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Pharmacists' communication with Spanish-speaking patients: a review of the literature to establish an agenda for future research

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Abstract

Background—Spanish-speaking people represent more than 12% of the total population in the United States and are poised to become the largest minority group in the U.S. by 2015. Although researchers have studied pharmacist-patient communication for approximately 30 years, little emphasis has been placed on the interactions between pharmacists and Spanish-speaking patients.

Objective—The objectives of this review are 1) to describe empirical studies on Spanish-speaking patient/pharmacist communication examined relative to patient factors, pharmacist factors, and environmental factors that may influence Spanish-speaking patient/pharmacist communication and 2) to integrate medical and nursing literature to generate a research agenda for future study in this area.

Methods—We compiled articles from a systematic review of (1) CINAHL, International Pharmacy Abstracts, Pub Med, and Web of Knowledge databases using “Hispanic limited English proficiency”, “Latino limited English proficiency”, “language-assistance services”, “Spanish-speaking patients”, “Latino patients”, “Spanish-speaking health literacy”, “pharmacy health literacy”, “patient-provider communication”, “pharmacy language barriers”, (2) bibliographies of selected articles.

Results—This search generated 1,174 articles, 7 of which met the inclusion criteria. We categorized the results into four topic areas: “Spanish-speaking patient literacy,” “pharmacists knowledge of/proficiency in the Spanish language,” “pharmacy resources to overcome language barriers,” and “pharmacists’ attitudes towards communicating with Spanish-speaking patients.”

Conclusions—These studies provide a macroscopic look at the linguistic services offered in pharmacies, gaps in services, and their subsequent impact on pharmacists and patients. Future research should investigate Spanish-speaking patients’ literacy issues, pharmacy staff language skills, factors that influence pharmacists’ counseling, and language assistance programs for pharmacists and patients. Furthermore, these studies need to be conducted in large Hispanic/Latino populated areas where positive service models are likely to be present. Addressing these issues will provide pharmacists and pharmacies with information to overcome language barriers and provide Spanish-speaking patients with quality care.

Keywords

Hispanic limited English proficiency; language-assistance services; Spanish-speaking patients; patient-provider communication; pharmacy language barriers

1. INTRODUCTION

In 2005, 12% of people in the United States over the age of five spoke Spanish.¹ “Since 1980, the number of Hispanics or Latinos in the U.S. has grown five times faster than the rest of the population, making the United States the third largest Spanish-speaking country in the world” (p.1).² It should be noted that the terms Hispanic and Latino may be used interchangeably as they represent the same ethnic group in the U.S. census. Researchers speculate that by 2015 Hispanics or Latinos will pass African-Americans as the largest minority group in the U.S.³ Patients who speak a language other than English may be marginalized in the U.S. health care system and experience enhanced risks of negative health consequences.³⁻⁹ For example, Divi et al (2007) examined adverse events in 6 U.S. hospitals and found that almost half of the adverse events experienced by Limited English Proficiency (LEP) patients (49.1%) involved physical harm compared to only 29.5% of those experienced by English-speaking patients.¹⁰ The researchers further pointed out that the adverse events experienced by LEP patients resulted from communication errors 52.4% of the time in comparison to 35.9% of the time for English-speaking patients.¹⁰

Researchers have detailed that Spanish-speaking patients may have a great deal of trouble understanding medication use instructions. (p.59)¹¹ Rand and Rhee (1997) found that “47% of Spanish-speaking patients stated that the side effects of their medications were not explained to them in contrast to only 14% of non-Spanish-speaking patients.”⁴ In addition, Praska and colleagues (2005) concluded that “pharmacies infrequently address the literacy-related needs of their consumers”¹² Furthermore, it has been documented that Spanish-speaking Hispanics are less likely than English-speaking Hispanics to have a usual source of care.⁹

Pharmacists are in a unique position to help Spanish-speaking patients take their medications safely and effectively. The pharmacy profession has been working diligently to change its image from medication dispensing to patient-centered care.¹³ Today, pharmacists are encouraged to lead in reducing preventable drug-related morbidity and mortality through the provision of “pharmaceutical care.”¹⁴ The provision of pharmaceutical care relies heavily on pharmacist-patient communication as a means to facilitate optimal therapeutic outcomes for the patient.¹⁵ Thus, pharmacists’ ability to communicate with patients is of paramount importance and may have a profound impact on Spanish-speaking patients’ medication use. The objectives of this review are to describe empirical studies of communication between pharmacists and Spanish-speaking patients examined relative to patient factors, pharmacist factors, and environmental factors that may influence Spanish-speaking patient/pharmacist communication and to integrate medical and nursing literature to generate a research agenda for future study in this area. Areas that were assessed in the articles selected were classified into 4 categories: Spanish-speaking patient literacy, pharmacist knowledge or/proficiency in the Spanish language, pharmacy resources to overcome the language barrier and pharmacist attitudes towards communication with Spanish-speaking patients. These areas were selected for assessment because they represent all aspects of the process of communication between Spanish-speaking patients and pharmacists.

2. METHODS

SELECTION CRITERIA

The criteria for selecting articles for review were the following: (1) the article was peer-reviewed, (2) the article assessed pharmacist-Spanish-speaking patient communication via primary data, (3) the study was conducted in the United States, and (4) the publication was in English. The review was limited to studies published between 1985 and January 2008.

SEARCH STRATEGY

A systematic search was performed to identify articles that studied pharmacist-Spanish-speaking patient communication. CINAHL, International Pharmacy Abstracts, PubMed, and Web of Knowledge were searched to identify articles having to do with Hispanic/Latino patients, literacy, and pharmacist communication. The search was performed using the keywords “Hispanic limited English proficiency,” “Latino limited English proficiency,” “language-assistance services,” “Spanish-speaking patients,” “Latino patients,” “Spanish-speaking health literacy,” “pharmacy health literacy,” “patient-provider communication,” and “pharmacy language barriers.” The bibliographies of selected articles were reviewed manually to supplement the results of the online searches.

“Hispanic limited English proficiency” and “Latino limited English proficiency” were searched in order to gather any and all articles dealing with LEP within these populations in the realm of pharmacy communication. “Spanish-speaking health literacy” was searched because health literacy differs from regular literacy. Literacy is defined as “an individual's ability to read, write, and speak in English, and compute and solve problems at levels of proficiency necessary to function on the job and in society, to achieve one's goals, and develop one's knowledge and potential” whereas health literacy is defined as “the ability to read and comprehend prescription bottles, appointment slips, and the other essential health-related materials required to successfully function as a patient”.^{16,17} Moreover, searching health literacy in the United States without specifying the patient population will garner articles focusing on health literacy among the general population. We wanted to avoid this incongruity so we searched “Spanish-speaking health literacy”. “Pharmacy health literacy” was searched to obtain articles dealing with health literacy in the pharmacy environment. “Limited English proficiency” is defined as “the limited ability or inability to speak, read, write or understand the English language at a level that permits the person to interact effectively with healthcare providers or social service agencies”.¹⁸ Thus, limited English proficiency and literacy are harmonious when describing a patient's ability to read, write and comprehend a given language. “Language-assistance services” was searched to gather articles having to do with language-assistance services that have been studied in pharmacy settings. “Spanish-speaking patients” and “Latino patients” were searched to obtain any articles dealing with these specific populations in a pharmacy environment. “Patient-provider communication” was searched to find any articles dealing with patient-provider communication in the pharmacy environment. Finally, “pharmacy language barriers” was searched to obtain any articles that looked at language barriers within the pharmacy environment.

Abstracts of articles resulting from searching the keywords in the aforementioned databases were systematically reviewed for information pertaining to pharmacist communication with Spanish-speaking patients. Any abstracts that did not specifically examine this particular area were excluded. Articles that did study pharmacist communication with Spanish-speaking patients were examined in their entirety for populations studied, locations of the studies, major findings, conclusions, and recommendations made by the author(s).

3. RESULTS

The search strategy resulted in 1,174 articles, 7 of which met our selection criteria. Two of the studies surveyed pharmacists via telephone surveys; one of these also assessed the frequency with which patients experienced drug therapy problems. Two other studies surveyed pharmacists through mailed surveys. Finally, 3 studies conducted verbal interviews with patients, either in person or via telephone. Summaries of the 7 articles that met the selection criteria are presented in Table 1. Results are classified by the types of data collected as well as major findings and study recommendations.

Spanish-speaking patient literacy

Three of the articles focus on Spanish-speaking patients with LEP and the care they received from pharmacists. In this context, Spanish-speaking patient literacy refers to a native Spanish-speaking patient's ability to read and understand both written and spoken English. All three suggest Spanish-speaking patients are more likely to experience poorer understanding and access to care. Fang et al (2006) surveyed 179 patients taking Warfarin in a California anticoagulation clinic and found that 109 (60.9%) demonstrated low health literacy.¹⁹ The majority of those patients (45.9%) cited Spanish as their most comfortable language.¹⁹ The researchers also discovered that limited health literacy was associated with a lack of Warfarin-related knowledge.¹⁹ For example, the majority of patients with high health literacy (70%) knew that Warfarin increased their risk for stroke, while the majority of patients with low health literacy (58%) did not.¹⁹ The authors conclude that the decreased Warfarin-related knowledge among patients with limited health literacy is a reason for concern because of the "potentially high-risk nature of anticoagulation treatment"(p.843).¹⁹

A study of ethnically diverse elderly patients in rural West Texas (Whites, Hispanics and "Others") showed that a large proportion of Hispanic patients had poor English reading and speaking abilities.²⁰ In addition, communication skill deficiencies were associated with a reported lack of access to pharmacy services.²⁰ Mutchler and colleagues (2007) conducted a qualitative study which explored Latinos' communication with pharmacists and pharmacy staff. The researchers found that language was a communication barrier when study participants interacted with pharmacy personnel.²¹ Many patients claimed they had experienced difficulties understanding their medications.²¹

Pharmacist knowledge of/proficiency in the Spanish language

Research indicates that pharmacists lack the skills to counsel Spanish-speaking patients.²² In a survey of North Carolina pharmacists, Sleath (2002) found that almost 95% of respondents reported "not knowing any Spanish" or "knowing a few words of Spanish"; only 4.2% described themselves as "fairly fluent".²² Nevertheless, 48% described a "perceived need for Spanish in their practice".²² The pharmacists also identified how they circumvent language barriers: 66% reported communicating nonverbally, 30.5% wrote directions in Spanish, 16.7% referred the patient to a Spanish-speaking employee, and 11.1% communicated in Spanish.²² Muzyk and colleagues (2004) found that 88.4% of pharmacists were "not able to speak Spanish" or spoke only a "few common phrases".²³ Even though 61.7% of respondents claimed they recently counseled a Spanish-speaking patient, approximately 48% of respondents had never taken any type of Spanish language course (high school, college or continuing education).²³ Additionally, only 25.4% of respondents described their counseling of Spanish-speaking patients as "effective" or "very effective." ²³ The other 74.6% described their counseling of Spanish-speaking patients as "somewhat effective, [having] minor problems" or "[of] no help"(p.368).²³

Pharmacy resources to overcome language barrier

Translation (prescription labels, written information, etc.)—Translation of prescription labels into Spanish was documented in 4 of the 7 studies. Summaries of these articles can be found in table 2.

The number of pharmacies capable of providing written prescription drug information in Spanish vary according to geographic location. Westberg and Sorensen (2005) identified only five (out of 40) pharmacies printed prescription labels in Spanish; however not all of the five pharmacies printed labels in Spanish on a regular basis.²⁴ Muzyk et al (2004) found that approximately half of Atlanta pharmacies could provide computer-generated prescription labels in Spanish.²³ Similarly, Sleath (2002) found that 54.2% of North Carolina pharmacies

were able to provide prescription labels in Spanish; however, the method used to make the labels was not specified.²² In addition to printing prescription labels in Spanish, 44.9% of Atlanta pharmacies and 34.7% of North Carolina pharmacies were able to provide drug information leaflets in Spanish.^{22, 23} Moreover, 27% of Atlanta pharmacies had “new patient information forms written in Spanish” and 13.5% had preprinted patient education leaflets written in Spanish (p.369).²³ A small percentage of North Carolina pharmacies also could provide auxiliary (15.3%) and over-the-counter product (6.3%) labels in Spanish.²²

Sharif et al (2006) found that 69% of pharmacies surveyed in the Bronx, New York could print prescription labels in Spanish.²⁵ This was true for 71% of small independent pharmacies and 61% of large chain pharmacies.²⁵ A computer program was used to translate the labels in 86% of the pharmacies surveyed, while the remaining 14% claimed to use an employee.²⁵ The researchers also discovered that one of the chain pharmacies could not translate simple instructions (e.g. “for 30 days”) and that patients had to specifically ask for their prescription labels in Spanish.²⁵

Interpretation—The literature also cites interpretation as another way pharmacies can help reduce the language barrier for Spanish-speaking patients.^{21–24} (Summaries of these articles can be found in table 2.) Interpretation can take many forms including bilingual pharmacists and/or staff, telephone services, internet services, and a patient’s family members and/or friends. Mutchler et al (2007) showed that Spanish-speaking patients’ families and friends are used on a daily basis to translate the directions for medications.²¹ Despite the convenience of having family members or acquaintances interpret pharmacists’ instructions, professional interpretation is recommended.^{22, 23, 24} A patient’s family members or friends, especially a patient’s child, may not be able to correctly interpret the information given by the pharmacist.²²

In Atlanta, Muzyk et al (2004) found that 61.7% of pharmacists “reported recently counseling a patient who could speak only Spanish”(p.368).²³ Additionally, 52.8% of Atlanta pharmacies had an employee who spoke Spanish and 22.5% had a Spanish language telephone help line to help counsel Spanish-speaking patients.²³ Westberg and Sorensen (2005) discovered that many of the pharmacies in the Minneapolis-St. Paul area were making efforts to hire Spanish-speaking employees.²⁴ Nevertheless, in spite of these extra efforts, Spanish-speaking patients still experienced more drug-therapy problems than English-speaking patients.²⁴

Language Proficiency Requirements—Researchers also have examined pharmacists’ ideas regarding overcoming language barriers. Many pharmacists feel that Spanish-language courses should be implemented in pharmacy school curricula.^{22, 23} Other pharmacists felt that some knowledge of the Spanish language should be a prerequisite for pharmacy school and that learning Spanish could be part of pharmacists’ continuing education.²³ Additionally, some pharmacists stated that the best solution to interpretation problems is to hire bilingual pharmacists and/or staff.²³

Pharmacist’ attitudes towards communication with Spanish-speaking patients

Research indicates that pharmacists have somewhat positive attitudes toward working with Spanish-speaking patients. Westberg and Sorensen (2005) found that pharmacists felt obligated to provide care to patients no matter what language they spoke.²⁴ Muzyk et al (2004) showed that pharmacists felt an obligation to counsel the LEP patients; however, their overall attitude to the Spanish-speaking patient population was neutral.²³ Furthermore, Sleath (2002) found that the majority of pharmacists wanted to improve their Spanish-skills; 22% of them were “extremely interested in improving their knowledge of Spanish” and 52% were “somewhat interested”.²²

4. Discussion

The purpose of this article was to review the literature pertaining to pharmacist communication with Spanish-speaking patients. We found that researchers have made an effort to examine pharmacist communication with Spanish-speaking patients. However, the literature surrounding this topic is considerably small and recent. Furthermore, there are several additional issues mentioned in the medical and nursing literature as well as pharmacy articles that did not meet our inclusion criteria that are of interest. For example, the physician literature has examined the effectiveness of English as second language (ESL) classes and ad-hoc interpretation while the nursing literature has recommended ways for health care providers to learn Spanish. We can use information taken from these articles to inform pharmacy of new and important areas of research.

Spanish-speaking patient's English literacy

Our review suggests that the level of English literacy – also commonly referred to as just “literacy” – of Spanish-speaking patients has important implications for the quality of care received by Spanish-speaking patients. One conclusion from our review is that there is a risk that Spanish-speaking patients' level of English literacy mirrors the level of care they receive in pharmacy. LEP among Spanish-speaking patients has been associated with decreased access to pharmacy services and perceived discrimination in pharmacy settings.^{20,21} There is some evidence that misunderstanding medication instructions may result in excessive and avoidable monetary and time costs for the patient and health care providers involved.²⁶ It is intuitive that poor English skills lead to difficulties understanding written and oral patient information in English but that does not change the fact that we, as health care professionals and researchers, have not overcome this pressing obstacle of providing quality care to all patients regardless of their native language. Common knowledge doesn't lend itself to solving problems; it may increase awareness, but awareness and mechanisms of change are two completely different things.

Evidence from the nursing and medical literature is consistent with findings from pharmacy. Studies show that medical residents with limited Spanish-speaking skills and hospital clinicians avoid communicating with LEP Spanish-speaking patients.^{10, 27} Also, the incidence of preventive testing is higher among LEP Spanish-speaking patients as a means to avoid communication between LEP Spanish-speaking patients and primary care physicians.⁴

Given the need to improve English literacy among Spanish-speaking patients, there are no articles in the pharmacy literature specifically examining solutions to this problem. The physician literature has researched improving English literacy among LEP patients by providing English language counseling and free English books and offering ESL classes at hospitals to provide a forum for health education interventions.^{28, 29} An important area for future research in pharmacy is the evaluation of pharmacy-based strategies to improve English literacy among Spanish-speaking patients.

Pharmacists knowledge of and attitudes towards Spanish

Our review shows that pharmacists have very limited knowledge of the Spanish language even though many of them cited a need for Spanish in their practice.^{23, 24} Conversely, our review showed that pharmacists, overall, have positive attitudes when it comes to communicating with and caring for Spanish-speaking patients.^{23, 24} Some pharmacists even reported a desire to learn Spanish.²³ Regardless, the lack of Spanish language competency and cultural sensitivity among pharmacists poses serious barriers to the provision of pharmaceutical care.³⁰ Even with bilingual staff, many pharmacists stated that English-speaking patients received better written and oral counseling when compared to Spanish-speaking patients.²³ The medical literature

suggests that medical students and residents are prone to use their own inadequate Spanish-speaking skills to provide care because they had a desire to improve their skills, potentially to the detriment of patient care.³¹

An important question is what methods exist for providers to learn Spanish? Nursing researchers have suggested ways for providers to learn Spanish such as Spanish courses (e.g. medical Spanish), reading medical Spanish journals, listening to Spanish music, watching Spanish television programs designed for language acquisition in which the actors speak slower, the use of electronic translating devices, dictionaries and the internet.³² A 10 week Spanish language course for physicians improved patient satisfaction and decreased interpreter use.³³ Whether other methods have been effective is unknown. Even though dictionaries and/or electronic translating devices are good ideas in theory and are widely available, they may confuse beginners in the Spanish language and lead to poor translations. (Table 3) Translation from a dictionary/electronic device is only possible with some previous knowledge of the Spanish language and its sentence structure and grammar. Future research in pharmacy could examine which methods to learn Spanish are most effective for learners (pharmacists) as well as how they impact patient care.

Resources to overcome language barriers

Although the availability of language assistance resources in pharmacies has been identified, the scope of the resources is limited. For example, ad-hoc interpretation (interpretation by a friend or family member), hiring of bilingual staff, audiovisual resources, web-based information and translational resources, books of common Spanish phrases for pharmacists, pictures, and illustrations have not been included in lists of resources potentially available nor have they been examined as part of a specific research objective or question. In terms of effectiveness, only pharmacists' perceptions of the resources were examined. Future studies could examine pharmacists' satisfaction with resources as well as patients' reactions (e.g., satisfaction, perceptions) to the resources. Medical and nursing researchers found that errors made by ad-hoc interpreters were more likely to result in clinically relevant problems and that interpreters employed by hospitals often lacked formal training.^{34, 35} Similar evaluations in pharmacies could be conducted. Overall, the pharmacy literature does not provide good advice for pharmacists in terms of successfully communicating with Spanish-speaking patients.

Future directions

The literature states broadly that Spanish-speaking patients are vulnerable to poorer outcomes than English-speaking patients. Thus, a systematic assessment of the care provided to Spanish-speaking patients' in pharmacies and subsequent outcomes is necessary. We propose four areas of inquiry surrounding the care provided to Spanish-speaking patients that should be addressed in future studies. The first is the process of care provided in pharmacies. For example, research needs to assess the frequency and effectiveness with which pharmacists assess their Spanish-speaking patients' literacy levels. "Pharmacists [and physicians] not only need to better recognize and determine a patient's language needs in advance of the appointment but also need to use this information proactively to arrange for an interpreter ahead of time when possible" so they don't "have to concede to the disadvantages of various language interpretation services."^{15??} Also, research could assess the degree to which pharmacies incorporate the ideas of personalismo (being personable) and respecto (respect) into the care that is provided to Spanish-speaking patients.³⁰ Furthermore, research should examine whether pharmacists and staff avoid communication with Spanish-speaking patients and, how often this occurs and why it occurs.

The second area focuses on the language skills of the pharmacy staff (i.e., pharmacists, technicians and clerks) and how these skills are used. For example, researchers could explore

the prevalence of Spanish speakers among pharmacy staff as well as the opportunities for pharmacy staff to learn Spanish. The continuing education departments of pharmacy schools as well as professional pharmacy organizations could offer concise and well developed Spanish language courses for pharmacists.³⁷ Additionally, how often the Spanish language is spoken in pharmacies could be assessed. For example, how often are Spanish-speaking patients greeted in Spanish? Also, a counseling protocol to aid English-speaking pharmacists' communication with Spanish-speaking patients should be developed. The protocol could include a list of important things to tell Spanish-speaking patients about their medication and phonetic spellings underneath Spanish sentences to guide proper pronunciation.

The third topic area involves gaining a better understanding of the psychological mechanisms underlying pharmacists' communication behaviors. Researchers could apply theoretical models to help explain and bolster pharmacists' provision of care to Spanish-speaking patients. For example, researchers could examine pharmacists' self-efficacy beliefs related to communicating with Spanish-speaking patients. According to Social Cognitive Theory, in order for an individual to successfully perform a behavior, that individual not only must possess required skills, but also a resilient self-belief in her/his ability to perform that behavior (Wood and Bandura, 1989).³⁸ Researchers could then develop interventions geared toward increasing pharmacists' self-efficacy beliefs about providing care to Spanish-speaking patients in an effort to improve the care Spanish-speaking patients receive in the pharmacy. Professional pharmacy organizations could also take the lead in the planning and changing of pharmacy school curriculum to improve future pharmacists' abilities to provide quality care to Spanish-speaking patients.

The fourth suggested area to study is language assistance resources in pharmacies. The limited scope of the language assistance resources studied is a gap in the pharmacy literature. Future research needs to study the use and effectiveness of written instructions, visual aids, books of Spanish phrases for pharmacists, web-based resources, and verbal and cultural interpretation targeted toward Spanish-speaking patients in pharmacies. Furthermore, the effectiveness of all of these resources needs to be studied from both the pharmacist and patient perspective.

Additionally, future studies should be conducted in areas with extremely large Spanish-speaking populations such as the Chicago (including parts of Indiana), Los Angeles, Miami, New York City, and San Antonio, TX metropolitan areas. Also, many parts of Arizona, California, Colorado, Florida, Georgia, Maryland, Massachusetts, Nevada, New Jersey, Oregon, Texas and Utah have significantly large Spanish-speaking populations. This is important in order to gather accurate information and make appropriate, need-based recommendations for the provision of care. Some of the articles reviewed collected data in areas of the U.S. with relatively small Spanish-speaking populations which may not be representative of areas with larger Spanish-speaking populations nor the U.S. as a whole. (Table 4)

5. Limitations

This study is limited in scope due to its focus on published literature based on primary data without regard to unpublished works. Additionally, due to the small number of articles meta-analytic techniques could not be used. The studies included in this review are also cross-sectional in nature which limits cause and effect inferences. Variation in the locations of the studies, as well as the sampled (patient) populations, further complicates the comparison across studies. However, there are visible trends across all of the studies (e.g. the availability of language assistance tools and somewhat positive pharmacist' attitudes towards working with Spanish-speaking patients) which demonstrate the feasibility and reproducibility of this area of research.

6. Conclusion

This review was an attempt to assess what is known about pharmacist – Spanish-speaking patient communication. We found a paucity of studies examining the interactions between pharmacists and Spanish-speaking patients. In addition, we found gaps in the literature that need to be addressed in order to improve the care Spanish-speaking patients receive in pharmacy. Given the vulnerability of Spanish-speaking patients to poor health care outcomes, systematic, empirical studies need to be conducted to explore underlying issues and to test methods to facilitate and improve the communication process between pharmacists and Spanish-speaking patients.

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TABLE 1

SUMMARY OF ARTICLES MEETING INCLUSION CRITERIA

	Design/method	Sample	Major Findings	Conclusions and Recommendations
Sleath B.(2003)	Randomized mailed survey measuring pharmacy services for Spanish-speaking patients as well as pharmacist attitudes and beliefs towards working with Spanish-speaking patients	144 registered pharmacists in North Carolina community pharmacies. 48% response rate.	Many pharmacists wished to improve their Spanish-speaking skills; Almost 50% of pharmacists said there was a need for them to know Spanish; only 54% of pharmacies offered prescription labels in Spanish; pharmacist attitudes towards working with Spanish-speaking patients were positive.	Spanish should be included in Pharmacy School Curricula; Pharmacy students should take some Spanish courses.
Xu KT, Rojas-Fernandez CH (2003)	Cross sectional assessment of ethnically and linguistically (Spanish and English) diverse elderly patients via telephone surveys to measure differences in access to ancillary pharmacy services.	3,689 patients in rural, urban or "frontier" west Texas counties.	More than 50% of Hispanic elderly patients had poor English reading and speaking abilities and, therefore, experienced lower access to ancillary pharmacy services than English-speakers.	Rural pharmacies must make an effort to improve access to ancillary pharmacy services for Hispanics and other patients with LEP. Effective counseling, on prescription drugs and herbal medications, as well as written information in Spanish are recommended. Also recommends that more pharmacists move to rural areas.
Muzyk AJ, Muzyk TL, and Barnett CW (2004)	Cross sectional mailed survey measuring types of language assistance services available, their effectiveness as well as pharmacist attitudes and cultural sensitivity (focus on Spanish-speaking patients).	608 registered pharmacists working in metropolitan Atlanta, GA. 30.8% response rate.	Many pharmacists lacked the Spanish-speaking skills to counsel Spanish-speaking patients; however, language-assistance services were available in the majority of pharmacies surveyed. The best solution is to hire bilingual staff and pharmacists should avoid using non-professional interpreters (i.e. family or friends). Also, written information should be used as a last resort. Finally, pharmacists were indifferent towards counseling Spanish-speaking patients but felt it was their responsibility to do so.	Implementing Spanish-language courses in pharmacy school curricula as well as making some knowledge of Spanish a prerequisite for pharmacy school. Also, makes reference to learning Spanish part of pharmacists' continuing education.
Sharif I, Lo S, and Ozuah PO (2004)	Cross sectional assessment of pharmacies via telephone survey measuring the availability of Spanish language prescription labels, the method used to translate the labels and whether or not someone working in the pharmacy speaks Spanish in order to check the accuracy of the labels.	161 chain and independent pharmacies in the Bronx, New York. 99.4% response rate.	69% of pharmacies could provide prescription labels in Spanish; 14% had a staff member make the label whereas 86% used a computer program - only one had a Spanish-speaking staff member to check the accuracy of the label. One chain pharmacy could not translate commonly used pharmaceutical expressions. Finally,	Conducting similar assessments in other U.S. counties with large immigrant populations; Researching the accuracy of computer translation programs. Advising physicians to direct Spanish-speaking patients to obtain their prescription labels and medication information in Spanish if possible; and increasing the number of Spanish-speaking pharmacists in areas with large Spanish-speaking populations.

	Design/method	Sample	Major Findings	Conclusions and Recommendations
Westberg SM, Sorensen TD (2005)	Cross sectional assessment of pharmacies via telephone surveys to identify language services provided; assessment of a pharmaceutical care management database to assess the frequency of drug therapy problems experienced by English-speaking in comparison to non-English-speaking patients.	Approximately 40 pharmacies in the Minneapolis-St. Paul, MN metropolitan area; 91 clinic patients (38 of which spoke a native language other than English).	patients had to specifically ask for a Spanish prescription label at all pharmacies. Some (exact number not given) pharmacies had bilingual staff that spoke a minority language - including Spanish; 5 of the pharmacies could provide prescription labels in Spanish; adherence problems were much more common in non-English-speaking patients; lack of transportation, cultural differences and lack of knowledge of services available in the pharmacies also led to adherence problems for non-English-speaking patients.	Pharmacy needs to spend more time and effort addressing the problems faced by non-English-speaking patients; information about web-based and telephone-based interpretation and translation is given; advises pharmacists not to use family members as interpreters; advises use of interpreters and bilingual staff in pharmacies that serve a large number of non-English-speaking patients.
Fang MC, Machtiger EL, et al. (2006)	Verbal Surveys of patients; some with adequate health literacy and other with limited health literacy.	179 patients (35% listed Spanish as their most comfortable language) taking Warfarin in a San Francisco hospital anticoagulation clinic run by pharmacists and supervised by a cardiologist.	Limited health literacy led to decreased Warfarin-related knowledge but not with adherence or INR control.	More investigation and research is needed to improve patient education for patients with low health literacy, especially for high-risk therapies like Warfarin; clinicians need to better assess patients' knowledge of their medications.
Mutchler et al. (2006)	Cross sectional assessment of elderly Hispanic patients via focus groups to identify their experiences and feelings towards interacting with pharmacists.	36 patients in eastern Massachusetts.	Many patients claimed they had experienced difficulties understanding their medications and also felt discriminated against in pharmacy settings.	The use of interpreters is advised. Also, Spanish-speaking patients should seek pharmacies with Spanish-speaking staff.

TABLE 2

SUMMARY OF LANGUAGE ASSISTANCE RESOURCES IN PHARMACY STUDIES

	Sleath B.(2003)	Muzyk AJ, Muzyk TL, and Barnett CW (2004)	Sharif I, Lo S, and Ozuah PO (2004)	Westberg SM, Sorensen TD (2005)
Need for Spanish	48% stated a perceived need for Spanish in their practice	61.7% had recently counseled a Spanish-speaking patient	48.50% of pharmacies served a population that was more than 50% Spanish-speaking	Variable not assessed
% of prescription labels in Spanish	54.2%	49.5%	69.0%	12.5%
% of prescription information leaflets in Spanish	34.7%	44.9%	Variable not assessed	Variable not assessed
% of OTC products with Spanish labels	6.3%	Variable not assessed	Variable not assessed	Variable not assessed
% of pharmacies with Spanish language telephone help line	Variable not assessed	22.5%	Variable not assessed	Variable not assessed
% of pharmacies with a Spanish-speaking employee	Variable not assessed	52.8%	Variable not assessed	Some pharmacies employed bilingual staff (exact number not given in article)
% of pharmacists who had EVER taken a Spanish language course	54.9%	51.2%	Variable not assessed	Variable not assessed
% of Spanish-speaking pharmacists	4.20% ("fairly fluent")	1.3% ("fluent")	0.90% (of pharmacies that could print prescription labels in Spanish)	Variable not measured
% of pre-printed patient education leaflets in Spanish	Variable not measured	13.5%	Variable not measured	Variable not measured

TABLE 3

EXAMPLES OF INCORRECT TRANSLATIONS FROM A DICTIONARY AND/OR ELECTRONIC TRANSLATING DEVICE.

English Phrase	Translation	What the translation literally says.	Correct Translation
Do you have any back pain?	¿[Insert any word for do because the results take up almost an entire page] <i>tener algun espalda dolor?</i> ^a	"[???] to have some pain back?"	"¿Se duele la espalda?" or "¿Ud. tiene dolor de la espalda?"
Take one tablet daily for blood pressure.	<i>Tome una tableta diariamente para tension.</i> ^b	Take a tablet daily for tension.	"Tome una tableta diariamente para tension arterial." OR "Tome una tableta diariamente para presión arterial."

^aLea C, Carvajal CS, Britton M, Horwood J. The Oxford New Spanish Dictionary. 2nd ed. Berkley Pub Group: New York, N.Y. 1999:222, 275, 311, 366, 461.

^bFree Translation and Professional Translational Services from SDL International, SDL International. Available at: <http://www.freetranslation.com>. Accessed August 2, 2007.

TABLE 4**STATE RANKINGS OF SPANISH-SPEAKING POPULATIONS IN STUDIES REVIEWED**

	State where study was conducted	State's U.S. Spanish-speaking population rank at time of study	State's U.S. Spanish-speaking population rank now
Sleath B.(2003)	North Carolina	36 th	21 st
Xu KT, Rojas-Fernandez CH (2003)	Texas	2 nd	1 st
Muzyk AJ, Muzyk TL, and Barnett CW (2004)	Georgia	19 th	18 th
Westberg SM, Sorensen TD (2005)	Minnesota	31 st	33 rd
Fang MC, Machtinger EL, et al. (2006)	California	3 rd	2 nd
Mutchler et al. (2006)	Massachusetts	17 th	17 th
Sharif I, Lo S, and Ozuah PO (2006)	New York	7 th	7 th