-Roberts S. Older Russian émigrés and medical care. *West J Med*. 1992;157:333-6.
7. Wheat ME, Brownstein H, Kvitash V. Aspects of medical care of Soviet Jewish émigrés. *West J Med*. 1983;139:900-4.
8. Barker JC. Cultural diversity—changing the context of medical practice. *West J Med*. 1992;157:248-54.
9. Chester B, Holtan N. Working with refugee survivors of torture. *West J Med*. 1992;157:301-4.
10. Clinton-Davis L, Fassil Y. Health and social problems of refugees. *Soc Sci Med*. 1992;35:507-13.
11. Castillo R, Waitzkin H, Ramirez Y, Escobar JI. Somatization in primary care, with a focus on immigrants and refugees. *Arch Fam Med*. 1995;4:637-46.
12. Brodsky B. Mental health practices of Soviet Jewish immigrants. *Health Soc Work*. 1988;13:130-6.
13. Putsch RW III. Cross-cultural communication: the special case of interpreters in health care. *JAMA*. 1985;254:3344-8.
14. Shimada J, Jackson JC, Goldstein E, et al. Strong medicine: Cambodian views of medicine and medical compliance. *J Gen Intern Med*. 1995;10:369-74.
15. Waitzkin H. On studying the discourse of medical encounters: a critique of quantitative and qualitative methods and a proposal for reasonable compromise. *Med Care*. 1990;28:473-88.
16. Berlowitz DR, Rosen AK, Moskowitz MA. Ambulatory care case mix measures. *J Gen Intern Med*. 1995;10:162-70.
17. Kravitz RL, Greenfield S, Rogers W, et al. Differences in the mix of patients among medical specialties and systems of care: results from the Medical Outcomes Study. *JAMA*. 1992;267:1617-23.
18. Marcos LR, Urcuyo L, Kesselman M, et al. The language barrier in evaluating Spanish-American patients. *Arch Gen Psychiatry*. 1973;29:655-9.
19. Marcos LR. Effects of interpreters on the evaluation of psychopathology in non-English-speaking patients. *Am J Psychiatry*. 1979;136:171-4.
20. Ebdon P, Carey OJ, Bhatt A, et al. The bilingual consultation. *Lancet*. 1988;1:347.
21. Vasquez C, Javier RA. The problem with interpreters: communicating with Spanish-speaking patients. *Hosp Commun Psychiatry*. 1991;42:163-5.
22. Baker DW, Parker RM, Williams MV, et al. Use and effectiveness of interpreters in an emergency department. *JAMA*. 1996;275:783-8.
23. Manson A. Language concordance as a determinant of patient compliance and emergency room use in patients with asthma. *Med Care*. 1988;26:1119-28.
24. Tocher TM, Larson E. Quality of diabetes care for non-English-speaking patients: a comparative study. *West J Med*. 1998;6:504-11.
25. Frayne SM, Burns RB, Hardt EJ, et al. The exclusion of non-English-speaking persons from research. *J Gen Intern Med*. 1996;11:39-43.