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A significant and growing portion of the population of the United States is of limited English proficiency (LEP). In healthcare, LEP patients are a high-risk group for adverse medical events. Elderly patients are also a high-risk group and often take multiple medications, and when the two groups are combined it can create a potentially dangerous situation for the patient. This study searched for methods to reduce these adverse medical events and improve medication adherence. A total of 42 references were reviewed to find that most commonly, the only resources that physicians have to communicate LEP patients is a trained medical interpreter and on occasion, a few translated documents in the patient's native language. While the prevalence of medical interpreters has been rising, even with a trained interpreter LEP patients generally have worse clinical outcomes and lesser satisfaction than patients who see a language-concordant physician.

Physicians can take additional steps such as learning how to most effectively utilize interpreters and employing visual aids and the teachback method to improve direct patient care. They can also take steps outside of the patient-provider interaction to improve care, such as ensuring that patients take notes and review them when it is time to take their medications and advocating the use of resources like internet portals for scheduling appointments and refilling medications. While the healthcare system in the United States has made good progress in making medical interpreters and medication instructions in other languages more accessible, there is still much work to be done in this field to ensure that LEP patients receive the care that they deserve.

METHODS TO REDUCE MEDICATION ERRORS AND IMPROVE MEDICATION ADHERENCE AMONG ELDERLY PATIENTS FACING A LANGUAGE BARRIER

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CHAPTER I

INTRODUCTION AND BACKGROUND INFORMATION

According to the last report published by the United States Census Bureau, there are more than 350 languages and dialects spoken in the United States. More than 60 million Americans speak a primary language other than English at home [1, 2], and more than 25 million Americans speak English "less than very well." Since 1990, this limited English proficiency (LEP) population has increased by 80% [3]. This growing LEP population is becoming increasingly relevant for healthcare providers, with 80% of providers reporting that they encounter LEP patients throughout the year and 43% seeing them daily [4].

These LEP patients face a significantly higher risk of adverse events in healthcare [1, 5]. Healthcare is often a complex topic and the capacity required to understand typical health information exceeds the capabilities of the average American [6]. If a patient cannot understand a treatment plan, then it will be difficult for them to adhere to it. This issue is further complicated when physicians and patients face a language barrier and indeed, LEP is one of the biggest predictors of medical errors [1, 6].

Roughly 15% of the LEP population is elderly, or over the age of 65 [7]. Elderly patients are also a high-risk group for adverse medical events, and it is estimated that about 35-40% of elderly patients take 5 or more medications daily [8, 9]. Of this population, approximately 35% of outpatients and 44% of hospitalized patients have experienced an adverse drug reaction (ADR) [10-12]. ADRs are also the cause of 10% of hospital admissions in patients older than 65, and 20% of admissions in patients over the age of 80 [13]. Therefore, elderly LEP patients are a very high-risk group and special care should be taken when treating these patients.

The purpose of this study is to find methods in addition to an interpreter that will improve care for elderly LEP patients. The use of trained medical interpreters has become more prevalent in recent years, but even when a trained interpreter is utilized research suggests that LEP patients have worse clinical outcomes and lesser satisfaction than they would with a language-concordant physician. Language barriers are well documented in medicine, and typically result in reduced quality of care, and poorer understanding and adherence to treatment plans [1, 14-18].

LEP patients generally report lesser satisfaction and trust in their physician and may even feel discriminated against [19] when their physician does not speak their language. Cultural barriers may complicate this matter further; even if a patient is able to understand the treatment plan, they may not be willing to comply due to their inherent beliefs, such as preferring to use alternative medication or concerns about dependency [20]. As the United States is a diverse country and most physicians have a diverse patient base, it is of crucial importance to address these barriers to ensure that these patients are receiving the care that they deserve. It is unreasonable to expect every physician to be able to communicate fluently with every patient that walks into their clinic, but they should be knowledgeable about and have access to resources that allow such communication.

CHAPTER II

SPECIFIC AIMS

The specific aims of this internship practicum are to find methods in addition to the use of a medical interpreter to improve care for elderly LEP patients. The standard of care in most healthcare facilities is the use of a medical interpreter alone, which results in LEP patients having worse clinical outcomes than they would with a language-concordant physician. This study aims to find additional methods to supplement care for LEP patients to help combat this disparity.

SIGNIFICANCE

As previously stated, even when a trained medical interpreter is utilized research suggests that LEP patients have worse clinical outcomes and lesser satisfaction than they would with a language-concordant physician. With the LEP population growing in North America, this places an increasing number of people at risk for adverse medical events. Therefore, this study aims to find methods to reduce this disparity and provide LEP patients with the care that they deserve.

METHODS

In order to find methods to improve care for LEP patients, this study reviewed the databases PubMed, EMBASE, SCOPUS, PsycInfo, and EBSCO. Key terms include language barrier, communication barrier, medication error, medication adherence, medication safety, healthcare, medicine, primary care, and elderly. Only articles published within the past 15 years were included. A few articles published before this time period obtained from citation chasing were also included for containing relevant information. The inclusion and exclusion criteria are detailed below in Table 1.

INCLUSION	EXCLUSION
The reference was written in English	The reference was written in a language other than English
The study was performed in North America	The study was performed outside of North America
The study was published within the past 15 years	The study was published more than 15 years ago
The study discussed language barriers and some metric of medication adherence, medication safety, patient satisfaction, or patient understanding	The study discussed language barriers in healthcare, but had no measurable results
Ideally, the study focused on elderly patients. Methods that involved adult patients were also included if relevant	The study focused on children
The study focused on primary or ambulatory care	The study focused on emergency care

Table 1. Inclusion and exclusion criteria.

The search returned 556 results, excluding duplicates. 58 results were retained after a broad first round of review that included any studies that mentioned both language barriers and any measure of medication safety or patient satisfaction such as medication adherence or patient understanding. After a second round of review, 24 references were excluded for various reasons such as the study being conducted outside of North America, the study focusing on children, the study focusing on patients with intellectual disabilities or mental illnesses, or the study focusing on emergency care. After the initial literature review was completed, 5 additional sources were found through citation chasing. An additional 3 sources were found from searching Google for information about polypharmacy in the elderly for an end total of 42 sources. The literature review process is detailed below in Figure 1.

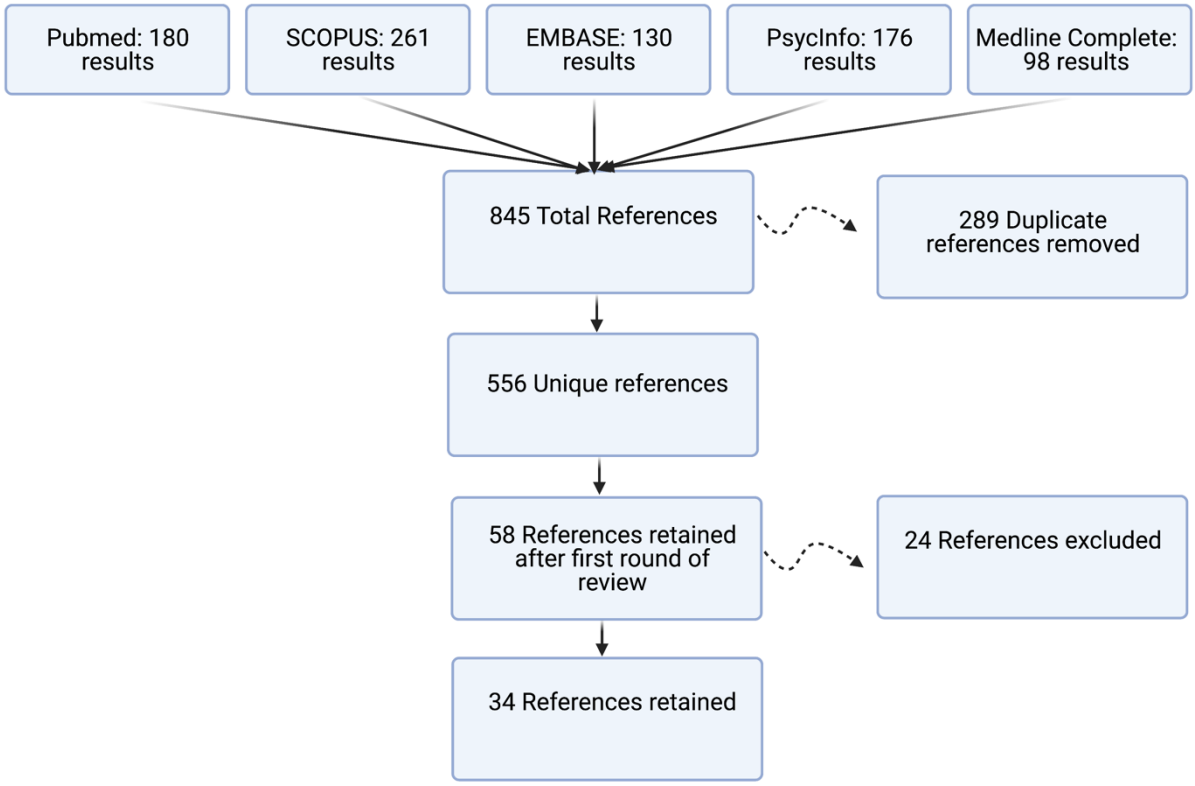

Figure 1. The literature Review Process. Searching the databases PubMed, SCOPUS, EMASE, PsycInfo, and Medline Complete yielded 845 total references. 289 duplicate references were removed for a total of 556 unique references. After a broad first round of review, 58 references were retained. After a more detailed second round of review, 24 references were excluded for an end total of 34 references.

RESULTS

After completing the literature review, 34 references were retained. An additional 5 references were obtained through citation chasing, and 3 references through searching Google. The author, year of publication, title, design type, and key findings of reach reference are detailed below in Table 1.

Author (Date)	Title	Design Type	Key Findings	Language(s)
Andreae et al. (2017)	*A pragmatic trial to improve adherence with scheduled appointments in an inner-city pain clinic by human phone calls in the patient's preferred language*	Experimental	Language-concordant appointment reminds improved adherence, cultural barriers to adherence	Spanish
Bailey et al. (2009)	*Availability of Spanish prescription labels: a multi-state pharmacy survey.*	Observational	Most pharmacies offer little to no translation services. Not limited to rural areas.	Spanish
Bailey et al. (2012)	*Evaluation of language concordant, patient-centered drug label instructions*	Experimental	Standardized language-concordant prescription instructions significantly increased medication adherence and understanding.	Chinese (Cantonese and/or Mandarin) Korean Russian Spanish Vietnamese
Bradshaw et al. (2007)	*Language barriers to prescriptions for patients with limited English proficiency: a survey of pharmacies.*	Observational	Almost half of surveyed pharmacies have little/no translation services, dissatisfied with communication	-
Casillas et al. (2018)	*A Digital Language Divide? The Relationship between Internet Medication Refills and Medication Adherence among Limited English Proficient (LEP) Patients.*	Experimental	Use of internet portals can improve medication adherence, safety, lead to better clinical outcomes overall	Chinese Korean Spanish Vietnamese
Diamond et al. (2019)	*A Systematic Review of the Impact of Patient-Physician Non-English Language*	Systematic review	Language-concordance improves care, language-discordance leads to worse clinical outcomes.	-

	Concordance on Quality of Care and Outcomes.			
Diamond et al. (2012)	*The use of Spanish language skills by physicians and nurses: policy implications for teaching and testing*	Comparative	Health care providers generally overestimate their fluency in other languages, should be cautious when communicating with patients	Spanish
Dysart-Gale (2007)	*Physicians and medical interpreters: negotiating culturally appropriate care for patients with limited English ability.*	Experimental	Secondary benefits of interpreters: able to act as patient advocates, cultural liaison	-
Engel et al. (2009)	*Patient comprehension of emergency department care and instructions: are patients aware of when they do not understand?*	Observational	Most patients don't comprehend treatment plans despite indicating understanding	-
Flores et al. (2012)	*Errors of medical interpretation and their potential clinical consequences: a comparison of professional versus ad hoc versus no interpreters*	Comparative	Negative results of using ad hoc interpreters	Spanish
Green et. al (2005)	*Interpreter services, language concordance, and health care quality. Experiences of Asian Americans with limited English proficiency.*	Experimental	Well-trained interpreters improve patient satisfaction, trust in physician	Chinese Vietnamese
Gregg et al. (2007)	*Communicative competence: a framework for understanding language barriers in health care*	Review	Discusses benefits and detriments of interpreters, compares with language-concordant physician	-
Jacobs et al. (2006)	*The need for more research on language barriers in health care: a proposed research agenda.*	Review	Discusses Title VI of the Civil Rights Act, language barriers in general	-
The Joint Commission (2006)	*What did the Doctor say?*	Observational	Statistics about the LEP population, healthcare knowledge of average American	-
Juckett et al. (2014)	*Appropriate use of medical interpreters.*	Review	Benefits/detriments of trained interpreters, provides guidelines on how to use interpreters	-

Karliner et al. (2007gra)	*Do professional interpreters improve clinical care for patients with limited english proficiency? A systematic review of the literature.*	Systematic review	Benefits of medical interpreters versus ad hoc interpreters	-
Ku et al. (2005)	*Pay now or pay later: providing interpreter services in health care.*	Review	Benefits of medical interpreters, detriments of ad hoc interpreters	-
Masland et al. (2011)	*Association between limited English proficiency and understanding prescription labels among five ethnic groups in California.*	Observational	Limited translation services of pharmacies, poor understanding of drug instructions of LEP patients	Chinese Korean Spanish Vietnamese
Mutchler et al. (2007)	*Language barriers surrounding medication use among older Latinos.*	Review	Language barriers can affect medication adherence, may be related to feelings of discrimination	Spanish
Ngo-Metzger et al. (2007)	*Providing high-quality care for limited English proficient patients: the importance of language concordance and interpreter use.*	Experimental	Language barriers associated with worse care, lesser satisfaction. Interpreters utilized, but rated lower than language-concordant physicians	Chinese Vietnamese
Schiaffino et al. (2016)	*Language Services In Hospitals Vary By Ownership And Location*	Comparative	Not all hospitals offer language-concordant care despite receiving funds to do so.	-
Schillinger et al. (2005)	*Language, Literacy, and Communication Regarding Medication in an Anticoagulation Clinic: Are Pictures Better Than Words?*	Experimental	Effectiveness of visual aids for medication assessment and adherence	Cantonese Spanish
Schyve (2007)	*Language differences as a barrier to quality and safety in health care: the Joint Commission perspective.*	Descriptive	Discusses language barriers, negative outcomes of language-discordance	-
Sharif et al. (2010)	*Accuracy of computer-generated, Spanish-language medicine labels*	Observational	Inaccuracy of computer translations for medication labeling	Spanish
Weiss et al. (2019)	*Assessing the Impact of Language Access Regulations on the Provision of Pharmacy Services.*	Observational	Pharmacy accessibility to translated medication labels, documentation, etc.	-

Wilson et al. (2005)	*Effects of limited English proficiency and physician language on health care comprehension.*	Observational	Being LEP increases the risk of adverse medication reactions, barrier to medical comprehension	Armenian Cambodian Chinese Farsi Korean Mien Tagalog Russian Spanish Vietnamese
Wolz (2015)	*Language barriers: challenges to quality healthcare.*	Review	Discusses proper use of interpreters, risk of ad hoc interpreters	-
Yen (2019)	*Use and Effectiveness of the Teach-Back Method in Patient Education and Health Outcomes.*	Experimental	Benefits of the teachback method	-
Zavala (2011)	*Do patients understand discharge instructions?*	Experimental	Patients often remain confused, uncertain about treatment plans despite indicating understanding	-
The references below were obtained from citation chasing and Google searching.				
Charlesworth et. al (2015)	*Polypharmacy Among Adults Aged 65 Years and Older in the United States: 1988-2010.*	Observational	Roughly 35-40% of elderly patients take >5 medications daily	-
Hohl et al. (2001)	*Polypharmacy, adverse drug-related events, and potential adverse drug interactions in elderly patients presenting to an emergency department.*	Observational	Rates of ADEs in elderly polypharmacy patients	-
Legrain (2007)	*Prescription to elderly patients: reducing underuse and adverse drug reactions and improving adherence*	Review	Rates of ADRs in elderly patients, hospitalization due to ADRs	-
Proctor et al. (2018)	*The Limited English Proficient Population: Describing Medicare, Medicaid, and Dual Beneficiaries*	Descriptive	Estimates of elderly LEP population	-

Qato et al. (2016)	*Changes in Prescription and Over-the-Counter Medication and Dietary Supplement Use Among Older Adults in the United States, 2005 vs 2011.*	Descriptive	Estimates of polypharmacy in the elderly	-
Rollason et al. (2003)	*Reduction of polypharmacy in the elderly: a systematic review of the role of the pharmacist.*	Systematic review	Estimates of ADRs in elderly polypharmacy patients	-
Shah et al. (2012)	*Polypharmacy, adverse drug reactions, and geriatric syndromes*	Review	Estimates of ADRs in elderly polypharmacy patients	-
Zong (2016)	*The Limited English Proficient Population in the United States.*	Observational	Discussed growing LEP population in the United States	-

Table 2. Reference list. This table lists each reference's author, year of publication, title, design type, key findings, and the languages that were encountered, if applicable.

The United States has a combination of federal and state laws in place to ensure access to healthcare for individuals who cannot speak English. Title VI of the Civil Rights Act mandates that LEP patients must be provided with a medical interpreter [14]. The use of interpreters has become more prevalent in recent years, especially in larger healthcare facilities [21]. However, less than 70% of all hospitals in the United States offer language-concordant care [22, 23], and one could imagine that this figure is significantly lower in smaller facilities such as primary care offices. A likely explanation for this disparity is financial, because these interpreter services are often not reimbursable [22, 23].

Therefore, many physicians turn to the patient's family or friends to use as ad hoc interpreters, but this should be avoided and used only as a last resort. More often than not, family members of patients are not medically literate and will have difficulties understanding and conveying what the physician is saying. The use of ad hoc interpreters can also cause conflicts of interest and issues with patient confidentiality [1, 21], and generally leads to negative results

including medical errors, unnecessary tests being performed, decreased patient satisfaction, and poorer adherence [24, 25]. However, if presented with no other options, the patient should have autonomy in whether to use family to help interpret.

Some physicians who know a little of the language may attempt to communicate themselves, but unless they are truly fluent this should be avoided as providers have been found to generally overestimate their fluency. This can often lead to medical errors as even small details can lead to significant mistakes in medicine [26]. Services like Google Translate should also be avoided. The output of these services is generally rough and often misses critical information, even when it is used for something simple such as prescription labels [27].

Professionally trained interpreters can increase patient satisfaction, overall quality of care, and generally lead to better outcomes [1, 15, 28, 29]. In addition to allowing for communication, they can also serve as a cultural liaison to build rapport and help the physician truly understand the meaning of what the patient is saying. It is important to distinguish between a trained medical interpreter and a translator. The two professions are often confused, but interpreters are trained to interpret the spoken word while translators work with written words. They require different skill sets, with interpreters having to understand the meaning of what is being said by the patient and physician and then quickly conveying the proper information in a live setting [30].

It is of importance that physicians know how to best utilize medical interpreters. A study by Juckett *et. al* suggested guidelines for the ideal arrangement. This arrangement seats the interpreter next to, or slightly behind the patient. This ensures that the patient and physician are focused on each other and can read each other's body language, which can be as important as the

spoken word [1]. Sentences should be kept short, allowing the interpreter to translate after each sentence to ensure maximum accuracy. The physician should strive to keep their explanation as simple as possible, avoiding jargon, acronyms, and idioms that may confuse the patient. They suggest that jokes should be avoided as well, as humor is often lost in translation [1].

In addition to facilitating the conversation, interpreters can have multiple additional uses. They can serve as a cultural liaison, help clarify confusing issues, and act as patient advocates. If the interpreter shares a cultural background with the patient, they may help the physician understand cultural beliefs about the causation of illness and how the patient would traditionally treat it. The interpreter can also act as a patient advocate by helping the physician understand barriers to filling prescriptions, modifications to diet, or beliefs about follow-up appointments [31].

Despite the benefits of professional medical interpreters, LEP patients generally have worse clinical outcomes and satisfaction than they would with a language-concordant physician [14-17, 28]. They also generally trust their physician less [15, 16] and may even feel discriminated against [19]. Therefore, the use of interpreters on its own is likely not enough to provide optimal care to patients who face a language barrier. Additional steps should be taken in order to provide the care that these patients deserve.

A practical and effective method to improve patient understanding is through the use of visual aids. Visual aids have been shown to improve patient understanding, especially regarding medication assessment [32]. In one study by Schillinger *et. al*, patients were first asked to verbally explain their weekly warfarin regimen, and then asked to identify their regimen by looking at a digital color menu of warfarin pills. The study included 42 patients whose primary

language was Cantonese, and 52 patients who primarily spoke Spanish. Of the 220 participants, 50% achieved verbal concordance and 66% achieved visual concordance. The Cantonese speaking patients had lower verbal concordance than the English-speaking and Spanish-speaking patients, but there was no difference in visual concordance between the three groups.

Patients reported greater patient-provider concordance when their regiment was shifted from the verbal to visual mode across all three groups, with the greatest improvement in patients who were verbally discordant [32]. The study found that patients who used the visual aids better adhered to their medication regimen, offering an effective solution to improve medication adherence when patients speak a different language than their physician. Visual aids can effectively be a universal tool for medication assessment and explaining treatment plans. If a physician does not have access to software that allows for medication assessment, they can print a simple chart and have the patient fill in their medication regimen to check for understanding. An example is provided below in Figure 2.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
AM							
PM							

Figure 2. An example chart for medication assessment. The patient is provided with a blank space to draw or write out their medication regimen. While simple, it allows for the provider to accurately assess if the patient knows which medications to take, how many pills to take, and when to take them. The provider can then easily remedy mistakes and give the patient a visual example of when and exactly how much medication they should be taking.

When communicating across a language barrier, it is of the utmost importance to never assume that the patient understands everything that is being said. Studies have suggested that most English-speaking patients remain confused about their treatment plan after leaving their primary care office or being discharged from the hospital, despite indicating understanding [33, 34]. An effective way to ensure understanding is to use the teach-back method and have the patient explain the instructions back to the physician in their own words [35]. This is generally asked in the form of an open-ended question to avoid “yes” or “no” answers and allows the physician to be sure that the patient understands the treatment plan. It serves as a tool to assess

patient understanding, and then reteach or modify teaching if the patient does not display proper properly comprehension. An example question that employs the teach-back method is: “Since your family isn’t in the office today, how would you explain to them what this new medication is for, and when are you supposed to take it?”

The teach-back method also helps the patient frame the process and presents an opportunity to ask questions that may not have immediately come to mind. If the patient struggles to explain or forgets any part of the regimen, then it can immediately be remedied. Use of the teach-back method is low-risk with respect to increasing patients understanding of their treatment plans, although patients long-term memory retention may be inconsistent [35]. Therefore, having the patient take notes about their treatment plan on paper or in their phone during the process may prove effective in ensuring that the patient will retain the information.

DISCUSSION

Important methods that physicians can use in the office include proper utilization of interpreters, incorporation of visual aids, and the teachback method. These tools can help with medication assessment and ensure that the patient understands treatment plans. Utilizing interpreters properly ensures an accurate discussion between the physician and patient to ensure that nothing is lost in translation. The teachback method can be used in conjunction with the interpreter to ensure patient understanding. The teachback method reinforces information through repetition and also opens a door for any questions that the patient may have. If the patient struggles to explain anything, they can easily ask the physician for clarification. The physician can also use visual aids to help check for and bridge any gaps in understanding. Use of a chart, such as the one described in Figure 2, can help assess patient understanding. Physicians can also use pictures or draw diagrams to help explain disease mechanisms, or use charts and graphs to explain the prevalence of disease.

There are also several other methods outside of direct physician-patient interaction that may help improve medication safety. Patient use of internet portals for healthcare activities such as scheduling appointments and managing medication refills has been associated with better clinical outcomes [36]. Proper use of these internet portals has led to results such as improved blood pressure management, glycemic control, cholesterol reduction, and better rates of appointment and medication adherence. However, LEP patients have been found to use these internet portals far less than native English-speaking patients [36]. If a provider has an internet portal, they should advocate for their patients to use it and instruct them in its proper use. If the provider has an internet portal that is only in English, they could include visual aids such as a pill

bottle for medication refills and a calendar for scheduling appointments to make it more accessible to LEP patients.

Language barriers are also prevalent in the pharmacy, and also of importance is ensuring that patients are able to understand their medication instructions on their medications. Federal law requires that certain documents such as informed consent documents, discharge instructions, complaint forms, and intake instructions be translated into certain languages that commonly present in the community where the facility is located [37]. However, roughly half of the pharmacies in the United States have limited to no translation services to assist pharmacists in counseling LEP patients. These pharmacies also have limited access to printed materials in the patient's native language, and if they do, the translation is often inaccurate or written in complex language that is too difficult for many patients to understand [38-40].

According to the 2006 Institute of Medicine report Preventing Medication Errors, poor comprehension of medication instructions is a root cause of adverse drug events and other medication errors [41]. Therefore, physicians must ensure that patients understand how to take their medications before they leave the office, as they will likely not be able to receive proper instruction at the pharmacy. One study created a set of universal medication instructions and compared them to standard instructions that are currently available in the patient's native languages. They named these instructions the "ConcordantRx" Instructions and found that subjects who received them had significantly greater understanding of prescription regimen dosing and regimen consolidation [37].

There is still much work to be done in this field, but physicians can take their own measures. They can discuss treatment regimens with patients through an interpreter and ensure that the patient understands using the teachback method. They can then have the patient write the

regimen down in a readily accessible place that they will remember it, such as on a pill bottle, sheet of paper, or in their phone. [42]

CONCLUSION

A significant and growing portion of the population of the United States is LEP. In healthcare, elderly LEP patients are a high-risk group for adverse medical events**.** The prevalence of medical interpreters has been rising, but even with a trained interpreter LEP patients generally have worse clinical outcomes and lesser satisfaction than patients who see a language-concordant physician. The average physician will never be language-concordant with all of their patients, but they can take additional steps to improve the care of LEP patients such as knowing how to best use medical interpreters, incorporation of visual aids, and employing the teach-back method to ensure understanding. They should encourage patients to take notes in their phone, on paper, or on their medications during the process to ensure long-term retention, and strongly encourage the patient to review these notes when it is time to take their medications.

They should also advocate and instruct patients on the use of resources such as internet portals for appointment scheduling and medication refills if they are available and understandable. While the healthcare system in the United States has made good progress in providing resources for LEP patients in the past few decades, there is still much work to be done in making medical interpreters more readily accessible to the average physician, in providing standardized medication instructions in languages other than English, and in creating a more inclusive environment for LEP patients in general.

LIMITATIONS

Probable limitations in this study include limited access to resources. This study reviewed PubMed, EMBASE, SCOPUS, PsycInfo, and EBSCO, and it is possible that there were relevant articles in other databases that were not accessible. Given the nature of this study, there are certainly articles published in languages other than English that would contain relevant information that are not accessible. This study also only included articles published in North America, which limits the generalizability of this study to the geographic areas represented in the articles. There are also articles published outside of North America that contain relevant information. Other limitations involve not using information that may be of relevance found in non-peer-reviewed sources, such as conference proceedings, dissertations, or books.

FUTURE RESEARCH

There is still much research to be done to improve the care of LEP patients. Every study included in this practicum focused on only one intervention; great benefit could be obtained if a study combined multiple interventions, such as visual aids and better medication instructions. Research must be performed to find a way to make medical interpreters more accessible to the average physician, as well as how to train physicians to best use interpreters. Creation of more standardized and simplistic instructions in various languages to increase accessibility for patients that do not have a higher education would also be of great importance. Lastly, research on how to create a more inclusive environment for LEP patients to increase satisfaction and trust in their physician would be a significant step in the right direction.

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CHAPTER III

INTERNSHIP EXPERIENCE

My research internship practicum was completed at NorTex – North Texas Primary Care Practice-Based Research Network. I am currently working on two major projects.

The first project is the Partnership in Resilience for Medication Safety Learning Lab (PROMIS Lab), which works to redesign primary care work systems to address multiple types of medication related harms among older adults by collaborating with clinics and patients, including those with low socioeconomic status. I was involved in various projects including recording and taking notes for semi-structured interviews with family medicine clinic personnel and patients and attended meetings to learn more about the communication and processes involved in clinical research. This internship practicum will also provide valuable information to this project. The PROMIS Lab project is funded by AHRQ and includes a collaboration with UT Arlington (PI: Yan Xiao, PhD), UNTHSC (site PI: Kim Fulda, DrPH), JPS Health Network (site PI: Richard Young, MD), and Johns Hopkins (site PI: Ayse Gurse, PhD).

The second project is Substance Use Disorder and Individuals with Intellectual and Developmental Disabilities in Texas funded by the Texas Council for Developmental Disabilities. The project is collecting estimates of substance use disorder (SUD) and individuals with intellectual and developmental disabilities (IDD). It will then collect information on prevention and treatment options for SUD among individuals with IDD, as well as identify barriers to receiving and adhering to treatment for SUD among individuals with IDD. I was involved reviewing abstracts and articles for a comprehensive review of the literature, recording and taking notes for focus groups and semi-structured interviews with employees of facilities

licensed to provide treatment for substance use disorder, and conducting a survey and follow-up phone calls.

I had the opportunity to attend an IRB meeting and obtain an understanding of how an IRB functions. I was also trained to conduct interviews and may have the opportunity to do so soon.