

2018-01-01

Communication Barriers Between Patients And Healthcare Providers Regarding Disclosure Of Herbal Product Use

Armando S. Gonzalez

University of Texas at El Paso, asgonzalez1@utep.edu

Follow this and additional works at: https://digitalcommons.utep.edu/open_etd



Part of the [Medicine and Health Sciences Commons](#)

Recommended Citation

Gonzalez, Armando S., "Communication Barriers Between Patients And Healthcare Providers Regarding Disclosure Of Herbal Product Use" (2018). *Open Access Theses & Dissertations*. 1440.
https://digitalcommons.utep.edu/open_etd/1440

This is brought to you for free and open access by DigitalCommons@UTEP. It has been accepted for inclusion in Open Access Theses & Dissertations by an authorized administrator of DigitalCommons@UTEP. For more information, please contact lweber@utep.edu.

COMMUNICATION BARRIERS BETWEEN PATIENTS AND HEALTHCARE PROVIDERS
REGARDING DISCLOSURE OF HERBAL PRODUCT USE

ARMANDO STUART GONZALEZ

Doctoral Program in Interdisciplinary Health Sciences

APPROVED:

José O. Rivera, Pharm.D., Chair

Gabriel Ibarra-Mejía, Ph.D.

Gloria López McKee, Ph.D.

Jessica Shenberger-Trujillo, Ph.D.

Eliseo Torres, Ph.D.

Charles Ambler, Ph.D.
Dean of the Graduate School

Copyright ©

by

Armando Stuart Gonzalez

2018

Dedication

I would like to dedicate this effort with the deepest love and affection to my beautiful children Armando Javier, Victoria Eugenia, and Enrique Darío, as well as to their equally beautiful Mom, Victoria Kalbermatten-Servin. I am very proud of all of you!

With all my love to my dearest sister Martha and my darling nieces Martha Elena, Lorena, Anna, and Alexis.

To the honorable and cherished memory of my mother, Martha Stuart and my father, General Javier González-Gómez.

To an outstanding and loving human being, Anna Durán Ayala, my Nana.

In fondest memory of my dear Grandma Ethel Beebe, Aunts María de Jesús Gómez-Ortíz, Anita and Patty Stuart, and Uncle Stan Stuart.

Remembering DVM Agustín Basurto-Soriano, Sigung Hasting Albo, and Juan León-Polanco.

COMMUNICATION BARRIERS BETWEEN PATIENTS AND HEALTHCARE PROVIDERS
REGARDING DISCLOSURE OF HERBAL PRODUCT USE

by

ARMANDO STUART GONZALEZ, IAZ, Ph.D.

DISSERTATION

Presented to the Faculty of the Graduate School of

The University of Texas at El Paso

in Partial Fulfillment

of the Requirements

for the Degree of

DOCTOR OF PHILOSOPHY

INTERDISCIPLINARY HEALTH SCIENCES PHD PROGRAM

THE UNIVERSITY OF TEXAS AT EL PASO

August 2018

Acknowledgements

Primarily, I would like to express my sincere gratitude for all the constant guidance and expertise offered by the members of my doctoral committee, Dean José O. Rivera, Pharm. D. (Chair), Dr. Gabriel Ibarra-Mejía, Dr. Gloria López McKee, Dr. Jessica Shenberger-Trujillo, and Dr. Eliseo “Cheo” Torres.

Very special thanks to Dr. Leslie Robbins, professor of the UTEP School of Nursing, who, in spite of her extremely busy schedule, always had the kindness in the taking time to teach me the importance and diverse applications of qualitative research.

I am grateful to all the administrative and biomedical staff at the Centros de Salud Familiar La Fe, Inc., especially Professor Salvador Balcorta, Juan Loya, MD, and Robert Gonzales, for all their enthusiastic and gracious support of this study.

I have been very fortunate in having colleagues, fellow doctoral students, and coworkers who have honored me with their friendship and encouragement. These include, Dr. Juan Aguilera, Dr. Terri Anchondo, Dr. Eduardo Águila, Mabel Acosta, Professor Blanca Caraveo, Jorge Dayer, Marisol González, Melissa Hadden, Dr. Kathy Lawson, Eric Martínez, Dr. Bibi Mancera, Darlene Muguero, Dr. Aurora Aguirre-Polanco, Adriana Rascón, Andrea Rodríguez-Menchaca, Bryan Rodríguez, José C. Rodríguez, Dr. Kathryn Schmidt, Patty Tiscareño, Dr. María Torres, Susy Villalobos, Erika Weigend, Dr. Richard Worthington, and Mary Yañez.

My appreciation goes to my professors, Doctors Manuel Miranda-Arango, Mahesh Narayan, Amitava Biswas, Arvind Singhal, Cesar A. Rossatto, Joe Tomaka, Szandor Dorgo, Candyce Berger, Kristin Gosselink, Marc Cox, María Amaya, Oralia Loza, Marisol Romero, Emmanuel Zubía, Andrew Pardo, Katja Michael, Rodrigo Armijos, and Armando Varela.

Abstract

A considerable portion of our international border Hispanic population traditionally uses medicinal herbs as an alternative option for treating various chronic diseases and may take them alongside prescribed medications. More in-depth research is very necessary to determine why and under what conditions patients use herbs concomitant to medications, and why many do not discuss this with their physicians. Barriers to communication between patients and healthcare providers can encourage non-disclosure of herbal product use, which may interfere with prescribed medications, placing patients at serious risk for various herb-drug interactions. This qualitative descriptive study utilized purposive sampling, employing six focus groups consisting of a total of 37 patients, and semi-structured interviews with 11 healthcare providers, at five community health clinics within El Paso County. This unique approach described in detail the patients' perspective, as well as explored under-investigated themes such as the healthcare providers' knowledge and opinion regarding herbal use by their patients. The research questions guiding the study included: *What meaning and importance do the uses of medicinal herbs have among Hispanic patients?; What possible barriers exist for disclosure to their healthcare providers?; and What are the healthcare providers' perceptions regarding herbal use by their patients?* Content analysis facilitated the rendering of the themes and subthemes that emerged from the qualitative data. The results show a lack of knowledge regarding medicinal herbs among healthcare providers, which hinders adequate advising of patients about risks or benefits. This research study increases our current understanding of herbal use and how the communication between patients and their healthcare providers could be improved.

Table of Contents

Acknowledgements	v
Abstract	vi
Table of Contents	vii
List of Tables	x
List of Figures	xii
Chapter 1: Introduction	1
1.1 Chronic Diseases as the Principal Cause of Death and Disability in the U.S.....	1
1.2 Objectives of the Study	2
1.3 Alternative Approaches to Medical Therapy	3
1.3.1 The concept of holism.....	3
1.3.2 Definition of holistic medicine	4
1.3.3 Conflicting paradigms in healthcare.	5
1.3.4 The counterpoint to the holistic paradigm: mechanistic reductionism	6
1.3.5 The Western medical paradigm	6
1.3.6 Complementary, Alternative, and Integrative Medicine.....	7
1.3.7 The importance of medicinal plant use around the world	11
1.4 The importance of culture in traditional healing on the U.S.-Mexico border.....	12
1.5 The importance of culture in patient-healthcare provider interactions	13
1.5.1 Importance of cultural competence on the U.S.-Mexico border.....	14
1.5.2 Cultural competency in health science education	14
1.6 Origin of medicinal plants used on the U.S.-Mexico border	21
1.7 Herbal medicine as a legacy within Hispanic culture	22
Chapter 2: Review of the Literature.....	23
2.1 Problem.	23
2.1.1 Barriers to communication between patients and healthcare providers.....	25
2.2 Lack of disclosure of herbal use by patients to healthcare providers	29
2.3 Prejudice towards traditional healing practices	35
2.4 Cultural factors as barriers to communication with healthcare providers	36
2.4.1 Availability and cost of herbal products along the U.S.-Mexico border	36

2.5 Quality control issues with medicinal plants and herbal supplements	39
2.6 Interactions between herbal products and certain medications.....	39
2.7 Herb-drug interactions based on clinical observations	41
2.8 Conventional medical education as a barrier to communication	43
2.8.1 The Flexner Report.	44
2.8.2 Western medical education and its hegemony.....	48
2.8.3 Limitation of the mechanistic/reductionist concept.....	49
Chapter 3: Methods.....	50
3.1 Research Design.....	51
3.1.1 Qualitative Research Methods.....	52
3.1.2 Purposive sampling.....	54
3.2 Study sites and patient population	55
3.3 Inclusion Criteria	56
3.4 Recruitment.....	56
3.5 Research participants and protection of human subjects	58
3.6 Human participants research safety	59
3.6.1 Human Participants Involvement and Characteristics.....	59
3.6.2 Sources of Materials.....	59
3.6.3 Potential Risks.....	59
3.7 Adequacy of Protection Against Risks/Informed Consent	59
3.7.1 Recruitment and informed consent	59
3.7.2 Protection Against Risk	60
3.8 Potential Benefits of the Proposed Research to the Participants and Others.....	60
3.9 Importance of the Knowledge to be Gained	61
3.10 Conduction of focus groups and semi-structured interviews.....	62
3.11 Reflexivity notes	64
3.12 Questions posited in the semi-structured interviews with healthcare providers.....	64
3.13 Transcript analysis	65
3.13.1 Text analysis.....	65
3.14 Developing the themes and subthemes that emerged from the raw data.....	66
3.15 Focus group probing questions	68

Chapter 4: Results	69
4.1 Interviews with clinic healthcare providers	69
4.1.1 Caring.....	71
4.1.2 Non-Caring.	71
4.2 Caring communications with healthcare providers	71
4.3 Caring communication	71
4.3.1 Description: I do know.....	71
4.3.2. Description: I'm unsure	72
4.3.3 Description: I want to know	74
4.4 Non-caring communication	78
4.4.1 Description: I don't care.	78
4.4.2 Do I really need to know? (Why do I need to know)?	80
4.4.3 Discussion: What is the level of patient disclosure?.....	83
Chapter 5: Discussion and Conclusion	90
5.1 The importance of open communication between patients and healthcare providers.....	90
5.2 Immigrants and herbal product use.....	92
5.3 Role of the pharmacist in patient communication	96
5.4 Focus group sessions.....	101
5.4.1 Demographic characteristics of the study population.....	101
5.5 Focus group narratives: medicinal herbs are important in my life	109
5.5.1 Herbs are a source of natural healing.....	109
5.6 Herbs are part of my culture	122
5.6.1 We learn mostly from family and tradition.....	122
5.7 Open communication with HCP's.....	123
5.7.1 I feel comfortable communicating, respected.	123
5.8 Impaired communication with HCP's	124
5.8.1 I feel afraid to communicate with my HCP, disrespected	124
5.9 Improvements in communication between patients and HCP's.....	128
5.9.1 HCP's should be knowledgeable about herbal products.	128
5.10 Future Recommendations for improvement	133
5.5.1 Deliverables.	136
5.11 Conclusions.....	137

5.11.1 Improving communication between Hispanic patients and healthcare providers	138
5.11.2 Augmenting the knowledge of patients and HCP's regarding herbal products, with particular emphasis on those used on the U.S.-Mexico border	138
References	139
Vita	162

List of Tables

Table 1: Specialty, gender, and ethnicity of healthcare providers.....	70
Table 2: Comments by clinics' healthcare providers about knowledge and disclosure of herbal product use by patients.....	86
Table 3: Focus group demographics.	101
Table 4: Herbal use, knowledge, and disclosure to healthcare providers.....	102
Table 5: Top ten herbs used by focus group participants.....	114
Table 6: Principal uses for selected medicinal herbs.....	115

List of Figures

Figure 1: Illustration of Purposive Sampling.....	54
Figure 2: Process of Qualitative Inquiry.....	65
Figure 3: Gender	103
Figure 4: Age	104
Figure 5: Place of birth	104
Figure 6: Years Attended School.....	105
Figure 7: Income Level.....	105
Figure 8: Possess Health Insurance.....	106
Figure 9: Source of Knowledge Regarding Herbal Products.....	106
Figure 10: Reasons for Choosing Medicinal Herbs for Treatment.....	107
Figure 11: Frequency of Herbal Use.....	107
Figure 12: Disclosure of Herbal Products Use to Provider.....	108
Figure 13: Felt Comfortable Discussing Herbal Use with Healthcare Providers	108

Chapter 1: Introduction

Chronic Diseases as the Principal Cause of Death and Disability in the U.S.

Chronic diseases comprise a wide array of diverse health conditions, including circulatory, inflammatory, infectious, and metabolic ailments such as heart disease, stroke, cancer, type 2 diabetes, obesity, and HIV, to name a few. The following data show the importance of some of the multiple chronic conditions (MCC) and their effects on various sectors of the U.S. population: In 2012, approximately 117 million people (50% of all U.S. adults) suffered from one or more chronic diseases. Additionally, 1 in 4 adults had two or more chronic health problems (Ward et al., 2014). In 2010, seven of the top 10 causes of death in the U.S. were due to chronic illnesses. Furthermore, heart disease and cancer, two of the most dangerous chronic diseases, together were responsible for nearly half of all deaths in this country (CDC, 2011, 2013). Among adults, obesity is rapidly rising and possesses a host of co-morbidities, including Type 2 Diabetes. The latter can also result in kidney failure, non-traumatic amputations and blindness (CDC, 2015; American Diabetes Association, 2017; Smurthwaite and Bagheri, 2017).

People of Hispanic origin are the fastest growing minority group in the United States, and comprise 81% of the population in El Paso County (U.S. Census, 2015). Additionally, previous research in our border area has shown that a significant percentage of this Hispanic majority population uses herbal products in order to treat or mitigate the effects of various chronic diseases or ailments (Rivera et al., 2002, 2004). Hitherto unknown or superficially studied traditional, cultural, and religious factors could also be associated with widespread herbal product use (Hendrickson, 2014; Jones and Hernandez, 2009; Torres, 2006).

Despite the high rate of herbal product use among our border population, there is a lack of information regarding the reason(s) why some patients use herbal products, as well as why some do not openly disclose this with their healthcare providers. The lack of disclosure of herbal product use to healthcare providers is an important issue that occurs throughout the United States, even among adults with chronic health conditions (Mehta et al., 2008). Other important information that has not received the adequate attention includes the healthcare providers' knowledge regarding the efficacy and safety of various herbs, as well their view regarding herbal use by their patients.

Objectives of the study

Objective 1: Obtain new knowledge regarding the use of herbs among adult Hispanic patients currently receiving medical treatment for chronic disease(s) attending various community health clinics in El Paso City and County.

Objective 2: Inquire as to the status and quality of patient /healthcare provider communication with regard to the patients' disclosure of herbal product use.

Objective 3: Identify possible barriers that impede effective communication, with the aim of reducing risks of herb-drug interactions or related toxicities, and thus improve patient health outcomes.

The study fills a void within our bi-national and bicultural border area, as it greatly contributes to the limited body of knowledge regarding the concomitant use of various medicinal herbs and medications among adult Hispanic patients with chronic disease. The findings of this descriptive qualitative study mentioned below are helpful in better comprehending the diverse factors related to herbal product use and the main reasons why some patients do not disclose this

activity to their healthcare providers. The results we obtained in this study will be used facilitate the development of future interventions that are linguistically and culturally adequate in order to decrease the potentially negative health outcomes of using herbs alongside medications, as well as significantly improve the level of communication between patients and their healthcare providers.

This qualitative descriptive study describes the meaning behind the use of medicinal herbal products alongside medications among adult Hispanic patients, possibly without disclosing this to their physicians or other healthcare providers. The research questions that guided this study included the following: 1). what meaning does the use of medicinal herbs have among Hispanic patients and what is the level of communication with their healthcare providers regarding herbal use? 2). what are the healthcare providers' perceptions regarding their patients use of medicinal herbs? The results of this study are the basis for developing a user-friendly bilingual (English-Spanish) booklet providing a voice for the participants regarding the use of herbs, and offering suggestions on how communication between patients and healthcare providers could be improved in order to enhance patient health outcomes. This upcoming free publication is to be distributed among patients and healthcare providers at the various participating Centros de Salud Familiar La Fe, Inc., as a Community-Based Participatory Research (CBPR) approach.

Alternative Approaches to Medical Therapy

The concept of holism. Jan Christian Smuts (1927) first propounded the philosophy of holism as an explanation for natural phenomena, and defined it as "the fundamental factor operative towards the creation of wholes (i.e. whole biological systems) in the universe". It is

important to comprehend the conceptual characteristics of this philosophy as well as the contrary concepts (mechanical reductionism) espoused by Western mainstream medical practice, which serve to illustrate the diverse applications of holism to traditional medicine and healthcare. This is especially important to explicate its understanding and application among the predominantly Hispanic population living along the U.S. - Mexico border. It would be of great benefit for healthcare providers and their staff to gain knowledge regarding Mexican and other Hispanic traditional medicine practices. Even though treatments and beliefs may differ greatly from established mainstream medical care, it is vitally important for the healthcare provider to be aware of the symptoms related to certain diseases from a traditional healing viewpoint. Practitioner knowledge of diverse traditional healing systems, including “curanderismo”, would encourage better clinical diagnosis and treatment (NCFH, 2011).

Definition of holistic medicine. Holistic medicine can be defined as “Relating to or concerned with wholes or with complete systems rather than with the analysis of, treatment of, or dissection into parts”; of or relating to a doctrine of holism; of or relating to the medical consideration of the complete person, physically and psychologically, in the treatment of a disease” (Merriam-Webster’s Medical Dictionary, 2005). Holistic medicine, as an art and science of healing, addresses the whole person: body, mind, and spirit. It strives to integrate conventional and complementary therapies to promote optimal health, as well as to prevent or treat disease (Rakel, 2017; Micozzi, 2015).

Despite their Western medical training, certain physicians promote a more global or comprehensive approach to medicine, making it plausible to employ at least some of these “alternative” approaches along with (as a complement to) conventional medical treatments such as chemotherapy, surgery, radiation therapy, and hormone therapy, to name a few. Combining

these different methods can help people take control of their situations, empowering them, and attaining a feeling of total wellness including that of the mind, body, and spirit (Capra, 1982; American Cancer Society, 2013; Micozzi, 2015).

Conflicting paradigms in healthcare. Guba and Lincoln (1994) defined paradigm as “a basic belief system or worldview that guides the investigator, not only in choices of method, but in ontologically and epistemologically fundamental ways”. The same authors also stressed that consideration of paradigms precedes considerations of methods.

Mattingly (1998) stated, “Western medicine has evolved very strongly in a tradition of empiricism, realism, materialism and positivism, and for these reasons the scientific or experimental method is highly valued by medical scientists”. In the same vein, because positivism has dominated scientific thinking for over three centuries, it seems that medical practitioners require one type of science (i.e. universal, nomothetic, and positivist) for their background knowledge, and a different type of science (i.e. phenomenological, qualitative, narrative, and interpretive) in order to apply that knowledge to their individual patients. This would explain why some medical students are confused when they interact with patients in the “real” or clinical setting, as well as why some physicians focus their attention more on the disease than on the patient himself or herself. For this reason, mainstream physicians have inherited a myth of objectivity that is equivocally applied to the particular existential situation of a single patient (Wilson, 2000).

The healing paradigm of Western or mainstream medicine is diametrically opposed to the holistic viewpoint present in practically all healing systems of the world, some of which (e.g. Chinese and Indian traditional medicine or Ayurveda), to name but two examples, have been

practiced uninterruptedly for more than six thousand years (Whitford, 1998; Caldecott, 2006; Maciocia, 2015).

The counterpoint to the holistic paradigm: mechanistic reductionism. The reductionist interpretation of nature proposed by the philosopher/mathematician René Descartes in the seventeenth century has strongly influenced the Western mechanistic view of the Universe, as well as of the human body. Descartes posited that the mind and body were separate entities, thus expounding a mechanistic/reductionist approach to understanding the functions of the human body. This view is very counterintuitive to the holistic concept of the human body, since the human mind is not limited to the brain but consists of a highly coordinated structural relationship between the nervous, the immune, and the endocrine organs function as an interconnected whole or complete system. The whole is more than just the sum of its parts. In other words, what is observed is not all there is. Instead, systems may acquire novel characteristics or properties that were not previously expected or predicted. These are known as emergent systems, which function in a synergistic manner (Capra, 1982, 1996; Gerber, 2001; Oschman, 2016).

The Western medical paradigm. As currently practiced, the allopathic or Western mechanistic and reductionist medical paradigm relies almost exclusively on biological explanations of disease and illness. It tends to interpret disease and illness only in terms of malfunction of individual organs, cells, and other biological systems (e.g. liver disease, heart disease, or immune system dysfunction). This paradigm minimizes mind-body effects as well as other factors, such as spirituality or energy that are vitally important to many world cultures (Gerber, 2001; Micozzi, 2013). Westernized medicine tends not to deal with cultural or social issues that can affect health and only slightly integrates mental and behavioral issues that do not

derive from diseased organs. Its approach is mechanistic (i.e. health is restored by curing a disease or by restoring function to a damaged body part (or replacing it by organ transplantation) much in the same manner a malfunctioning part is replaced in a machine (Micozzi, 2015).

Complementary, Alternative, and Integrative Medicine

The National Institutes of Health's National Center for Complementary and Integrative Health (NCCIH) defined Complementary and alternative medicine (CAM) as “a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine” , and further classified CAM therapies into five categories or domains: 1) alternative medical systems, or complete systems of therapy and practice; 2) mind-body interventions, or techniques designed to facilitate the mind's effect on bodily functions and symptoms; 3) biologically-based systems, including herbalism; 4) manipulative and body-based methods, such as chiropractic and massage therapy; and 5) energy therapies (NCCIH, 2017).

According to the World Health Organization (WHO), various forms of alternative treatments abound across the globe and approximately 80% of the world's population employs some form of traditional healing modalities, especially related to herbs. This organization has also developed strategies and guidelines regarding education related to traditional systems of medicine (WHO, 1998, 2005, 2014). There are currently various concepts related to the diverse and numerous healing modalities currently known as “holistic”, “complementary”, “alternative” or “integrative”, some of which have been practiced for many years on the U.S.-Mexico border. Additionally, many of the healing modalities used by a portion of the Mexican, Mexican-American, and other Latino populations are not just a mixture of native Mexican (“Aztec”) and European (mainly Spanish) cultures, as it may first appear. Rather, some of these traditional

healing modalities, sometimes known as “curanderismo”(from the Spanish verb “curar”- to cure) are a result of a combination of various traditional practices that may have originated in Europe, (e.g. Greco-Roman Galenic and Hippocratic humoral theory, and Homeopathic medicine), Arabia (Unani-Tibb), India (Ayurveda and Siddha), China, and Africa (Yoruba and others). As Nuland (2000) correctly postulated, “Humankind will never be free of such patterns of preconceived thought. Traces-and sometimes far more than traces-of similar methods of justification are still discoverable in many of the non-standard healing practices of today. They have been the foundation of entire philosophies of sickness and cure”.

With regard to the use of CAM by Mexican-American immigrants, it is necessary to point out that there is no single modality used by this population. Rather, a combination of various approaches that are related to culturally bound beliefs, especially herbal medicine, and “curanderismo” (Latin American traditional/spiritual healing), among others, are employed to diagnose and treat various diseases (Arcury et al. 2016; Hendrickson, 2014; Torres, 2006; Avila, 2000). Since herbal medicine use is common in various regions of the United States, especially among the Latino/Hispanic immigrant populations, it is important to note that herbal use is incompletely understood, and sizeable gaps in the literature persist regarding the specific identity of the herbs used. Additionally, it is still uncertain as to how various herbal home remedies may interact with medically prescribed pharmaceuticals (Kiefer et al., 2014; Poss et al., 2003).

At first glance, this conglomerate of seemingly dissimilar cultures may not seem to be very apparent along the U.S.-Mexico border, but it is indeed an integral part of the healing process and procedures, in which a certain sector of the Hispanic population participates, as either healers or patients (Murphy, 2015; Hendrickson, 2014; Torres, 2006). For example, Barker

et al. (2017) reported that the concept of “humors”, mentioned in ancient Greco-Roman medical treatises is still prevalent in diverse healing systems around the globe, such as Ayurveda, Unani Tibb (Greco-Arabic medicine practiced in India and Pakistan), and Traditional Chinese Medicine. Although many centuries old, this theory is still present in the traditional health beliefs among some rural Latino farm worker immigrants in the U.S., especially regarding the use of certain plants, other botanical products, and table salt for its perceived effects upon health and healing. Since salt is an important component of certain cultural practices, the same authors conducted a qualitative study in California with 61 Mexican and Central American immigrants, regarding their perception of the effects of salt on health. The participants commented that they commonly added salt to foods in different combinations, taken to restore balance, and to diminish susceptibility to various diseases. Additionally, salt consumption encourages rehydration, as well as treats symptoms of exposure to hot and cold temperature extremes or physical or emotional stress. The data obtained from focus groups regarding the beliefs and practices engaged in by the study participants were very indicative of health and healing beliefs common to the “humoral” system, which is primarily based on a hot-cold dichotomy regarding the classification of foods and other healing activities.

Certain traditional healing practices related to diagnostics and treatment of various ailments and diseases were present in what are now Mexico and the Southwestern U.S. eons before the arrival of the first Europeans to the American continent. Others were later incorporated via the commercial maritime trade between the Spanish American colonies with India and China, as well as by the slave trade from various parts of Africa. Some of these modalities are still practiced today, alone or in combination as a synergistic blend of beliefs that

mix ancient Amerindian and African religions with Christianity (Hendrickson, 2014; McNeill and Cervantes, 2016; Torres, 2006).

Wells et al. (2010) evaluated patterns and reasons for using CAM among U.S. adults with common neurological afflictions including, but not limited to, back pain, headaches, migraine, and back pain with sciatica, among many others. The authors of the study used data from the 2007 National Health Interview Survey (NHIS), which sampled 23,393 adults. The results demonstrated that 51% of adults suffering from common neurological afflictions did not disclose their use of CAM to their healthcare provider, compared to 60% of those without neurological afflictions. An interesting finding was that the participants who had neurological afflictions employed CAM more often than those without for a variety of reasons, including the following: because their healthcare provider recommended it (32.7% vs. 20.8%), mainstream medical treatment was not effective (20.5% vs. 10.4%), and mainstream medical treatment was unaffordable (9.7% vs. 4.0%).

In certain scenarios, it may be feasible to combine certain conventional and alternative treatments safely, when patients communicate openly with their healthcare providers. This is a plausible scenario, especially if the healthcare providers are well informed about various alternative modalities their patients are taking. In this way, they could potentially identify possible contraindications or interactions between alternative treatments and medication regimens. Healthcare professionals should make it a point to inquire if their patients use any form of alternative therapies, since it is not common for such information to be mentioned by the patients themselves. It is important the physicians, as well as other healthcare providers, be aware that the beliefs in various alternative therapies that some Latinos have (including

Mexicans and Mexican-Americans) are not exactly the same, and could be influenced by a myriad of cultural, ethnic, educational, socio-economic, and religious circumstances (Mikhail et al., 2004). Acculturation (time spent in the U. S.) can also a preponderant factor in seeking unconventional or alternative medicine. For example, first-generation immigrants of Hispanic or Latino origin are most likely to look for health advice from a traditional healer or “curandero”, although second generation family members born in or having spent more time in the U.S. might not (Juckett, 2013; Favazza Titus, 2014).

The importance of medicinal plant use around the world. Medicinal plants were arguably the first therapeutic agents known to Mankind (Bone and Mills, 2012). The use of various types of plants, from trees to herbs, in order to assuage the suffering from diverse human and animal diseases most certainly predates recorded history. Nowadays, approximately 30% of the medications widely used in the United States were originally obtained from medicinal plants (Bone and Mills, 2012). For this reason, a plethora of plants continue to have a very important role in various healing modalities applied to both human as well as veterinary medicine (Samuelsson and Bohlin, 2015; Scantlebury et al., 2013; Firn, 2010; Wynn and Bougere, 2007).

Various spices and or medicinal plants used within our area, such as garlic, aloe vera, chamomile, hibiscus, and star anise, for example, are not native, but have their origin in Europe, Africa, and Asia (Iwu, 2014; Small, 2011). Research undertaken in our border area has shown that medicinal plant or herbal product use is very prevalent among the El Paso, Texas, and Ciudad Juarez, Chihuahua populations (González-Stuart and Rivera, 2009; Rivera et al., 2007). For this reason, it is very important to know how the very diverse healing modalities known by the terms alternative, complementary, and integrative have come about through time, as well as their adaptation and use among the Mexican and Mexican-American populations.

The Importance of culture in traditional healing on the U.S. - Mexico border

There are various definitions for the word “culture” as it applies to a plethora of diverse endeavors related to specifically human activities, including the cultivation of agricultural commodities as well as cells and tissues in the laboratory, for example. As such, culture is a completely anthropocentric term, since it applies to only human activities. However, with regard to its application in the context of human behavior, the term could be defined as: 1). “The totality of socially transmitted behavior patterns, arts, beliefs, institutions, and all other products of human work and thought”, as well as 2). “Intellectual and artistic activity and the works produced by it” (The American Heritage Dictionary of the English Language, 2000). Additionally, there are other significantly important terms related to culture such as acculturation, assimilation, and transculturation (Hendrickson, 2014).

Acculturation can mean the replacement of certain traits of one culture by those of another. This occurred among native peoples living in both The United States and Mexico, for example, when the European invasion and subsequent colonization destroyed many facets of the culture of the indigenous peoples and replaced it with various Eurocentric (as well as ethnocentric) belief systems, including the definition and interpretation of disease and treatment (Campos-Navarro, 1996). Studies have shown that immigrants of various ethnicities, including those of Mexican heritage living in the U.S., acculturate more over time, gradually abandoning certain cultural practices, including some related to healing. With more time spent in the new country, they tend to adopt health behaviors similar to those commonly espoused by the native-born population, including the use of certain alternative therapies such as massage therapy and chiropractic, for example (Lee et al., 2010; Su et al., 2008). However, other researchers have shown that traditional medicinal herbal use among various ethnic groups, including Hispanics

and other Latinos, tends to continue regardless of what country they immigrate to (Pieroni and Vanderbroek, 2007).

Another related concept to the one above is assimilation, which is defined as the adoption of a different culture, especially by immigrant populations settling in a different country and discarding their autochthonous heritage culture (Schwartz, et al., 2010). On the other hand, transculturation can mean the phenomenon of merging cultures (Hendrickson, 2014). In the context of healing practices, rituals, and artifacts employed for the treatment of illness, both emotional and physical, Mexican American traditional healing practices are a product of various cultures stemming from ancient indigenous practices plus the addition or adaptation of European Hippocratic and Galenic medicine, as well as African, Arabic, and Indian influences (Foster, 1994).

According to Imes and Landry (2002), underestimating the power of culture could be deleterious to the patients' health. For this reason, they suggest that the first step in providing culturally congruent care consists of being aware of the manner in which the patients desire to be cared for, as well as being cognizant regarding their culture. This is to ensure that healthcare providers, especially nurses who specialize in trans-cultural care, integrate the patients' healthcare beliefs into the plan of treatment.

The importance of culture in patient-healthcare provider interactions.

Part of the process of effective counseling is related to how the therapist recognizes diversity situations and tries to adapt his/her practice to the patient's view of the world. Indeed, many of these situations are directly or indirectly related to a person's culture. Various factors are related to the impact of culture than just racial or ethnic background. Parameters such as age,

sexual orientation, mental/social activity, and religious beliefs, among many other criteria, are no less important and related to a given culture (Ransford et al., 2010). Various health professionals may also be culturally conditioned. For this reason, a healthcare provider should employ a framework for dealing in a competent manner with the diverse issues of culture in the healthcare setting. Some of the most important issues to take into account include patient beliefs and attitudes, knowledge, skills and intervention strategies (Corey, 2005). Maduro (1983) has pointed out that mainstream healthcare providers often overlook a very important fact. Some Latinos, being culturally different, bring to the medical visit preconceived notions and explanations as to what constitutes illness, as well as what types of treatment procedures are adequate and effective, and what modes of health care are most agreeable to their culture or way of life.

Importance of cultural competence on the U.S.-Mexico border. According to Zavaleta and Salinas (2009), the seven important characteristics related to cultural competence include the following: 1) Cause and perception of disease varies by culture, 2) An extant diversity of cultural belief systems related to health and illness, 3) Culture has an influence upon health seeking attitudes and behaviors, 4) Culture has an influence on individual preferences to health care, 5) People have had varying experiences within the health care system, 6) Environmental conditions exert an influence upon cultural practices, perceptions, and beliefs regarding illness and healing, 7) There is only a limited number of health care providers from certain cultural and linguistic groups.

Cultural competency in health sciences education.

Presently, higher education within the health or biomedical sciences should address both the needs as well as the disparities in health care within an increasingly diverse society, especially among underserved minorities. For this reason, various medical, pharmacy, and

nursing schools in the U.S. have implemented a wide array of programs based on the concept of cultural competency. With this in mind, Kumagai and Lypson (2009) undertook a critical analysis of the concept of cultural competency related to medical education, and posited that multicultural education must go beyond the traditional notions of "competency" (including knowledge, skills, and attitudes. among others). This critical analysis was influenced by the theories of Brazilian educator, Paulo Freire (1921-1997), who frequently employed the terms “conscientization” (enhanced awareness), “critical consciousness”, as well as “social justice” to assist the role of all cognizant humans in developing a literate and non-oppressive society. Furthermore, the same authors state that the object of knowledge involved in critical consciousness as well as in learning about areas of medicine that are socially relevant, (ethics, professionalism, and multicultural education, for example), is vastly distinct from that currently obtained within the Western biomedical educational curriculum. The same authors mention that cultural competency should include encouraging a critical awareness (i.e. critical consciousness) of the self, others, and the world as well as a commitment to address issues related to societal importance in health care. The authors describe critical consciousness and propose that it is different from, (but complementary to), critical thinking, since both are essential in the training of biomedical professionals.

Freire (1990) further posited that we need a “rehumanization” (i.e. a humanistic, rather than humanitarian approach) regarding human relationships. Indeed, his influential philosophy is the driving force behind a movement for “democratization of education” among Brazilian nursing and other health professionals. This concept is especially crucial in improving communication between healthcare providers and their patients (David et al., 2012). He additionally pointed out that in any situation of social injustice and inequality, the oppressors, by

living out of touch with reality, are automatically out of touch with the very people they exploit, and thereby become alienated from the world. In this sense, they also become alienated from being truly human and therefore are unable to express humanness themselves. This unfortunate oppressive phenomenon alone has had very negative consequences not only in education, but also on the relationship between physician and patient. This situation precludes the creative event that Freire emphasized in many of his works, mainly the excellent opportunity to learn from each other (in this case, patient and physician), to learn together. In order for this event to occur, especially among underserved ethnic minorities, there is a prerequisite in the form of creating a “critical consciousness” (i.e. awareness of social or cultural inequality) among both educators as well as healthcare providers when dealing with cross-cultural dialogue. As such, it aims to foment friendly and respectful communication between all participants (i.e. patients, pharmacists, nurses, health promoters, and physicians) involved in healthcare (Minkler and Cox, 1980; Freire, 1990; Zaidi et al., 2016).

It is important to note that multicultural education should go beyond the concept that is usually taught in the conventional biomedical sciences. The object of knowledge should not be based solely on gaining more information, (the “banking concept” of education mentioned before) but to be critically conscious of another person’s needs and culture, related to health care. When encouraging critical consciousness, it is of the essence to engage in dialogue within a safe environment, as well as central change in the traditional roles of teachers and students (both should be teaching each other and learning from each other at the same time). A more humanistic and conscientious approach should also be an integral part of faculty development, as well as of the critical assessment of individual development and programmatic objectives within biomedical institutions of higher learning. This liberating approach can help ensure social justice

and addressing human needs regarding health, thus offering the possibility of increasing the rapport between patients and healthcare providers, ultimately aimed at improving patients' health outcomes (Freire, 1990).

Eisenberg et al (2016) stated that more than 30 academic health centers currently deliver multidisciplinary integrative medical care and more than fifty percent of medical schools in the United States and Canada have programs related to integrative medicine. However, the models of integrative medicine currently employed in the extant clinical centers can vary hugely regarding their organizational settings, main clinical focus, and training, as well as the services offered. For this reason, the authors concluded that there is no existing agreement regarding the manner in which the integrative medical models should be organized, undertaken, evaluated, replicated, and financially sustained in an adequate manner (Eisenberg et al., 2016).

Various cultures from Latin America include Mexican and Mexican Americans living along the U.S.-Mexico border are subject to the hybridization and exchange of ideas and paradigms, as well as redefinition through time. This is due mainly to their prolonged history of contact since the Spanish colonial period (1521-1821). The before mentioned characteristics make the U.S.- Mexico border a unique region for the study of trans-cultural exchanges, especially related to popular healing practices (Murphy, 2015; Hendrickson, 2014; Campos - Navarro, 1996).

Indeed, this rich and diverse combination of international (and intercultural) healing beliefs and practices make the subject of current trends in traditional healing on the U.S.-Mexico border a fascinating learning experience. Traditional of folk medicine is practiced by a sizeable portion of the population of Mexico, especially among the underserved classes, who may not count on any modern medical service. When Mexican immigrants cross into the U.S., some of

them bring along these practices and their accompanying belief systems, which can resurface when a medical issue arises (NCFH, 2011).

The traditional healing practices among border Mexicans and Mexican Americans has persisted through time, in spite of the dominance exerted by Western, mainstream, or so-called “scientific medicine.” Among border Mexicans and Mexican-Americans, religious beliefs and ancient healing practices are culturally intertwined and are very important in cultural values that are related to health and healing. This phenomenon is certainly not new and has its origins mostly from Catholic “charismatics” who centuries ago maintained that healing was obtained via “rhetoric of transformation.” In the same way, this rhetoric is aimed at achieving three “tasks” related to the health of people suffering an illness: 1). predisposition, 2). empowerment, and 3). transformation. The task of predisposition employs a language that is used to express or articulate disease. This allows an ill person to give a name to the affliction he or she is suffering from (Hays-Bautista and Chiprut, 2008; Hendrickson, 2014; Murphy, 2015; Schulke, 2017).

Reyes-Ortiz et al. (2009) pointed out that, among Latino patients, there is only scant information available in the scientific literature regarding the association between spirituality healing, the use of traditional healers (“curanderos”), and sentiments on regarding the communication between healthcare provider and patient, or the perception of quality of healthcare. However, the same authors observed that feeling confused and patient perception of poor quality of mainstream medical care were related to seeking health advice from a curandero.

Some of the reasons why Hispanics seek traditional healers include the following: curanderos usually charge less per consultation compared to a mainstream healthcare provider, they speak Spanish, they share similar cultural values, and patient dissatisfaction with mainstream medicine. It is important for healthcare providers to be knowledgeable regarding

various Hispanic folk illnesses and traditional treatments in order for the former to provide culturally appropriate holistic care. Hispanic traditional healers frequently deal with metaphysical, social, economic, as well as various other issues that challenge their patients, and ascribe the cause and or the exacerbation of a disease or affliction to both supernatural as well as natural forces. For this reason, they usually employ not only herbal medicine, but also a plethora of actions or artifacts, including eggs, candles of various colors (each with its own meaning and application), magical lotions, prayer, rituals, amulets, incense, minerals, and religious objects such as medals and crucifixes, for example (Jones and Hernandez, 2009; Torres and Sawyer, 2005; Torres, 2006). Additionally, it is important to encourage patient disclosure regarding the use of diverse folk remedies (herbal and otherwise) some of which could be hazardous (e.g. the use of lead or mercury, as well as toxicity due to the misuse of isopropyl alcohol as a treatment for “extreme fright” or “espanto”). This information is of critical value to mainstream healthcare providers and the treatments they prescribe (Wendroff, 1995; Favazza Titus, 2014; De Bellonia et al., 2008).

In 2003, the Rhode Island Department of Health (RIDOH) mentioned alternate sources of lead such as lead monoxide or “litargirio”, for example, which was identified as potential toxicant, especially for children. This compound is an orange or yellow powder used as a folk remedy among certain Hispanic communities (CDC, 2005).

With regard to the above, it is vitally important for healthcare providers to be aware of the so-called “culture-bound syndromes” that may pervade among patients of diverse ethnicities. These health conditions are characterized by troubling experiences or patterns of abnormal behavior that are interpreted as being an “illness” by diverse cultures. However, these afflictions are usually not always well defined or understood within the Western biomedical paradigm

(Hayes-Bautista and Chiprut, 2008; McNeill and Cervantes, 2016; Pachter, 1994). A case in point is mentioned by Rubel et al.(1984), whereby a given community may possess a belief in a certain malady (e.g. “susto” or fright), as well as have traditional healers who may specialize in treating it, but it is the individual who experiences the affliction, and thus expresses the symptoms. It is interesting to note that fright or “susto” is not a culture-bound syndrome privy to Hispanic America, but a very similar malady also exists among diverse Caribbean Creole or other Afro-Caribbean cultures, for example (Quinlan, 2010). Hispanics utilize traditional healers (male or female) for a range of illnesses, including folk illnesses and treatments that may be very unfamiliar to mainstream health care practitioners.

According to Levine and Gaw (1995), the term “culture-bound syndrome” is an anachronism that is confusing and inaccurate; it was originally intended not only to describe specific syndromes, but also to try to explain the meanings of illness and non-Western notions of disease causation. For this reason, the same authors stated that, “many of the so-called “culture-bound” syndromes are found in multiple cultures that have in common only that they are “non-Western”. These afflictions are also known as “folk illnesses” and are sometimes ignored, minimized or ridiculed by the Anglo culture, but are nonetheless real to the person(s) suffering from them (Hendrickson, 2014; Wiley and Allen, 2013; Madsen, 1965, 1973). The reason why there are sizeable gaps in communication between some Hispanic patients and their healthcare providers could be that both parties espouse a very different view of the origin of certain diseases as well as their treatment (i.e. different “explanatory models of disease”). These discrepant models of health and disease, along with an arrogant and “all-knowing” attitude sometimes assumed by certain biomedical personnel, possess a negative influence on the effectiveness of

communication between patients and their healthcare providers during the medical visit (Weller et al., 2012; Hayes-Bautista and Chiprut, 2008; Pachter, 1994; Kleinman et al., 1978).

With regard to rhetoric and transculturation, modern day Hispanic healers on the U.S.-Mexico border and beyond, also employ practices related to traditional medicine of various distant world regions, including India (Ayurveda /Siddha), China (acupuncture and herbalism), and Afro-Caribbean “Santería” (a blend of Catholicism and African traditions) and Yoruba (West African traditional healing practices) among others. In this sense, a healer along the U.S.-Mexico border can offer is/her clientele to “balance the chakras” (according to traditional Indian medicine, energy centers within the body), the use of certain potentially toxic products such as lead or mercury (a practice related to Chinese, Indian, and Arabic alchemy), the use of Chinese herbs or sequentially diluted Homeopathic medications. This clearly illustrates that healing practices along the U.S.-Mexico border are not static, but rather in a constant flux, ever exchanging and adapting diverse treatment modalities in tune with the “New Age” or “natural healing” movements throughout the United States (Murphy, 2015; Hendrickson, 2014; Weil, 2009; Torres, 2006).

Origin of medicinal plants used on the U.S.-Mexico border. Research studies mention that the use of herbs and related supplements in the United States is from 13 to 19% within the general population (Eisenberg et al., 1998; Barnes et al., 2004). In contrast, research undertaken along the largest bi-national border of El Paso, Texas, and Ciudad Juarez, Chihuahua, showed that up to 59% of the participants mentioned using various herbal products within the previous twelve months, the majority of whom did not inform their healthcare providers about their use of herbs or any other complementary or alternative therapy. Even though only a limited number of studies are available regarding the use of medicinal plants among the border population, these

have shown a higher prevalence of medicinal plant use for treating various illnesses, among the majority Hispanic population (Rivera et al., 2004, 2007).

Some of the plants currently used along the extensive border between the U.S. and Mexico, have their origin in ancient Aztec and Mayan medicine. For example, even though the use prickly pear cactus or “nopal” for diabetes in Mexico is a relatively recent event (Lozoya, 1999). Additionally, even though the exact therapeutic application of certain species may have changed over the centuries, a vast amount of medicinal plants are still used much in the same way today as in ancient Mesoamerican civilizations (Sandoval, 1998; Lozoya, 1999; Torres, 2004; Mata et al., 2013).

Herbal medicine as a legacy within Hispanic culture

The diverse uses of various medicinal products used in traditional medicine in Mexico originally come from a wide array of plants, fungi, animals, and minerals. In this sense, there is a relationship with the world’s oldest traditional medical systems of India and China, since these also employ a great variety of healing substances of animal, fungal, vegetable, and mineral origin. The use of at least some of the medicinal plants currently found to be part of the healing repertoires for various chronic diseases, including type 2 diabetes, has its origin in pre-Columbian cultures in what is now Mexico. 8, the use of medicinal plants by people of Mexican ancestry living on either side of the international border is still very prevalent in the 21st Century. Herbal teas and other plant- based remedies are very much a part of Mexican and Mexican American culture and are widely accepted as a traditional form of therapy for the treatment of a plethora of ailments, from the physical to the emotional (Hendrickson, 2014; Davidow, 1999; Taddei-Bringas et al., 1999; Sandoval, 1996).

Chapter 2: Review of the Literature

Problem

Chronic diseases have become a major source of suffering and disablement for millions of people. They also pose a gigantic financial burden for the any governmental health care system due to the continually rising number of cases and the ancillary health costs associated with them. However, most, if not all, of these afflictions can be preventable via active patient participation regarding changes in personal lifestyle, such as eating a healthy diet and engaging in adequate physical activity, for example. These changes can bring about important improvements in health and can prevent or at least lessen the unnecessary suffering for patients as well as the exorbitant costs associated with the treatment of various types of chronic disease in an aging population (VanWormer et al., 2017).

Additionally, the proper management of chronic disease is impeded by a wide array of parameters related to health outcomes that affect social justice. These include climate change, access to health services and the quality provided therein, discrimination and availability of social support services, level of education, employment type, income level, food security, and housing. Given these highlighted barriers to cope with chronic disease, it is crucial to develop a clear understanding of how patients from underserved minority populations manage their health with limited resources (Levy and Patz, 2015).

Data show that herbal product use among the general population in the U.S. continues to rise (Smith et al., 2017). For this reason, it is vitally important for healthcare providers to gain knowledge regarding the safe use of these supplements, especially if their patients are using them concomitantly with prescribed or over the counter medications. Research regarding Hispanics'

traditional views about the use of herbal remedies in our international border setting has been commonly undertaken in the larger context of so-called complementary and alternative medicine or CAM. However, no qualitative in-depth study has ever been undertaken in El Paso to ascertain the reasons for using medicinal plants alongside prescription medications, as well as the reason (s) why patients may not disclose herbal use to their healthcare providers. As stated in earlier sections of this document, a difficulty arises when attempting to differentiate the attitudes, beliefs, as well as the informational needs regarding CAM therapeutic modalities that possess negligible hazards to health (e.g. homeopathy and reflexology) from established herbal medicine. The latter has both the potential for beneficence as well as harm. Indeed, as outlined elsewhere in more detail, certain herbal remedies could be inherently toxic, or have the potential to interact with various prescription medications. Despite this, there is no in-depth information currently available about the herbal remedies that people use in our border are, especially those being treated for various chronic diseases, such as type 2 diabetes or HIV, for example. Crucial information is also lacking regarding the patients' beliefs, motivations, level of knowledge, and behaviors involved in their use of herbal remedies as ancillary treatment to medically prescribed pharmaceuticals. Moreover, up to date and reliable information resources for both physician and patients alike are sorely limited in our international border community. Additionally, many people espouse the notion that because plants are "natural" they are inherently safe and free from any serious side effects, which is obviously inaccurate (Wagstaff, 2008).

Latino immigrants in the U.S. often use a combination of traditional healing (especially herbal medicine) and mainstream or allopathic medicine due to factors such as cultural and religious beliefs, as well as structural barriers (e.g. language) that limit their access to mainstream medical care. For this reason, Ransford et al. (2010) evaluated herbal use by Latinos

in California. The results showed that half of the participants mentioned using herbals and visiting “botánicas” (stores where herbs and various magical/religious items are sold) because other forms of treatment were unavailable to them. With regard to patient trust or confidence in physicians, some of the participants stated that they trusted Mexican physicians more than the ones from the U.S., because the former are more affordable, take more time with patients, and provide more holistic care. Additionally, some the participants view U.S. physicians as always in a hurry, not listening well to their patients, and drawing rapid conclusions about their patients’ illness without giving the patient the opportunity for input (Ransford et al., 2010) .

Barriers to communication between patients and healthcare providers

There is a presently dearth of understanding with regard to the reasons why there is a lack of communication between patients and mainstream or conventional healthcare providers, especially with regard to the former’s use of various alternative therapies, namely herbal products. Various studies have shown that the overall rate of nondisclosure of various modalities within the realm of alternative medicines is high, ranging between 48.2% and 73.4% (Chang et al, 2013). Probing into the factors involved in the patient/healthcare provider encounter and understanding the reasons that influence the patients’ decision to disclose or remain silent regarding their use of herbs provides an opportunity for conventional healthcare professionals to enhance and improve their communication skills with their patients. This is of the utmost importance as it encourages patients to openly discuss their use of herbs and other supplements with the objective of offering adequate health services and augmenting patient safety with regard to the proper use of medications and or herbs (Chang et al., 2013).

In spite of the numerous and diverse alternative medical treatments currently being used throughout the U.S., various communication barriers between healthcare providers and their

patients may prevent a wide array of alternative therapies (previously abbreviated as CAM) from becoming an integral part of patients' treatment regimen and /or self-care activities. In order to assess the reasons for patient non-disclosure of CAM use to their healthcare providers, Jou and Johnson (2016) employed data from the 2012 National Health Interview Survey (NHIS), in order to identify patterns of CAM use in the U.S. from January through December of 2012, as well as the reasons for its nondisclosure. According to the report, the reasons offered to the study participants with regard to their not disclosing CAM use to their healthcare providers, included the following:

- “Belief that the physician did not need to know
- Past discouragement of CAM by the physician
- Potential discouragement of CAM use by the physician
- Potential negative response from the physician
- Doubts concerning physician knowledge about CAM
- Failure of the physician to ask
- Lack of time
- Not using CAM at the time of the physician visit”

Out of approximately 7,500 survey participants, the reason most commonly cited for non-disclosure was that physicians did not inquire about the use of CAM (57%), followed by patients thinking that the physician did not need to know (46.2%), patients were not using CAM at the time of the consultation (26.4%), and the belief that the physician possessed less knowledge about the type of CAM used than the patient (7.6%). Interestingly, the authors of the

study noted that the single greatest factor that encouraged nondisclosure was the healthcare providers' lack of inquiry regarding CAM use by their patients during the medical encounter. Thus, healthcare providers could unwittingly be part of the problem (Jou and Johnson, 2016).

Although the use of medicinal herbs can be considerable among certain ethnic groups in the U.S., there is a scarcity of information regarding patients' disclosure of herbal use to their healthcare providers. In 2002, a study by the NHIS concluded that there is both a low rate of disclosure regarding various modalities of CAM, especially among certain ethnic groups, as well as a lack of information regarding the disclosure of herbal and other supplement use by patients suffering from chronic diseases. Additionally, currently unknown ancillary factors could be associated with the disclosure of herbal products that could be of primordial importance for healthcare providers to be informed of. In this way, they could make adequate decisions for their patients benefit within the clinical setting. It is of the utmost importance that patients and healthcare providers openly discuss issues such as the safe use of herbs, their efficacy, as well as possible interactions between certain herbs and prescription medications.

For the reasons mentioned above, Gardiner et al. (2013) reviewed various studies that reported herbal medicine use among Hispanic, Asian, and African American adults living in the United States. The review employed data from 108 studies that found that 30% of Hispanics as well as 30% of Asians used herbs compared to 17% of African American adults. The reviewers also hypothesized that small and bilingual regional studies might divulge higher rates of herbal use compared to national studies, making it easier for non-English speaking patients to communicate. Additionally, since religion can play an important role in the lives and healing practices of many Hispanics (Ransford, 2010), it is important to note that, in the U.S., it can be

very difficult for some patients to discuss the basis of their illness from a religious or spiritual perspective with a physician, who may not welcome the topic (NCFH, 2011).

The majority of the adult U.S. population has used some form of (CAM), and many people use CAM along with conventional medical treatment. In spite of the popularity of various forms of CAM, more than half (63–72 %) of the people using it do not disclose this to their healthcare providers, mainly physicians, and the rate of disclosure appears to be even lower among certain ethnic minorities (Chao et al., 2008). For this reason, in order to assess the differences in CAM disclosure by various ethnicities, a study undertaken by Chao et al. (2008) found that, compared to Caucasians, Latinos and other minorities were significantly less likely to disclose their use of any alternative therapies to their healthcare providers. The authors of the study also noted that minorities could encounter a number of barriers that preclude them from receiving adequate healthcare, such as communication issues, high cost of medications or treatment, and lack of adequate insurance, among others. These barriers can also negatively influence the opportunity or willingness of patients to disclose their use of alternative therapies when having a consultation with their healthcare provider.

Ho et al. (2015) assessed the use of various types of alternative medicine among a medically underserved predominantly Hispanic community attending a health center in California. The researchers applied a cross-sectional anonymous survey to evaluate patients' use and interest in various alternative therapies, as well as their preferences for communicating with their healthcare providers regarding CAM. The majority (74%), of the 150 respondents were Hispanic and more than half (55%) were not born in the United States. Additionally, 56% did not have health insurance and (55%) stated their educational level was high school or less. More than half of the respondents (63%) used at least one type of the various CAM modalities, the most

common ones being: taking vitamins/supplements (32%), herbal medicine (29%), dietary/nutritional therapy (26%), massage (24%), meditation/relaxation (15%) and chiropractic (11%). Regarding the respondents' disclosure of using CAM, more than half (61%) felt comfortable telling their doctors about their use of alternative medicine, and 58% concurred that doctors should possess basic knowledge regarding alternative therapies. Lastly, 47% of the respondents stated they would like their doctors to inquire about their use of alternative medicine. The results of the study showed that patients commonly use some form of CAM and a large percentage of the respondents had an interest in accessing alternative medicine therapies via their primary care clinic. The patients are aware of the importance of disclosing their use of alternative therapies, and appeared receptive to discussing this topic with their healthcare providers.

Lack of disclosure of herbal use by patients to healthcare providers

Mehta et al. (2008) found that, at the national level, disclosure rates of herbal use are low among adults suffering from various chronic diseases. This situation causes great concern regarding the safety of using herbal products concomitantly with mainstream medications.

Lack of, or partial disclosure by, Hispanics or Latinos and other minorities regarding their use of herbal and/or other alternative therapies for self-care can be due to diverse and sometimes culturally complex factors, some of which have been poorly researched. This situation can be an important drawback in the communication between patients and various healthcare providers, having potentially deleterious effects upon the patients' health outcomes (Chao et al., 2014).

A study undertaken with 575 Latinos (a portion of whom were of Mexican origin) attending health clinics in various cities in Southern Texas, showed that there is a tendency for

those who used some form of alternative therapy during the previous year not to discuss this with their healthcare provider. This lack of adequate communication places them at risk for possible herb-drug interactions, as well as other health-related complications. Additionally, the study found that acculturation played a role in the type of alternative treatment employed by the respondents. Those more acculturated to US culture were more prone to seek mind-body treatments and manual healing (such as chiropractic, for example), compared to those who had a strong affiliation to Latino culture, who used herbal remedies as well as other traditional folk healing practices (Burge et al., 2002). Working in the Rio Grande Valley (RGV) region of south Texas, one of the poorest Standard Metropolitan Areas in the U.S. (Weller et al., 2012), Keegan (1996) conducted a descriptive study consisting of a convenience sample of 213 Mexican Americans, to whom three research queries were asked: (1) What specific kinds of alternative therapies do Mexicans in the RGV use? (2) What percentage of the sample group uses alternative therapies? and (3) Do the users of alternative therapies self-report these visits to their established, conventional, primary health care provider? The results of the study revealed that less than half (44%) of the participants had used the services of an alternative practitioner on one or more occasions during the past twelve months. Additionally, herbs were among the most commonly used therapies and more than half (66%) of the respondents never report their consultations with alternative practitioners to their primary healthcare provider.

Another descriptive study with a convenience sample consisting of 60 Mexican Americans and 60 Anglo Americans was undertaken by Keegan (2000) in the RGV region of south Texas, adjacent to the Mexican border. In this study, the participants were asked four research questions: (a) What kinds of and how frequently are alternative therapies used by the Mexican-Americans and Anglos in the Texas Rio Grande Valley? (b) Is there a difference in the

kinds and amounts of therapies used by the two groups? (c) Do the participants self-report this information to their established, conventional, care provider? and (d) What are the participants' subjective reports about these therapies? The results of the study demonstrated that both groups used alternative practitioners, but that Mexican Americans reported using them more than twice as often as did Anglo-Americans. The most commonly used therapies by the Mexican group included prayer, herbal medicine, massage, relaxation, spiritual healing, and chiropractic. With the exception of megavitamin therapy, the Anglos also sought most of the alternative modalities used by the Mexican group: prayer, massage, chiropractic, herbal medicine, and spiritual healing. Interestingly, almost twice as many Mexicans (45%) reported disclosing their use of alternative therapies with their health provider compared to only 26.7% from the Anglo group (Keegan, 2000).

It is very important to identify barriers to communication between patients with cancer as well as cancer survivors and their healthcare providers regarding the former's use of (CAM), by exploring the patients' point of view. Various types of alternative therapies have become very popular among cancer patients. Epistemological beliefs about cancer and its treatment espoused by mainstream physicians may differ from the alternative medical perspective, and scientific evidence is not always what counts most for a patient suffering from a potentially terminal disease. For this reason, serious health problems could occur due to the lack of communication between patients and their healthcare providers. Some alternative therapies, especially certain herbs, could potentially interfere with mainstream oncology treatments, possibly exerting a negative effect upon the patients' health, and diminish their probability of survival. The absence of adequate dialogue is a problematic issue within the context of proper healthcare, since the development of an open and trusting professional relationship between cancer patients and/or

survivors of the disease and their healthcare providers is based upon an effective interpersonal and patient-centered communication (Sohl et al., 2015).

Corroborating the above, Tasaki et al. (2002) undertook an exploratory study employing semi-structured interviews with 143 oncology patients in order to assess their experiences with various forms of CAM. This qualitative study evaluated data from 93 patients who used CAM and was able to compile adequate information related to communication issues with healthcare providers (M.D.'s). The interview results showed that three main themes emerged which described barriers to unsuccessful communication from a patient's point of view. These included M.D.'s' opposition or lack of interest or toward CAM use, the emphasis some M.D.'s place on scientific evidence, and the anticipation that some patients possess regarding a negative response from their M.D. Based on the before mentioned results, the authors of the study recommended increasing the M.D.'s education regarding various forms of CAM, as well as a regular evaluation of CAM use by their patients. These actions could help M.D.'s more cognizant of their patients' use of CAM. In this way, M.D.'s could provide their patients with adequate information regarding the benefits or hazards of CAM use, and thus refer certain patients to other modalities or services that might address their unfulfilled health requirements.

In order to assess the prevalence of complementary and integrative health (CIH) use among 631 Hispanic adults with colorectal cancer (CRC), Black et al. (2016) employed data from participants in the Hispanic Colorectal Cancer Study, a population-based study of adult individuals self-identified as Hispanic or Latino, previously diagnosed with CRC. The results of the study showed that 40.1% of the participants reported ever using some form of CIH. The modalities most often used included herbal products and dietary supplements (35.3%), followed

by bodywork (16.5%), mind–body practices (7.8%), and homeopathy (6.7%). However, the majority of the participants (76.3%) did not discuss their use of CIH with their doctors.

A one-year cross-sectional study of survivors of various cancers was undertaken by Sohl et al. (2015) in order to evaluate the relationship between the patients' perception of their physician's patient-centered communication and patients' disclosure of complementary and alternative therapies. In this study, patient-centered communication was defined as the consultation with a healthcare provider in which there was an exchange of information, affective behavior, and awareness shown by the providers of patients as persons. Out of a population-based sample of 623 participants, approximately one-third used some form of complementary or alternative therapies, and less than half of those using them disclosed this to their physicians. Importantly, the willingness to disclose the use of alternative therapies was significantly associated with patient-centered communication. Furthermore, the results of the study revealed that the principal reason for the majority of patients not disclosing their use of CAM was that they did not think it was important to discuss them with their doctors. Interestingly, when patients did disclose their use of CAM to their physicians, more than sixty percent of the medical professionals encouraged patients to continue using them.

Communication regarding the use of various alternative therapies between cancer patients and diverse healthcare providers (both alternative as well as mainstream) can potentially influence patients' health and wellbeing. For this reason, Stub et al. (2016) reviewed 29 articles related to the qualitative research literature regarding the perception of and communication between cancer patients and diverse health care providers, about the possible risks associated with alternative therapies. The results of the review showed that using certain herbs and supplements could pose a direct and serious threat to patients' health. However, the author

pointed out that another threat is the lack of scientific evidence regarding the efficacy for many alternative therapies as well as the divergent treatment approaches between mainstream and alternative health care providers. This situation potentially obstructs effective communication about these threats with mutual patients, and this can become an indirect risk for the patient. A study found that, in patients afflicted with cancer, focus groups can be an effective way of exploring the opinions of people with a common ethnic or cultural background, as they allow for informal (unscripted) discussion and interaction between the participants (Gratus et al., 2012).

The Neoliberal paradigm in medicine downplays the effectiveness and need for traditional medicine and encourages the technologically based systems of healthcare. Unfortunately, the neoliberal approach is highly mechanical and reductionist, limiting the definition of health as only the absence of disease, and not taking into account a myriad of other factors that revolve around socio educational and psychological wellbeing. This situation leads to more miscommunication between patient and healthcare provider and encourages certain sectors of the population to self-manage their disease without any intervention from the Western medical system, placing them at risk for certain treatments that may not guarantee any type of evidence base or safety (Brijnath and Antoniadis, 2016).

Another disadvantage of adopting the Westernized reductionist model of health is its exorbitant cost, for both patient as well as nation. In some developing or so-called “Third World” countries, Westernized medicine has been recognized as the official and government approved form of health care. For this reason, many people seek this type of medicine, if they can afford it. Aside from the humongous cost of healthcare in the Westernized world, the bureaucracy associated with it has also become a burden to the economy. Not only are various prescription

medications prohibitively costly, some of them possess dangerous side effects (Scirica et al., 2015; McGettigan and Henry, 2013).

Prejudice towards traditional healing practices. As a result of the international pharmaceutical consortiums virtual takeover of the medicinal options, especially in underdeveloped nations, medical botany and traditional medicine were then viewed as “backward” and “unscientific”, healing with plants and other natural remedies was largely relegated to low-income, “ethnic” populations, and herbal and traditional healers are usually regarded as “quacks”. This is a prime example of an ethnocentric (“White”) opinion, not necessarily based on fact, but sometimes rather on prejudice (Washington, 2012; Campos-Navarro, 1996; Lozoya, 1996; Bastien, 1992). This approach does not take into account personal experience (tradition), and spirituality as a basis for health (Lozoya, 1996; Bastien, 1992).

The reductionist paradigm leaves out one of the most important tenets of Freirean educational philosophy, which is a patient’s personal experience regarding certain forms of treatment, as a form of “knowing the world” (Freire, 1990). In doing so, it does an incredible disservice to humanity, since it stifles and ignores some of the greatest empirical discoveries in the history of healing. Just two examples among many include the use of Cinchona tree bark (*Cinchona officinalis*-Rubiaceae) in South America and Qing-Hao (*Artemisia annua*-Asteraceae) in China for the treatment of Malaria, both of which have been known by the indigenous healers for millennia (Heinrich and Jager, 2015; Tang and Eisenbrand, 2008; Schultes and Hoffman, 1990). For this reason, there should be an open collaboration between holistic or “alternative” medicine and allopathic of Western medicine, in order to better serve the patient. If conventional physicians as well as pharmacists and nurses were more knowledgeable regarding

herbal medicine, this would also facilitate communication between the medical staff and patients using herbal products for healing (Micozzi, 2015; Nedrow et al., 2007; Bastien, 1992).

Cultural factors as barriers to communication with healthcare providers. Another significant characteristic of the El Paso city population is related to language. One cultural characteristic of this city is that it does not possess a dominant language. The majority (80%) of El Paso's population is Hispanic and many people are fluent only in Spanish. The U.S. Census Bureau data from 2005-2009 mentions that 74.9% of the population ages 5 years and older in El Paso County speaks another language at home that is different from English and approximately 32 % of Spanish speakers in El Paso County have difficulty expressing themselves in English (U.S. census, 2009). This situation can make it difficult for some Hispanics residing primarily in rural areas on the border to communicate effectively with various healthcare providers and the inability to communicate in English fluently could be a significant factor, especially in patients suffering from chronic diseases, such as cancer, for example (Ko et al., 2018).

Availability and cost of herbal products along the U.S.-Mexico border

With regard to cost and availability, herbal products in the form of crude drugs (unprocessed parts of leaves, flowers or roots, for example) or as teas are usually far less expensive than prescription medications. They are also readily available on both sides of the border without the need for a medical prescription. This situation is in part due to the fact that in October of 1994, the United States Congress passed a landmark act, known as the Dietary Supplement and Health Education act or DSHEA. This decision was taken as a response to the exponential surge of various modalities included within CAM (especially herbal remedies) throughout the United States. This act arbitrarily classified herbal and nutraceutical supplements as foods, not drugs, and thus permitted their active commercialization, making it easier for these

commodities to be integrated into the mainstream market, and available to the general public as over the counter products (OTC), without the need for a medical prescription (Marcus, 2016; Dickinson, 2011).

A great variety of nutritional or so-called “nutraceutical” (substances that can have both nutritional as well as therapeutic effects) supplements are sold in the marketplace or health food stores on both sides of the U.S. - Mexico border. Many of these usually contain herbs in various forms: crude herbs or herbal teas, extracts, essential oils, capsules, pills, creams, and syrups, to name just a few (Rivera et al., 2007). The issue with certain supplements obtained from plants is that the scientific community does not always have adequate information regarding the products’ safety or efficacy. Additionally, in some cases, the information provided by the companies or individuals who commercialize them can be false or misleading; in other instances, the information is simply unavailable (Lobb, 2012).

In spite of the indisputable traditional millenary herbal knowledge that many empirical healers around the world possess, many new herbal products have literally inundated the world markets. At least a portion of them may not be either safe or effective and could potentially pose a danger to the health and well-being of the consumers (Dwivedi et al., 2011). A case in point is the toxic seed of a plant commonly known as “yellow oleander” or “codo de fraile” (*Thevetia peruviana* - Apocynaceae), falsely advertised as a safe and effective “natural” supplement for the treatment of overweight and obesity. Although there are no known clinical trials to prove its safety or efficacy, various research studies around the globe have proven its high toxicity to both humans as well as animals (Mackenzie, 2012; Wagstaff, 2008; Nelson et al., 2007). This product is commercially available not only in our border area, but in various other parts of the world as well, mainly through companies that advertise it on the internet. The ingestion of yellow

oleander seeds causes nausea, vomiting, abdominal pain, diarrhea, cardiac dysrhythmias, and potentially fatal hyperkalemia, an augmentation of the potassium balance within the cells (Bandara et al., 2010). The consumption of yellow oleander seed has caused serious intoxications and even fatalities in various countries around the world (Kumar et al., 2015; Fonseka et al., 2002).

The diversity of medicinal herbs used on the border is anything but static, since globalized marketing practices are constantly introducing various plants and fungi to the already large repertoire of medical plants used both in Mexico as well as in the U.S. In the recent past, a great number of medicinal plants have become available on the U.S.-Mexico border that are not native to this region (or even the American continent). Some of these species include St. John's Wort (*Hypericum perforatum* -Clusiaceae) , from Europe, Kava kava (*Piper methysticum* - Piperaceae) from the South Pacific, Dong Quai (*Angelica sinensis*-Apiaceae) from China, Gymnema (*Gymnema sylvestre* -Apocynaceae) from India, and Tea Tree (*Melaleuca alternifolia* - Myrtaceae) from Australia, to name just a few examples (Bone and Mills, 2012; González-Stuart, 2011).

Various other medicinal plants may not be native to the border region as well, but have nonetheless enjoyed great popularity within traditional medicine. These include both annual ("German") and perennial ("Roman") species of chamomile or "manzanilla" (*Matricaria recutita* and *Anthemis nobilis* -Asteraceae, respectively), spearmint or "hierbabuena" (*Mentha spicata*-Lamiaceae), arnica (both the European as well as the Mexican species *Arnica montana* and *Heterotheca inuloides* –Asteraceae, respectively), "gordolobo" or cudweed (*Gnaphalium* spp. – Asteraceae), and aloe or "zábila" (*Aloe vera*-Asphodelaceae). All of the aforementioned species comprise but a minute sample of the diversity of herbs employed to treat a variety of ailments by

the bi-national border population. For this reason, it is very important to assess both the efficacy as well as the safety of the numerous plants used in traditional medicine, especially if they are used concomitantly with prescription or over the counter medications (González-Stuart, 2011; Davidow, 1999; Roeder, 1988). While interviewing Latino patients regarding possible dietary supplement consumption, Faurot et al. (2016) mention the need to include questions about botanical teas, which can result in obtaining more information about patients' supplement use.

Quality control issues with medicinal plants and herbal supplements. Quality and reliability rely strictly on the supplier and distributor. Adulteration with drugs (cortisone) and mislabeling are not uncommon with some herbal products in many countries. Few qualified professionals exist and some labels may contain erroneous information, mistaking species. Common names of medicinal plants vary from region to region, creating confusion. Mistakes in plant nomenclature can be very risky to the consumer's health (Mills and Bone, 2005), since it has been found that among immigrant Latinos (mostly of Mexican or Puerto Rican origin) living in the Midwestern U.S., there is much misinformation regarding the accurate identity of some of the herbs they are taking to treat various health problems (Kiefer et al., 2014).

Interactions between herbal products and certain medications. Thousands of medicinal plants have been used for eons by practically all ethnicities around the world to treat an equally diverse plethora of ailments, both physical, as well as emotional. In contrast, some modern pharmaceutical drugs have been used for less than a century, but many of the currently used oral anti-diabetic medications, for example, have been in use for a comparatively shorter span of time. This situation has originated a namely modern phenomenon, which is the concomitant use of herbal as well as westernized or mainstream medicine. This situation has prompted many researchers to delve into the study of the possible interactions between the

hundreds of biologically active ingredients present in plants and their essential oils, fungi, and animal products used for traditional healing. On the other hand, many pharmaceutical drugs usually contain only a few active ingredients. Nonetheless, the possibility of a modified action related to the pharmaceuticals (i.e. decreasing or increasing their potency) can be prevalent among various herbal products currently used not only in the United States, but around the world, as well. A case of biochemical interactions can also occur among natural products as well, as exemplified by the possible interactions between caffeic acid and quercetin with melatonin (Jana and Rastogi, 2017).

One of the major factors that hinders research is that a great majority of medicinal plants from many cultures around the globe have not been studied in depth. Globally, of the approximately 250, 000 flowering plants currently known to science, only a small percentage have been researched regarding their potential healing properties (Hosseinzadeh et al., 2015). Additionally, of the 3,000 to 5,000 plants used in Mexican traditional medicine, for example, only a meager amount have been studied regarding their active constituents, efficacy, and safety. This is particularly serious, as many species of plants are disappearing at an alarming rate due to deforestation, desertification, and other environmental issues facing the diversity of various species today (Argueta, 1994).

As Brinker (2010) pointed out, interactions between medicinal plants and medications can be either theoretical (speculative) or backed by clinical evidence. The distinction is of utmost importance, as certain publications regarding the subject may not always base their data on more relevant clinical observations, but mainly on case reports (Chen et al., 2012; Almeida and Grimsley, 1996; Fetrow and Avila, 2000). For this reason, there is a clear and pressing need for more and better clinical research that would help both patients and healthcare providers alike to

possess factual knowledge regarding both the efficacy as well as the safety of various herbs and supplements available on the market today (Alsanad et al., 2014).

Herb-drug interactions based on clinical observations. Even though the exact mechanism of action regarding many herb-drug interactions are either unknown or not yet fully understood, it is known that certain medicinal plant phytochemicals, such as polyphenolic compounds for example, do indeed interact with various pharmaceutical drugs in various parts of the body including the gastrointestinal tract, liver, kidneys, and other organs. It is also important to note that at least some of the pharmaceuticals taken as prescribed medications (e.g. warfarin and other anticoagulants) may possess a very narrow therapeutic index. Many of them are substrates for various protein families of cytochrome P450s (also known as CYP enzymes) and/or P-glycoprotein (P-gp). The before mentioned compounds are involved in phase I and phase II detoxification metabolism of various xenobiotics, principally in the gut, liver, and kidneys. These compounds may, depending on the substance being detoxified, decrease or paradoxically, even increase its toxicity (Cho and Yoon, 2015; Brinker, 2010).

Certain popular commodities, such as fruits, spices, and medicinal plants, for example, have been mentioned as being able to interact with various pharmaceutical drugs (Shirasaka et al., 2013). These plants include, but are not limited to, cranberry (*Vaccinium macrocarpon*), garlic (*Allium sativum*), ginger (*Zingiber officinale*), ginkgo (*Ginkgo biloba*), Korean and American species of ginseng (*Panax ginseng* and *P. quinquefolium*, respectively), grapefruit (*Citrus paradisiaca*), and St John's wort (*Hypericum perforatum*). On the other hand, various medications that may interact with certain plants include amitriptyline, cyclosporine, digoxin, indinavir, irinotecan, midazolam, saquinavir, tacrolimus, and warfarin, among others. As a case in point, St John's Wort is a plant used in herbal medicine to treat mild to moderate depression,

but taken concomitantly with certain medications, may cause an interaction of concern. Clinical studies have shown that this plant can significantly reduce the area under the plasma concentration-time curve (AUC) and blood concentrations of various drugs (thus rendering them less effective) including, amitriptyline, digoxin, cyclosporine, indinavir, midazolam, oral-contraceptives, phenprocoumon, tacrolimus, theophylline, and warfarin (McEwen, 2015; Bone and Mills, 2012; Chen et al., 2011, 2012). Since the prevalence of Type 2 Diabetes is rising in our border area, it is expected that Hispanic patients, the most affected population, will seek out natural remedies to combat this disease, putting them at risk of interactions between certain herbs and prescribed anti-diabetic medications (May & Schindler, 2016).

As an example to the above, various medicinal plants including certain species used in our border area belonging to the Asteraceae, Boraginaceae, and Fabaceae botanical families, are known to contain pyrrolizidine alkaloids. These compounds are not inherently toxic *per se*, but upon being metabolized by the liver, become highly toxic and even potentially carcinogenic, especially to hepatic and pulmonary tissue. A case in point is the plant known as “gordolobo” in Spanish and “everlasting” in English. Mexicans and Mexican –Americans take it as a tea for the treatment of respiratory conditions, including bronchial asthma. Even though traditional use maintains its efficacy based almost entirely upon anecdotal evidence, this plant contains the before mentioned alkaloids that are potentially liver toxic (Yan et al., 2016; Kristanc and Kreft, 2016; Neuman et al., 2015). Medicinal plants containing these compounds are an additional threat to pregnant and lactating women, since the alkaloids can also be feto-toxic and potentially transmitted via milk to the newborns (Madge et al., 2015).

Conventional medical education as a barrier to communication. As previously mentioned, the holistic paradigm espoused by traditional healing and its reductionist counterpart (i.e. allopathic or Western medicine) are in many ways diametrically opposed. Traditional medicine is a form of social justice, since it takes into account humans and nature as part of a greater whole. It also defends identities, millenary cultures, traditions, and natural sources of medicine (plants, fungi, and animals), as well as the knowledge that indigenous people possess about herbal use, that are rapidly being lost due to the onslaught of neoliberal globalization and its predatory policies. Furthermore, herbal and other natural medicines are usually much more economical compared to the expensive and sometimes dangerous allopathic medications produced by economically and politically influential international consortiums. Rather than to view an “all or nothing” approach, the Western physician should have an open mind and respect the patients’ point o view for the possible use of one and/or the other (i.e. the concept of “integrative medicine” mentioned above) in order to adequately treat a health problem, but always with the participation of the patient.

The seemingly opposing concepts of holism as part of “natural” treatments, and mechanical reductionism, as practiced by most mainstream health care will be expounded as one of the primary possible explanations as to why communication barriers exist between the Hispanic population and their healthcare providers. There are diverse alternative approaches to healing currently available and actively used in the largest international border between Mexico and the U.S. Some of these approaches or alternative therapies oppose the current mainstream of Westernized medical educational paradigm, which is still greatly influenced by a report begun in 1907 about medical education in the U.S. and Canada. The final report was published in 1910, authored by a non-medically trained schoolteacher named Abraham Flexner.

The Flexner Report. This highly influential report about medical education in the United States and Canada, submitted in 1910, was prepared by a schoolteacher with no medical background named Abraham Flexner. It was one of the first attempts at the “standardization” of medical education. The main objective of this report regarding the status of medical schools in the U.S. and Canada was to raise the standards of medical education in the U.S., as well as to rid this country of "medical commercialism" (Flexner, 1910; Johnson, 1984). Additionally, the ramifications of the Flexner Report have had an ominous impact upon other segments of teaching and learning about alternate forms of medicine. It was also partially responsible for severely reducing the opportunities for African Americans to study medicine for decades (Johnson, 1984; Hiatt and Stockton, n.d.).

Flexner’s report stated that various medical schools throughout the U.S. and Canada were not offering quality education and his findings resulted in a radical reform in medical education that still wields considerable influence in North American medical schools more than a century of its publication. The report forced the closing of various medical schools then operating across the country, arguing that many medical schools that were not offering quality mainstream medical education (Flexner, 1910; Duffy, 2011). Some of the schools affected by this report included those that taught naturopathy, and homeopathy, for example, mainly because their approach was regarded as “unscientific”. Flexner’s report, heavily influenced by the German model of medical education, seemed to focus more on the mechanistic concept of health and disease, while leaving out the highly important aspect of patient beneficence via the humane interrelationship with the physician (Johnson, 1984).

The importance of this report should not be underestimated due to its age, as it still exerts a marked and profound influence on what is currently being taught in various medical

schools across the North American continent. The negative impacts of this report on various non-conventional types of medical education and healthcare could, in part, be one of the reasons that explains the origins of the rift between traditional, homeopathic, and mainstream medicine at the beginning of the twentieth century. The viewpoint espoused by this document can still have a negative effect, more than one hundred years later, especially with regard to patient, healthcare provider interactions. The aftermath of this report negatively affected the image of popular use and practice of various “irregular” (as they were known at the time), “alternative” or traditional healing methods (e.g. herbal medicine, homeopathy, etc.) as backward, ineffective or archaic modalities that were diametrically opposed to the “scientific” approach to modern medicine. The negative frame in which certain forms of healing were placed according to the mainstream medical model, could theoretically also be a reason why an appreciable number of patients currently hesitate to disclose their use of herbal products (as well as other health-related issues) to their healthcare providers (principally conventional, “allopathic” or mainstream physicians).

Ancillary to this topic, the great importance of culture and the holistic and problem-posing approach to liberating and popular education were proposed by Brazilian educator, Paulo Freire (1921-1997). These should also be present in healthcare education, as they are of primordial importance in viewing traditional healing practices as a form of social justice that encourages patient empowerment, especially against discrimination regarding cultural identity, gender, and other forms of expression in the clinical setting (Meléndez et al., 2013). Indeed, for some herbalists, traditional herbal medicine use and social justice are intertwined, since for various Hispanic immigrants in the U.S., herbal use is a centuries-old tradition that is linked to cultural identity and empowerment (Ambrecht, n.d.). In relation to education as well as healing therapies, social justice also fosters the decolonization of health, encouraging young people to be

proud of and retain their ethnic and cultural identity versus euro-centric medico-cultural oppression, and preserve the knowledge of their forebears regarding various natural alternatives to mainstream medicine. Some community healers apply a “traditional healing praxis” that has emerged by combining the traditional healing practices handed down by their ancestors with Paulo Freire’s theories regarding pedagogy of the oppressed (Chávez-Díaz, 2015).

With regard to the above, studies have shown that various forms of discrimination in medical settings can have an influence on patient attitudes regarding health care as well as health-seeking behaviors. People experiencing discrimination sometimes look for various alternative options for their health care, which includes the use of some form of CAM. For this reason, Thorburn et al. (2013) undertook a study employing data from the 2001 Health Care Quality Survey (HCQS) including 6,008 adults living in the continental United States, in order to examine the possible association between patient use of alternative medicine as a response to discrimination in healthcare. The results of the study showed there was a significant association between discrimination in health care and the use of herbal medicines alone, but not with use of therapies provided by alternative practitioners such as acupuncture, chiropractic or traditional herbalists, alone or in combination with herbal medicines. The authors of the study concluded that a possible explanation for these results is that people who experience some form of discrimination within the mainstream medical care settings could use herbal medicines as an option to avoid interacting with health care providers practicing either conventional or alternative medicine.

Emphasizing social justice as a pivotal and positive constituent of the medical profession, DasGupta et al. (2006) opined that there is only scant discussion in mainstream medical

education about how to convey this concept to future medical professionals. According to the same authors, medical educators employing Freirean social justice teaching strategies, as well as adult learning theory, can be able to teach medical professionalism whose educational content is conscientious of social and cultural values. This innovative teaching approach is able to expose learners to non-hierarchical relationships, which could be applied by healthcare providers directly to more open and non-judgmental clinical interactions with their patients. Additionally, Freire's teaching philosophy can encourage professionalism in students as well as teachers by making them more aware that they need to be citizens who are involved in the welfare of their communities at all levels (local, national, and global).

The need to include social justice into an updated curriculum in medical schools in Canada and the United States has prompted various researchers to suggest and apply pilot programs applying the Freirean concept to medical education. A salient characteristic of these programs includes the assessment and evaluation of their efficacy in attaining the main objective of training physicians to be socially responsible, culturally competent, and dedicated to serve the patients of underserved communities. Indeed, there is a clear necessity for adequate medical education in the areas of cultural competence and social responsibility. This can enhance the delivery of care and health outcomes, as well as to instill a paradigm of "civic professionalism", whereby both students of medicine and physicians feel compelled not only to serve the individual patient, but also to actively engage in local as well as global communities. This approach could also be envisioned as a modern revision of the centenary Flexner Report, suggesting innovative techniques and upgrades in the medical education curriculum for the 21st Century (Schiff and Reith, 2012).

If open and respectful communication prevails between patients and healthcare providers, there is a chance that certain alternative options (e.g. evidence-based herbal supplements, acupuncture, and aromatherapy, among others) could be used along with certain conventional medical treatments such as chemotherapy, surgery, radiation therapy, and hormone therapy. Combining these different methods could help patients to empower themselves and have a stake in better managing their health issues, and attain a feeling of improved wellness: spiritually, physically, and mentally (American Cancer Society, 2013). These diverse traditional medical or healing modalities, as practiced worldwide since time immemorial, are based on cosmologies / paradigms that include intertwined mental, spiritual, ecological, and physical dimensions in developing concepts about health and healing. These holistic viewpoints are not usually taught in the majority of conventional medical schools in the U.S. and often contrast with those of reductionist Westernized, mainstream, or allopathic medicine (Gerber, 2001; Micozzi, 2013). For this reason, there should be an open collaboration between holistic or “alternative” medicine and mainstream or allopathic Western medicine, taking care to always respect the patients’ culture and ideologies, in order to better serve the community (Bastien, 1992; Nedrow et al., 2007).

Western medical education and its hegemony. At the dawning of the 20th Century, there were diverse healing systems and medical schools active within the United States. Although rifts and frictions were common between some of the modalities (e.g. homeopathic physicians vs. their allopathic or conventional counterparts), they coexisted, albeit in an oftentimes strained relationship. However, after the report was published in 1910, an important change began to emerge in the United States’ medical education that gave Western allopathic medicine hegemony over all other systems or modalities of healing as well as immense political power backed by both private interests as well governmental. According to the reductionist

paradigm espoused in the report, patients were seen mostly as “objects of study” that served the academic purposes of the professor (Duffy, 2011).

In summary, this mechanistic/reductionist approach to medical education is based on cold science and lessens the opportunity for a more humane approach based on open dialogue, a true communication between patients and healthcare providers. In this way, patients are seen more as “subjects” and passive recipients of information (e.g. the medical prescription and orders from the M.D.), than as active participants in the management of their disease or affliction. This is very similar to the educational concept that Paulo Freire referred to as “banking education”, whereby knowledge is just “deposited”, as in a bank, but without any interaction expected from the receiver of the information (Freire, 1990). In the case of modern medical research, it could also be termed “banking medical practice”, which has in turn initiated a culture of silence among the sick people of the globe that must rely on modern or mainstream system of medicine, lacking empowerment to take any part in the management of their healthcare. This lack of open communication between patients and medical providers can have very negative results in health outcomes and has been known to take advantage of a patient’s rights, especially among underserved minorities (Skloot, 2011).

Limitations of the mechanistic/reductionist concept. Due to its exclusive focus on biological processes, the reductionist medical model has its own bevy of limitations: It does not help to comprehend complex psychological and socio-cultural factors that can markedly affect health and contribute to disease. In this case, we cannot “replace” one factor over another, we need to take into account all of them as well as their interactions (Micozzi, 2015). For these reasons, medical schools could instead adopt a problem-based education model, putting them more in touch with the issues affecting the reality of the community (Hofman, 1988).

Chapter 3: Methods

Research Design

In this research study, we began by utilizing data previously obtained via surveys regarding the extent of herbal product use in our border area that showed the estimated prevalence of herbal medicine use among our border population was approximately 68% (Rivera et al. 2007). This study employed a qualitative descriptive design, as this is the methodology that best addressed the research questions: What meaning does the use of medicinal herbs have among Hispanic patients and whom do they choose to share this information with? as well as What are the healthcare providers' perceptions regarding medicinal herbal use? This descriptive study explored the views of low-income Hispanic patients regarding the use of traditional herbal medicine, as well as what they expected to accomplish if using herbal remedies concomitantly with prescription medications. Further, this unique study explored the patients' level of awareness regarding the potential risks for harm due to self-medication with herbs as well as potential herb-prescription drug interactions. Other related queries included naming the source where patients obtain their information about herbal products used as co-adjunctive therapy to treat their respective diseases and if they ask for guidance or help from physicians or other healthcare providers regarding herbal remedies. Additionally, familial and cultural factors were also explored as part of the participants' responses, as well as level of communication between patients and healthcare providers regarding the use of herbal products. An important part of the interviews revealed the patients' expectations as to how communication and awareness could be improved in the healthcare setting to the patients' satisfaction.

The main components of this study were comprised of the following actions:

Observation, field notes, and reflexivity journal

Focus groups with adult Hispanic patients

Semi-structured interviews with healthcare providers

Audiotape recordings

This qualitative descriptive study utilized a purposeful sampling technique with focus groups as the method for data collection. Its main intention was to comprehend the beliefs and motivation involved in herbal product use by low-income Hispanic patients by means of content analysis (Sandelowski, 2000), thus assisting in the development of bilingual educational materials for patients and healthcare providers. The prospective educational materials would include an informational booklet regarding the safe use of herbal products to be used in routine clinical visits, with the double objective of encouraging the disclosure of herbal product use by patients, as well as answer queries made by their attending physicians. The data analyzed from this project additionally provides the necessary comprehension and reference for developing a quantitative study, subsequent to this one, that would identify the most commonly used herbal remedies in our community by Hispanic patients and thus aid in prioritizing the information needs as well as the cultural and linguistic adequacy of addressing them.

Guba and Lincoln (1994) defined paradigm as “a basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways”. The same authors also stressed that consideration of paradigms precedes considerations of methods.

Mattingly (1998) stated, “Western medicine has evolved very strongly in a tradition of empiricism, realism, materialism and positivism, and for these reasons the scientific or experimental method is highly valued by medical scientists.” In the same vein, because

positivism has dominated scientific thinking for over three centuries, it seems that medical practitioners require one type of science (i.e. universal, nomothetic, and positivist) for their background knowledge, and a different type of science (i.e. phenomenological, qualitative, narrative, and interpretive) in order to apply that knowledge to their individual patients. This would explain why some medical students are confused when they interact with patients in the “real” or clinical setting, as well as why some physicians focus their attention more on the disease than on the patient himself or herself. For this reason, mainstream physicians have inherited a myth of objectivity that is equivocally applied to the particular existential situation of a single patient (Wilson, 2000).

Positivistic philosophy rejects metaphysics and maintains that the goal of knowledge is simply to describe the phenomena that we experience. Hence, the main purpose of science is simply to adhere only to what can be observed and measured. On the other hand, this study is situated within the context of post-positivism, which is viewed within qualitative methodology as a scientific approach to research. This philosophy follows a reductionist paradigm, is logic-based, emphasizes empirical data collection, possesses a cause and effect orientation, and bases its determinism on previously accepted theories. Post positivism possesses a systematic approach to both collection and analysis of data, based on careful observations and participant responses (Creswell, 2007).

Qualitative Research Methods

Scientific research consists of a study that looks to answer a query, employs a predetermined set of methods to answer the question in a systematic manner, compiles evidence, originates findings that emerge from the study data (i.e. were not determined *a priori*), and produces results that are can be applied beyond the immediate confines of the study (Mack et al,

2005). A qualitative research approach to the world is both interpretive as well as naturalistic. As such, qualitative researchers collect data precisely at the place or location where the study participants live or experience the problem of interest to the investigator (Creswell, 2007).

Qualitative methods are ideally suited for research regarding various issues (both personal as well as societal) that require further in-depth exploration in order to describe a person's or a population's beliefs, feelings, experiences, and behaviors that may not be readily understood nor expressed by numerical data (i.e. quantified) (Sandelowski, 2010; Creswell, 2007; Malterud, 2001).

With regard to medical clinical knowledge, Malterud (2001) opines that conventional quantitative research methods represent only a confined venue to clinical knowledge, because these incorporate only questions and phenomena that are feasible to be controlled, measured, and counted. On the other hand, research that employs qualitative methods may consist of various strategies used for the systematic collection, organization, and interpretation of textual material obtained from direct observations or interviews. Qualitative research is also known as “naturalistic inquiry”, since it permits the exploration of social phenomena as they are experienced by people within their natural context. In this way, qualitative inquiry may contribute to amplify our understanding of medical science (Malterud, 2001).

The qualitative approach to the conduction of research employs diverse empirical materials, such as detailed observation, interviews, personal experiences, case studies, and introspective life stories. The term “thick description” was first mentioned by Ryle (1949) referring to information likened to “a many-layered sandwich, of which only the bottom slice is catered for by that the thinnest description”. Geertz (1973) also applied this term to ethnography, in order to counter the technocratic and mechanistic approaches to understanding cultures. Thick

description refers to the detailed account of a researcher's experiences in the field, the setting in which he/she has been immersed, explicitly expounds the patterns of cultural and social relationships and situates them within the proper context. Thick description is the opposite of a related term mentioned above, "thin description", which refers to only a superficial, less detailed account (Holloway, 1997).

Purposive sampling. This sampling technique focuses on very specific characteristics of individuals, units or previously chosen populations (Zedeck, 2014). This technique relies on the researcher's criteria and personal judgment when selecting study participants (Fig.1). Purposive sampling is also known as judgment, selective or subjective sampling and is classified as a non-probability sampling method. Purposive sampling can be effective when, due to the nature of the study design as well as the specific aims and objectives set by the researcher, only a limited number of people can serve as the source of primary data (Black, 2010). The aim of using this technique is not to make generalizations, but rather to describe experiences and give voice to the population.

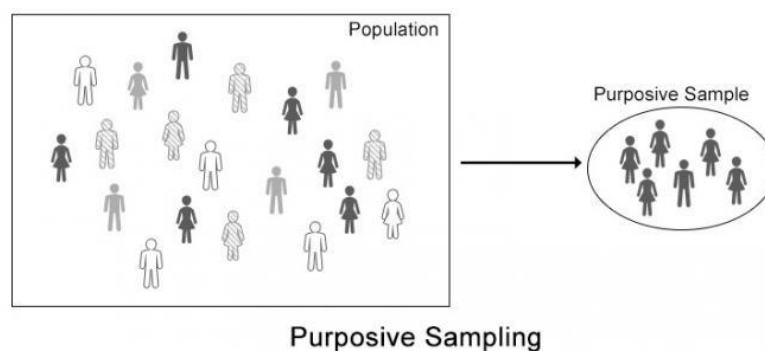


Figure 1. Illustration of purposive sampling

Source: <http://research-methodology.net/sampling-in-primary-data-collection/purposive-sampling/>

Study sites and patient population. The sites chosen for the study were comprised of five clinics belonging to the Centro De Salud Familiar La Fe, Inc., located in diverse areas of El Paso City and County. This is a non-profit 501 C-3 social-justice and human-services organization founded in 1967. This entity comprises seven-outpatient health care centers throughout El Paso County, and offers primary and preventive health care for predominantly Hispanic patients, via conventional medical services. These include immunizations, medical, pediatric, optometry, and dental care, as well as diverse health promotion programs for people of all ages (La Fe, 2016). The clinics are strategically located in various sectors of El Paso, as well as the neighboring towns of San Elizario, and Canutillo, TX.

All the clinics offer access to sliding scale or free healthcare services to the sectors of the border population who may not have health insurance due to low-income status. Additionally, the bilingual staff is an added benefit for those who are not fluent in English and seek medical personnel who can speak Spanish. Additionally, large posters were strategically placed within the clinics and bilingual flyers were distributed to potential patients with the assistance of the clinic's nurses and medical assistants. Patients from the five participating clinics were invited to participate in up to ten focus groups, or until saturation occurred. With one exception, each focus group consisted of a minimum of six, and a maximum of eight participants.

This qualitative descriptive study employed a purposeful sampling technique consisting of focus groups with adult patients, as well as individual interviews with various healthcare providers, as the method for data collection. Its main objective was accomplished, since it reveals the beliefs and motivations involved in herbal product use by low-income Hispanic patients by means of content analysis (Glaser and Strauss, 1967; Sandelowski, 2000). The results of this study are the basis for the development of bilingual educational materials to be

subsequently delivered to participating clinic patients and healthcare providers. The educational materials primarily consist of an informational booklet regarding the safe use of herbal products to be used in routine clinical visits, with the double objective of encouraging the disclosure of herbal product use by patients, as well as answer queries made by their attending physicians. The data analyzed from this project additionally provides the necessary comprehension and reference for developing a quantitative study, subsequent to this one, that would explore in more depth various socio-economic parameters related to herbal product use, thus assisting in prioritizing the information needs as well as the cultural and linguistic adequacy of addressing them.

Inclusion criteria. Hispanic adults (18 years of age or older at the time of the interview), non-institutionalized, and who were attending follow up treatments at any Centro de Salud Familiar La Fe community health clinic in El Paso County, and currently undergoing medical treatment for their respective diseases. The initial recruitment took place at the clinics during the patients' follow-up visits. The proposed participation of this specific population ensured that herbal remedy use concomitant to orthodox medicine pharmaceuticals for chronic disease was included.

Recruitment. During the initial weeks of the study, the PI and biomedical personnel belonging to the five participating clinics approached the patients directly as they arrived for routine consultation, and disseminated bilingual fliers in English or Spanish. However, this strategy was ineffective, as it was very difficult to congregate the adequate number of patients for the same day and time at the clinic. For this reason, the PI enlisted the assistance of a local non-profit community organization known as AYUDA, based in San Elizario, TX. This organization consists of various health promoters or “promotoras” (as they are commonly known

within the Hispanic community), who interact with diverse clinics and organizations, as well as offers diverse classes and workshops (sometimes on a weekly basis) on various topics, such as nutrition, hygiene, and legal issues, among others. This allows the “promotoras” both direct and frequent contact with a considerable number of people within the Hispanic t population. The help offered by this organization was vital to the progress of this study, as its health promoters had access to adult Hispanic patients from various La Fe clinics in the region. A meeting with the promotoras was held at their organization, where the PI fully explained the importance and scope of the study and why it was crucially important to have health promotoras talk to the people within their community who knew and trusted them. Two of the promotoras agreed to undertake the task and were given the flyers to distribute to their constituents during the weekly workshops their organization offered. The two promotoras had years of previous experience in organizing and conducting meetings as well as interviews within the low-income Hispanic population of El Paso City and County. The principal moderator for the focus groups had high-level academic training in education, psychology, and holistic therapies.

The procedure was for the promotoras to meet with various groups of adult Hispanics at diverse weekly community functions and events and inquire if any of the attendees was currently under treatment at any La Fe clinic within the region. Secondly, the promotoras would give out the printed flyers inviting patients to participate if they responded positively to taking any herbs or herbal remedies for the management of a chronic health condition, for at least 6 months prior. The flyers also offered a gift card worth \$20.00 (twenty dollars), as well as a free lunch to the eligible persons that wished to be part of this study. The patients who voluntarily wished to participate signed up, and when six or more agreed to meet on a certain day, the promotoras would inform the PI of the day and time for the sessions. The focus group sessions were held

either at a classroom in the La Fe Central Clinic located at 700 S. Ochoa St. -79901 in downtown El Paso or in a meeting room designated by the promotoras that was accessible to the participants.

When the session was scheduled, a brief bilingual (English-Spanish) screening questionnaire was distributed to all patients as they arrived for to the focus group sessions, before the actual interviews take place. This questionnaire first clearly established that prospective participants have used at least one herbal product alongside their prescribed medications within the last 6 months, as well as their voluntary acceptance to involve him/her in a focus group. In addition, the questionnaire established the patients' basic socio-economic demographics (place of birth, age, income and educational levels, type of disease, and the kind and form of use of herbs or other alternative treatments to manage their disease), as well as the level of comfort the patients have with regard to disclosing herbal use to their healthcare providers. This information allowed for the ample description of the characteristics regarding the sample of herbal product users.

Research participants and protection of human subjects

In accordance with the National Institutes of Health Code of Federal Regulations, Title 45, Public Welfare, Department of Health and Human Services, Part 46, Protection of Human Subjects, there are Standard Operating Procedures (SOP) to protect individuals who participate in research studies. These SOPs must be adhered to by researchers in order to protect the rights of human subjects and safeguard them from undue and unnecessary harm (Department of Health and Human Services/National Institutes of Health, 2007).

Human participants research safety

Human Participants Involvement and Characteristics. The participants included in this project were Hispanic adults ages 18 years of age and older, of both genders, currently under medical therapy for any chronic disease state. Six focus groups with the participation of 6-8 patients each, were recruited for this study. Patients who were institutionalized, mentally handicapped or presented any high-risk health conditions were excluded from participation.

Sources of Materials. The data gathered included various demographic information, as well data related to the use of herbal supplements or medicinal plants for the treatment of their disease.

Potential Risks. Since this was not a clinical trial, this study involved exclusively answering the questionnaire specifically designed for this study and will aid the pharmacist and physician to assess any side effects that could be due to any potential interaction between the plants or herbal supplements they may be taking. Therefore, no potential risks were identified for the participants.

Adequacy of Protection Against Risks/Informed consent

Recruitment and informed consent. Recruitment was undertaken using bilingual (English- Spanish) flyers and posters given out at the study site. All of these materials were previously approved by UTEP's Internal Review Board (IRB), as well as the La Fe Clinic administrators and medical directors. These documents were fully explained to the participants regarding the purpose and content of the study, as well as what would be the extent of their participation should they voluntarily wish to be included in the study. Informed consent was obtained from all participants prior to data collection, with substantial care given to providing

information appropriate to the linguistic skills and educational level of each potential subject, by means of a bilingual (English-Spanish) informed consent form, Participants were recruited mainly by the action of specifically designated health promoters, as well as by advertisements placed in the clinics and by on-site bilingual study staff who were available to answer questions about the study and screen potential participants for inclusion.

Protection Against Risk. All research materials were coded and stored with an identification number, and kept in a locked cabinet in an office at the UTEP School of Pharmacy. A list matching identifying information with code number was kept separate from all other research materials and only available to the Project Leader and his designated research associates. All recordings made were erased, and any field notes taken during the sessions were destroyed once the study was completed. Study information was not available to others but study staff. Data was analyzed in aggregate, and no names or other personal identifiers of the study participants will be used in any presentation or publication. All the participants were given the pertinent contact information (in English and Spanish) regarding the investigators as well as the UTEP IRB, should they have any questions or concerns at any time during the study.

Potential Benefits of the Proposed Research to the Participants and Others

Various medicinal plants or herbal supplements used in traditional medicine for the treatment of various chronic diseases. As such, some herbal supplements are readily available in commerce on both sides of the U.S.-Mexico border. Even though certain vendors for these products, as well as some users claim that these products are safe because they are “natural”, in actuality, a review of the scientific literature shows that at least some of them could be potentially hazardous if used concomitantly with certain medications.

Another crucially important issue that has never been adequately addressed in our border region is the lack of disclosure by some patients to their healthcare providers regarding their concomitant use of herbal medicine and medications, with all its related risks and dangers. This situation could be overcome by fostering improved and open communication between patients and their healthcare providers. Previous research has shown that, at the national level, the reasons why some patients (especially those belonging to certain minorities) do not disclose their herbal product use or any other alternative therapy for that matter, are still very much unknown or poorly studied. This serious issue could encourage interference with adequate medication therapy and could have a very negative impact on patients suffering from chronic disease states, seriously affecting their health outcomes, and placing them in unnecessary risk. For this reason, this study fulfills the urgent need to assess what types of medicinal plants or herbal supplements are consumed, as well as identify any possible barriers that hinder open and respectful communication between patients and their healthcare providers.

The new and relevant information obtained from this study benefits not only the patients suffering from various chronic diseases, but also members of the medical, nursing, pharmacist, and health promotion professions within international our community.

Importance of the Knowledge to be Gained

Ethnic minorities, including Hispanics (especially Mexican-Americans), are at increased risk of under-detection and sub optimal treatment among detected cases of various chronic diseases. This study offers new knowledge of the current trends in medicinal plant or herbal product use by Hispanic patients, as well as identifying potential barriers that preclude effective and culturally sensitive communication between patients and healthcare providers in order to improve health outcomes.

The risk for participation was minimal for all participants in the study. The information obtained from this study is critical for the design of programs that seek the adoption of alternative medicine in the Hispanic population. There is a benefit to society in learning more about complementary and alternative medicine as adjunct therapy to conventional pharmaceutical therapy. These benefits outweigh the minimal risk.

Conduction of focus groups and semi-structured interviews

Before commencing the focus group sessions, the PI cordially greeted the participants and mentioned the importance and intention of respecting the participants' confidentiality, clearly explaining that the discussions would be electronically recorded, in order to be able to capture all of the essential information that could have been missed during note taking. With the objective of ensuring and maintaining confidentiality, none of the patients' names were mentioned. In lieu of their personal name, each participant was assigned a pseudonym or a number.

Before beginning the focus group discussions, a questionnaire containing queries related to demographics was explained to the attendees, and administered in order to capture information regarding age, sex or gender, country of birth, level of education, income level, source of knowledge regarding herbal use, level of comfort in communicating with healthcare providers regarding herbal use, as well as status of healthcare coverage, if any. The questionnaire also included a list of the common names (in English and Spanish) of 110 medicinal herbs used in our border area, for the participants to circle in case they used one or more of them to treat their health condition(s). Space was also reserved within the questionnaire, in order to allow the participants to write down any herbs they were using, but that were not present in the original list.

The PI and a bilingual (English-Spanish) health promoters, previously trained in focus group facilitation conducted and recorded all focus group discussions. The PI acted as group facilitator, while the assistant took additional detailed written notes. The focus group sessions had an approximate duration of 60-90 minutes each. All data obtained were fully transcribed and translated into English. All of the focus groups were conducted in the Spanish language, at the behest of the participants, since the majority of them mentioned having been born in Mexico, and that their native tongue was not English. The PI, who then proceeded to translate and transcribe the conversations, making careful notes of certain words and expressions that elicited a certain feeling or meaning regarding the topic being discussed, listened to the recorded conversations on various occasions. The PI verified the transcripts by listening to the original recording and compared the transcription to the actual words of the participants. All discrepancies were corrected and the data analysis was completed by the researcher in English. For example, certain syntax and grammatical mistakes were noted, but were initially written as they were spoken. When a certain phrase was repetitive or only made sense grammatically in Spanish, it was transcribed into correct English. Reflexivity notes taken before and after the focus groups offered personal reflections about the focus groups and the interactions that occurred in each of them. Observation notes taken during the focus groups provided rich and thick descriptions of the events.

The PI also undertook the semi-structured interviews of approximately 30-minutes duration, with 11 of the clinic's healthcare providers. All the information obtained therein, as well as the data from the focus groups, was kept in a locked filing cabinet in an office at the UTEP School of Pharmacy during the entire time the study is undertaken, and was only available

to the study personnel. All written or tape-recorded materials regarding the interviews and focus groups were erased or destroyed after the study was been completed and the results analyzed.

The semi-structured interviews with the 11 members of the healthcare staff at the participating clinics were incorporated as well. The focus groups were conducted in order to elicit participant views regarding the use of herbal products, while the semi-structured interviews inquired as to the providers' level of knowledge regarding herbs, and their possible beneficent or deleterious effects. The principal aims of this study were to: 1) investigate under what conditions the concomitant use of prescription medications and herbal medicine are used by Hispanic patients in managing chronic disease, 2) assess under what conditions patients disclose herbal product use to healthcare providers and 3) identify potential barriers to disclosure as well as possible solutions to improve communication between patients and healthcare providers.

Reflexivity notes. Notes were taken throughout the duration of the study, that included the recording of thoughts, feelings (both of the PI, as well as the interviewees, both providers, as well as focus groups participants), and visual appreciation of each situation. The visual appreciation included observing the participants closely and recording their demeanor and forms of expression during the interviews or discussions. These notes assisted the PI in making decisions, as well as in the interpretation of the information contained therein. The journal was first written by hand, and later verbally dictated into a Word document, using the Dragon[®] *Naturally Speaking* software program, in a private cubicle at the UTEP library. These notes also reflect the feelings and personal experiences of the PI during the whole process of the study, including the obstacles and achievements and their interpretation by the writer.

Questions posited in the semi-structured interviews with healthcare providers:

1. Could you describe your experience in working with patients who use herbal treatments?

2. Could you describe the communication between you and patients who use herbal products?
3. Can you describe a situation in which it would be more advantageous to know more about herbal products?

Transcript analysis

Text analysis. According to Ryan and Bernard (2003), several tasks comprise text analysis: (1) discovering themes and subthemes, (2) reducing themes to a manageable few (i.e., deciding which themes are important in any project), (3) building hierarchies of themes or code books, and (4) linking themes into theoretical models. Sandelowski (1995) mentioned that text analysis commences with proofreading the material and simply underlining key phrases “because they make some as yet inchoate sense” (cited by Ryan and Bernard, 2003). Themes can emerge from both the data (an inductive approach), as well as from an a priori approach (i.e. the researcher’s previous theoretical understanding of the phenomenon or situation being studied) (Ryan and Bernard, 2003).

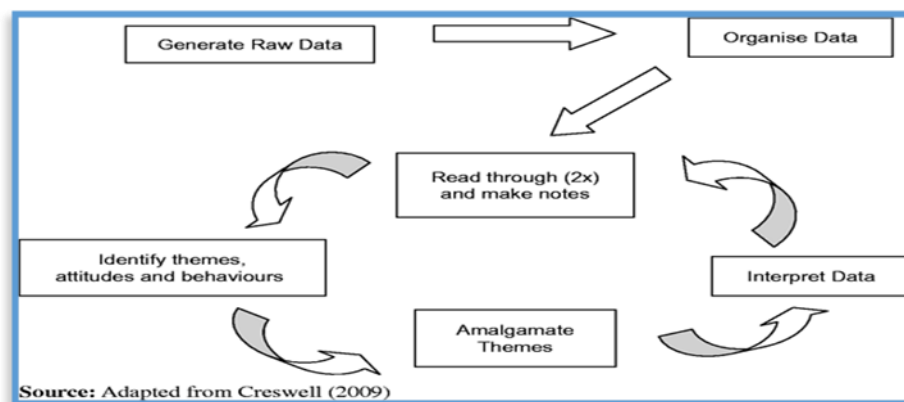


Figure 2. Process of qualitative inquiry

Based on the new knowledge gained from the focus groups interventions, this study greatly contributes to the growing body of literature concerning herbal product use and broadens our understanding of communication barriers between patients and healthcare providers, as well as how to prospectively resolve them, according to both the patients' as well as the healthcare providers' opinions and suggestions.

The PI, using the principles of thematic content analysis, which involves reading the transcripts and identifying emerging themes and categories, with particular attention to the interaction between participants, analyzed each transcript. The content analysis was undertaken in order to establish a consensus regarding the key themes emerging from the focus groups' data. The agreed themes were then compared in order to detect similarities within, and differences between, groups. Content analysis of the focus group discussions facilitated the rendering of the various themes and subthemes that emerged from the qualitative data, and the quantitative analysis from the demographic form was undertaken with Microsoft Excel[®], in order to capture the data and develop the relevant graphical representations of the information.

Developing the themes and subthemes that emerged from the raw data. After translating and transcribing the data onto a Word document, the first step undertaken was to read and reread the transcripts ("immersing one's self in the data") in order to discard the information that was irrelevant to the study. This was followed by classifying and categorizing the data repeatedly, thus allowing for deeper immersion into the content, as well as writing notes in the margins of the manuscript ("memoing"). As the preliminary classification themes emerged, the raw data was categorized into groupings ("chunking") in order to aggregate the similar information relevant to the topic and helped to develop an initial sense of relevant data, as well as the general categories that were developed. This was essential in order to create a preliminary

set of codes, and then cluster the raw data into units that shared similar meanings or qualities. This facilitated the aggregation of data sections that are broadly similar, in order to develop the initial code list, allowing to visualize which “chunks” of similar data can be grouped together to relate to a broader coding scheme. According to Kelle and Kluge (1999), there are 3 important characteristics that a code should possess: 1. It should be sufficiently precise, 2. It should enable a large part of the data to be subsumed under it, and 3. It should be relevant for the research question (s).

The second step in the coding process is known as “data reduction” or reducing data from chunks into clusters and codes to make meaning of that data. This is undertaken with groups of data that are similar which will lead to initial clusters and coding. The clusters are aggregates or “chunks” of similarly labeled data which are assigned into clusters as well as creating the preliminary codes. These codes are created and refined by continuously comparing the information and referring back to the research questions of the study, in order to create a coherent and consistent flow of information into a narrative. The initial coding process can consist of many categories, depending on the scope and objectives of the study, as well as the characteristics of the study population from which the data was obtained. The codes can be reduced, depending on the information that emerges. The reduction process helps to refine the codes that are mutually exclusive and includes all the raw data that was initially noted as relevant. The codes for this study were derived from the data by using code names drawn from participant quotes or the PI’s interpretation of the data. Descriptive coding goes from summary to meaning to explanation based upon identifying relationships between codes for developing the emerging themes. Once the themes and subthemes were developed; they were interpreted in order to answer the original research questions and objectives of the study. Different colors were

applied to the diverse emerging themes. The snippets of data were hand cut with scissors and put in different piles under their respective label. After that, the main themes and subthemes were written on a large poster paper.

The diverse snippets of varying colors were then placed under the different topics by means of adhesive tape and not permanently glued to the paper. This was done in order to be able to change and reclassify the snippets under another heading if necessary, once the activity was completed. In some instances, after reading the complete pages, it was necessary to recode or reclassify some of the snippets of data into a more adequate category, and modify their location on the pages. This is an example of qualitative research's flexibility in being able to modify items whenever necessary in order to provide a more objective narrative of the data.

Focus group probing questions

Pivotal questions aimed at providing important information directly from the main stakeholders are addressed in this study:

1. Could you describe the importance of herbs in managing your health condition, what kinds of herbs do you use, and how often?
2. From whom or where do you obtain information about using herbs?
3. Could you describe how you feel when talking to your healthcare provider about using herbs or any other alternative treatments for your disease?
4. Could you describe how you would like this interaction to be?
5. Would you please share your knowledge regarding the indigenous use of tobacco for healing or rituals?

Chapter 4: Results

As mentioned before, the three main objectives of this study focused on the following:

1. Obtain new knowledge regarding the use of herbs among adult Hispanic patients currently receiving medical treatment for chronic disease(s) attending various community health clinics in El Paso City and County,
2. Inquire about the quality of patient /healthcare provider communication with regard to the patients' disclosure of herbal product use.
3. Identify possible barriers that impede effective communication and thus improve patient health outcomes.

Interviews with clinic healthcare providers

One of the salient features of this study was comprised of the narratives offered by the diverse clinic health providers regarding their opinion about medicinal herbal use by their patients, as well as the level of knowledge that they professed to have, if any, about this topic. The 11 providers (8 women and 3 men) belonged to various biomedical specialties including physician (MD), Doctor of Osteopathy (DO), Doctor of Pharmacy (Pharm.D.), Doctor of Nursing Practice (DNP), Nurse Practitioner (NP), and Medical Assistant (MA), as outlined in Table 1.

Table 1 *Specialty, gender, and ethnicity of healthcare providers*

Specialty	MD	DO	DNP	NP	Pharm.D.	MA
Male Hispanic	1	1	0	0	0	1
Female Hispanic	0	0	2	3	2	0
Female Non-Hispanic (Bengali)	1	0	0	0	0	0
Total	2	1	2	3	2	1

The responses of the majority of the healthcare providers (HCP's) indicated they were aware that some of the patients did not disclose their herbal product use to them, due to a lack of trust or for fear of reprimand for doing so. Even though the majority of the health professionals knew the patients were taking herbs, they also openly stated that their level of knowledge regarding some of the herbs sometimes mentioned by their patients was low (Table 2).

Communication and its barriers. The two main themes that emerged from the data regarding HCP's responses were "caring" and "non-caring" communication. These are directly related to how the HCP would view herbal product use by his/her patient and the response or perception of communication by the patients. An example of caring comments that would elicit a more trusting attitude from patient to HCP would include, "I feel respected by my HCP", and "I don't feel judged or stigmatized by my culture or national origin by my beliefs or cultural legacy" since they focus on positive aspects of their healthcare experience. Also, comments such as "I can talk to him or her with positive confidence that I will be heard, and that a solution to my health problem will be sought together" bring a positive caring tone.

Non-Caring communication would elicit negative responses by patients regarding their HCP, such as “I feel I am not treated as a person, but rather, as a number or just another item that needs to be processed for the day, a report that has to be filed”. “I am afraid of what the HCP will say if I suggest something different, something that is not included in the typical medical framework”. “I don’t feel empowered to make a decision; that decision will be made for me, because I’m apparently not as intelligent as the person standing before me in a white coat”.

Caring communication from interviews with healthcare providers

Under the caring heading, three subheadings were identified: “I do know”, “I’m unsure”, and “I want to know”.

Description: “*I do know*”

Various healthcare providers (eight women and three men) were interviewed in five clinics, and under the description of “*I do know*”, there were some interesting comments regarding the providers knowledge of global product use by their patients. The use of products made from plants and regarded as herbal supplements or home remedies by Hispanic patients was estimated to be from 25% to 80%. Some of the HCP’s mentioned that many patients use herbs or other forms of alternative medication and that many of the patients use herbal products including herbal teas as part of their daily regimen and sometimes certain patients come in to the medical appointment with herbs, herbal teas, and lotions.

Some of the HCP’s mentioned that the communication regarding herbal product use with their patients and that the medication regimen or reconciliation made by some of the providers included asking about the patients’ use of over the counter (OTC) medications as well as herbal products. The majority of the healthcare providers mentioned that they record everything the

patient take not only prescription and over-the-counter medications but also any type of herbal or nutritional supplements.

Certain HCP's mentioned that they always bring up the topic of alternative medicine because they knew that specific patients are using herbal products, including leaves. So then they start to ask them specifically about what they are taking. Most of the HCP's mentioned that several patients do admit using herbal remedies but more as an afterthought, in other words, it is not something they bring up immediately beginning the medical appointment. This may be because most of them perceive herbal supplements as natural and that is especially true of the Hispanic population. A few providers mentioned that they always ask the patients to bring in all the medications, all the herbal substances, and everything else that they may be taking.

Description: *I'm unsure.*

Under this heading, various providers mentioned that they were not sure of the identity and the safety regarding various herbal products or supplements that their patients were taking. In one instance, a provider mentioned that a female Hispanic patient was not taking her insulin or any other medication for diabetes because she had been taking a pill that supposedly contained cinnamon and that it was supposed to help her "sugar levels".

Some healthcare providers who are interested in knowing what the Hispanic patients are taking will pry and prod, asking them "what else are you taking"? And, if told, some providers don't know the research behind certain herbals and they have to look it up to find out if there is information regarding these herbs. Some providers cannot tell the patients, from a medical standpoint, if they should take these herbs or not because of their lack of knowledge on the subject, and also because the products are not approved by the food and drug administration or the FDA.

Regarding the lack of training compounded by the lack of research in various herbal products used along the US and Mexico border, some providers mentioned that even the patients themselves do not know what they are taking; that they do not know the specific names of the herbs because they got them from a friend or family member. Some patients also mention that various products ranging from crude herbs, capsules and pills, herbal teas, creams and lotions were obtained from the neighboring city of Juarez, Mexico.

Regarding the above, some providers mentioned that it was very difficult for the patients to give the providers the specific names of the herbal products they were taking, so it is difficult to get the specific characteristics of many of the supplements when the providers ask them during the consultation. Only a few providers mentioned that they do know a few of the herbs, but that they were not very knowledgeable of all of them, especially regarding their effects on the body. Only two providers mentioned they had never ask the patients to bring the unidentified herbs, so the providers didn't know in reality what the patients are taking. Some occasions Hispanic patients to specify omega-3 oil supplements and vitamins as well as mineral, but for other specific products, the information is more difficult.

Only one of the eleven providers interviewed mentioned that she did know about the UTEP School of Pharmacy's Herbal Safety website that includes information in English and Spanish regarding various herbs used in our border area, but that she had not accessed it in a long time. She also mentioned that there were various products that do come across her practice, but that she didn't have the slightest idea of what they were, as well as their characteristics and possible interaction with prescribed medications. In light of this, the pharmacist would tell her patients to be careful when taking herbal supplements that were not regulated since she did not know the content of the product versus what is mentioned on the label of the box or container.

Description: *I want to know*

Under this subheading, we found the most numerous comments made by the healthcare providers regarding their patients' use of various types of herbal teas and supplements. The majority of the providers mentioned that it was very important for patients to share anything that they were using therapeutically, even though it may not necessarily be considered a medication, but it still could have interaction medications they were taking, therefore they always ask the question in every single visit. Some mention that they do want to take herbal product use into consideration specifically, especially if the patient's are being started on medications that target certain organs (such as the kidneys or liver, for example), so the provider needs to be more cognizant in asking them to bring all their medications to the next visit, including herbal supplements. A few providers mentioned the need to know what the patient is taking, and where they're getting the supplements from, as well.

In some cases, certain patients bring all their medications, but most of the time these patients do not bring the herbal or other supplements they may be taking. For this reason, it would be very important to know every product that the patient is taking when they come in for a medical appointment, and some mention it is something that they try to do when they are not familiar with the herbal products patients are taking.

Only a few providers stated that it should be discussed as well as incorporated into the workflow of every health care provider. The importance of asking the Hispanic patients about diverse pharmaceuticals or supplements was stressed by various providers, who also mentioned the importance of asking them if the patients had bought these pharmaceuticals or supplements outside the U. S.

One provider mentioned that even if she was not familiar with the name of the product or that if she didn't know exactly what it was, she had some resources that she could look up if she didn't have the information right then and there during the visit. However, upon probing about those resources, they turned out to be databases that do in fact contain information about certain herbal products used in other areas of the U.S. but lack any information about the vast majority of the plants there are currently used in our border area, making these resources less efficient and useful.

One pharmacist mentioned that her visits with patients tended to be a little bit longer than most providers, and therefore it was feasible for her to take more time and ask the patients more in-depth about every product they are taking, including herbals and over-the-counter medications. Another pharmacist stated that at the clinic where she works continuing education events occurred on a monthly basis with the participation of some of their local organizations. Additionally, she added that it would be of value for pharmacists to attend these events, especially if an expert on herbal medicine would present, so that the healthcare providers could learn more about that topic, since it is very prevalent on both sides of our international border. The same provider also mentioned that aside from the presentations, having a video that could describe some of the most common herbal products that are used on the border should be shown continuously on the screens of various clinics to the patients in the waiting area.

This sort of information would be very good, alongside a trustworthy website so that herbal product information could be accessed in a timely manner, especially here where many patients use herbal supplements. One of the providers mentioned it would be a very good idea to know more about herbal products since many of their Hispanic patients were using them and that

it would be of great value because, in some cases, she would even be able to prescribe them, feeling more comfortable after having more knowledge on these products.

Regarding the identity of herbs and other supplements, many practitioners mentioned it would be very advantageous for the patients to bring all their herbal products and for them to know the correct name and have more information about them. This highlights the importance of having knowledge about herbal remedies; not only from the provider's point of view, but also from that the patients themselves, who should be educated regarding the products they are currently using. One of the pharmacists mentioned that when she has a doubt regarding the identity of an herbal product for patients are taking, she does a quick Google search to see if any of the ingredients have been researched. In case she cannot find any information, she then asks her patients to bring in the products on their next visit.

Regarding this situation, it is important to note that some of the medical visits that Hispanics patients have with their providers are interspersed within weeks or even months. In some cases, it may take up to three months or more for the patient to be seen again by the provider, which is a very long time and the patients could be in danger of taking an herbal product that could be causing a hazardous interaction with prescription and or over-the-counter medications. For this reason, it is of the utmost importance for all practitioners to incorporate asking questions about herbal product use, as well as knowing more themselves about the beneficent or hazardous effects of various herbal supplements.

Another issue that arose is that various alternative supplements that are supposedly classified as herbal, actually contain various other products that are not truly herbs, such as minerals, shark cartilage, glucosamine, chondroitin, and many other products, especially those used in Indian and Chinese medicine. Even though this has been known for a long time, these

multi-factorial supplements are still all lumped together under the name herbal, even though it is a mistake to do so. This is important to take into account because, some interactions with medications could be caused not by the herbal portion of the supplement, but by other additives.

One family nurse practitioner said that it is important to know more about herbs and that the poignant questions regarding herbal product use should be asked and sometimes rephrased in order to elicit the information from the Hispanic patients. In many cases patients ask various healthcare providers about safety or efficacy of herbal products, but they are left wanting, since very few providers are trained in herbal medicine, especially regarding the plethora of herbs and other allied products that are used in our populous border “Metroplex”. HCP’s should be able to learn more about the use of herbs and their possible caveats, since they would be better prepared to efficiently serve their Hispanic patients, not leaving them with a doubt regarding if they should or should not use a specific herbal product or supplement.

The above scenario is of great importance, especially for patients who are taking blood-thinning medications, since if providers knew more about herbs, they would be able to adjust the dose of certain medications in order for the patients to be taking the prescription drugs as well as certain herbal supplements. Unfortunately, many patients bring the herbal product or mention using it and when queried about the origin of these products, they will sometimes say “my grandmother brought it to me” or “my aunt bought it for me; I don’t know what it is, but I know it helps my condition”. This lack of information on both sides of the equation, the providers as well as the patients, motivates much misinformation and possibly lack of communication between healthcare providers and their Hispanic patients.

When asked about the possible advantages of writing down the herbal product or supplements, name and recording it in their notes (as well as taking a picture of the product with

their iPhone), the healthcare providers responded unanimously that it would be of great help to them, since a record could be kept of what the patients were taking. And, if the identity of the products were unknown, this information could be forwarded to an expert within our region, in order to ascertain exactly what the patients were taking and know more about the possibility of herb and drug interactions, as well as direct toxicity to the patient. It was also suggested that the procedure mentioned above, should be incorporated into their daily algorithm when meeting with their patients within the medical visit. It was further posited that this methodology or updated algorithm would not only help to diminish the possibility of an herbal drug interaction, but it would also help to eliminate the current stagnation and lack of knowledge prevalent not only in our international border, but also in the various cities located along the extensive US- Mexico border.

Non-caring communication from interviews with healthcare providers

Under the non-caring heading, the fourth subheading is *I don't care*.

Description: *I don't care*

This subheading contained the least number of provider comments. It is important to note that, although all of the healthcare providers interviewed mentioned the importance of knowing more about herbal product use (for them as well as their patients), certain comments made it clear that, at least for a few of them, asking about herbal products (at least up until this interview), was not a priority as part of the medical visit.

One physician said that she did not have any knowledge about how many of her patients were taking herbal products, mentioning the name “medications”, instead of herbal products. This is confusing, since, if the provider classifies herbal products or home remedies also as medications, he or she may not be asking the correct questions to their Hispanic patients. For

example, if a provider asks a patient if he or she is taking any other *medications*, aside from those prescribed, it is highly likely that Hispanic patient will answer “No”, because he or she does not necessarily regard the herbal product or home remedy he or she may be taking, as a medication or drug. This situation hinders adequate communication between the provider and the patient and only serves to increase the lack of knowledge and misinformation seemingly prevalent in our border area. Paradoxically, the same provider also mentioned that some of the patients might not disclose their herbal product use, because they do not regard this as necessary, since the patients don’t see their remedies as prescription medications.

This is just one example of why there are important reasons for healthcare providers to change their attitude, as well as their procedure, regarding the queries posited to their Hispanic patients during their medical interview. Another physician said that, in general, he would tell the patients that if they were taking anything that was not on the list of medications provided by the clinic, he did not want them to take them anymore regardless of what it was. He only conceded to see the product or products they were taking only if the product would be very important from a cultural standpoint to the patient. The physician further mentioned that asking about herbal product use or any other alternative therapy “was not included in the algorithm I learned when in medical school”.

Unfortunately, this type of approach only serves to impede communication between patients and providers, since their herbal product use can be dismissed very quickly. In addition, even though the MD may instruct the patients not to take anything else not included in the medication list, this in no way guarantees that the patients will stop using any herbal or home remedy. This situation persists, precisely because some providers do not show interest in even knowing what it was, unless the patient specifically insists. This type of approach is self-

defeating, especially in our border area, where previous research has shown that up to 70% of the population uses some sort of herbal product.

A physician assistant mentioned that even though he knew that some of his patients were using herbal products, he only practiced the allopathic side of medicine, and therefore did not know very much about herbs and could not recommend their use among his patients. A nurse practitioner said that if a patient was taking product, even though knowledge of what it was scant or nonexistent, as long as the patients' laboratory results were not abnormal, then she didn't see there was any problem for the patient taking product. This is a very simplistic approach and does not really help to improve the communication between patients and healthcare providers, since the ignorance continues as to the identity of the product, until perhaps a problem regarding the liver or kidney for example occurs and is shown in the lab results for the patient. This begs the question, why not record the name or at least take a picture of the herbal product and seek other informational resources in order to pinpoint if the product is indeed safe or not to use and not wait until the patient's health is compromised, showing up in the lab results? This type of attitude, which is semi-complacent, is both inadequate, and can very well translate into a disservice to the patient.

Do I really need to know? (Why do I need to know)?

In this subheading we placed the comments that some of the providers made that seem to show that although knowing about the product used by their patients was important, perhaps some of them were not totally convinced of the importance of probing more into herbal product use, especially among their Hispanic patients.

A non-Hispanic physician working in a semi-rural clinic said that sometimes patients do bring, if not the product itself, at least a portion of the container box. However, this provider

mentioned that if she did not recognize the name or if it was not printed in the English language, she asked nothing further. This type of answer was most disconcerting, as it revealed that the provider, working with an overwhelmingly Hispanic population, was not totally proficient in the Spanish language. In addition, she expected her patients to bring an English translation of the product, possibly manufactured in Mexico or other parts of Spanish America. To have the expectation that Hispanic patients bring only products whose characteristics are written in English language, is both naïve, as well as unrealistic.

A physician assistant mentioned that within a day's work, he would capture information from approximately 60% of patients who use some sort of sort of products. He added that this figure was probably higher, because some of them do not visualize their herbal products as medications and so therefore do not mention this to the provider during the medical visit. Once again, this shows the great importance of including asking the correct questions, in a respectable fashion in order to elicit the possibility of herbal product use among the patients. Failure to do so only augments the lack of knowledge previously mentioned various times above. The provider also mentioned that some patients he knew seemed to gravitate towards herbal products that were sold as part of what he called a "pyramid scheme". He also mentioned that there aren't many resources for both healthcare providers as well as patients to turn to, in order to know more about herbal products. Furthermore, he stated that the knowledge that patients had about the products they were taking was very scant and based mostly out of word-of-mouth as how the medication might work but that they were not well versed as to what the herbal product was used for. Additionally, he said that before this interview, he was not knowledgeable about the herbal safety website operated by the UTEP School of Pharmacy.

As previously stated, various providers seem to only ask the patients if they were taking any herbal products or other supplements only if they suspected there was a problem with the patients organs, especially the kidney or liver. It was only then when they asked the patients if they were taking anything else aside from their prescribed medications. In other cases, the providers would only discuss herbal product use only if the patients brought it up. If not, no questions were asked. Once again, we see that failure to inquire as to herbal product use unless the patient brings it up or only when the provider notices a change in the patient's health, especially by the laboratory results of blood or urine tests for example, is an inadequate way of treating the patient. This is especially true, when the providers themselves admit that Hispanic patients usually tend not to disclose their product use the providers.

For all of the reasons mentioned above, it is imperative for all healthcare providers to adequately ask their patients, in a culturally sensitive way, if they are taking any type of product, supplement, alternative treatment, home remedy or any other substance. If these questions are asked adequately, a wealth of information, previously hidden from the healthcare providers, could be attained only a dearth of effort were employed by the providers for the sake of the health of their patients, as well as their own augmentation of knowledge regarding this topic.

Discussion: *What is the level of patient disclosure?*

Under non-caring communication, we included a sixth subheading entitled level of patient disclosure in order to probe the healthcare providers as to the quality or openness of the communication between them and their patients.

One provider said that typically there is an opposition shown by the patients to allopathic or mainstream medicine and that for that reason, he thought it promoted a resistance patients in order for them not to want to show the providers their products unless it was specifically asked. Some providers started they felt the disclosure of product use was minimal, sometimes because the patients did not see their herbal use as part of medication regimen as well as culturally or family tied, since product use is commonly part of Hispanic tradition and heritage. One of the providers intelligently mentioned that the form of posing the question could mean the difference between disclosure nondisclosure, and otherwise asking the same questions, but phrasing it in different ways, might elicit a positive answer.

It is important to note that a few of the providers mentioned that they were well aware of a wall or a barrier regarding communication with their patients. One physician commented that, since patients have a respect for the MD and what was doing for them, that that could be part of their reticence to disclosing herbal product use, because “patients don't want to look like they are doing their own thing on the side”, so they don't bring it up during the medical consultation. Some patients also look at the medical profession and think that the MDs are scientists, so they don't believe in herbal products or alternative medicine anyway, so why should the patients tell him about it? It is something that's very personal to them and also has an important cultural connotation, so they sometimes keep it a secret from the providers.

One nurse practitioner mentioned that the patients sometimes tell her about their product use, only if she promises not to write it down in the medical notes. Taking herbs is definitely seen as a covert action, and for fear of ridicule or stigmatization, some patients will only discuss or disclose their use to providers they trust. Trust is a very important topic regarding disclosure and communication, and some of the providers were open enough to understand the cultural complexities of their patients, stating that they wanted to create a platform of trust with their patients so that they would be able to disclose their product use and ask whatever questions they had. They also mentioned that it was important to embrace their culture, since nine out of ten of the providers interviewed are of Hispanic origin.

Most healthcare providers admitted that many patients do not disclose the herbal product use to them for fear of being judged or in order not to make the providers angry because they are taking herbal products or home remedies. This fear or lack of trust seems to be a major barrier that precludes disclosure during the medical visit, and emphasize the importance of cultural competence on behalf of provider, especially when treating minorities.

Some providers said that the patients would share the information and they would come back to the provider whom they trusted. For this reason, only by opening up these lines of respectful communication they would be able to build that trust; since this situation relates to cultural competency. Providers should not judge their patients and there should be a bond between patients and healthcare providers in order to be able to share what they are truly taking. An open communication would help to improve the health of the patients, as well as support them in their health management.

When queried about what suggestions the providers have in order to improve communications with their patients regarding the product disclosure, one MD said that it is very

important to understand the patients, as well as realize that many medications originally came from herbs. Furthermore, providers have to be aware that some of the things or supplements that the patients are taking definitely do have a therapeutic effect (Table 2).

Table 2 *Comments by healthcare providers about knowledge and disclosure of herbal product use by patients*

Caring	Secondary importance	Recommended improvements	Modification of algorithm or paradigm	Knowledge of herbs /available information resources	Communication
Part of the process in asking about the medication regimen includes the use of OTC medications and herbal supplements.	When Patients take a Mexican product that I am unfamiliar with, I try to do a quick Google search of any of the ingredients they can tell me, If I can't find anything, I ask them to bring that to me on the next visit, but I have not been very successful for them to bring that particular product.	I guess we could improve on really stressing the importance of their bringing in their herbal products the next visit if they don't have them at that time.	We could also ask our medical assistant to ask patients to bring their medications and also bring herbals and supplements with them, so to be specific and not just on medications.	I know a few of herbs, but I'm not very knowledgeable in all of them about their effects.	
We are trained to not just taking OTC medications, supplements, teas, "productos naturistas" (natural products), so we have to ask the same questions different ways to elicit an answer. We always ask them to bring all their medications, all their herbal substances, everything that they're taking.	I generally ask if I suspect there is a problem with kidney or liver. I tell the patients "if your labs are good and it's [herbal product] working for you, I don't see any problem with you taking it".		I think I am going to add a note saying what the patients are taking, absolutely.	I think it would be wonderful to know more, because the more I'm knowledgeable about it, then if they tell me about it, then I'm not kind of like "I don't know what that's for". I think to know the name of what they're taking would be very beneficial.	I think they're afraid of what we're going to say, I think that's the biggest issue. For the patients to give us the specific names of which drugs or what herbs they're taking is very hard.

It's sort of hidden information unless you really probe for it directly, unless you ask them a specific question of are you taking herbal products?

If you don't ask, then they won't tell you.

My first thing is that if they bring all the meds, every single visit, that means what I prescribe or OTC or what did you buy out of the USA.

Unless patients are coming in for a preventive, I'll ask. But if it is only a follow up, unless they bring up that they're taking something else, I don't.

We do obtain a med list when they come in so were hoping they will divulge all their information of their intake; if not if we see something that's off that's when I will probe a little but more.

Most of the time they don't bring [the products], and if they bring it, but most of the time, it's from outside the USA, and then I can't read the label, that's why I just ask them to bring something that I can read and understand better.

I can't tell you how many users, because most of the time they don't come up and

I haven't had them bring unidentified herbs so I don't know. But I would have a hard time identifying what it is, if it's not labeled.

I used to use the Mexican PDR and other things, but in terms of what is available to us here, I feel challenged.

I think it would be beneficial to know the side effects to know the drug interactions of all the herbal supplements.

A lady wasn't taking her insulin, she was taking cinnamon was supposed to help lower

Because patients are afraid that we will get mad at them.

Some patients say "I should not tell you this but I'm going to tell you...so I'm going to tell you in secret".

I have a good relationship with my patients and they offer information to me without feeling like I'm judging them.

I create a platform for patients, "confianza" (trust), that they are able to ask me these

they don't bring their medication where they got from outside.

My most interaction is that if I can read the label and I say I am not aware of it, "Can you please give the information in English"? Then we can talk about it.

I typically tend to just practice the allopathic side [of medicine]. If patients mention it to me, I take into consideration the lab analysis; could the liver or kidney be affected by this medication? But I don't recommend or give any dosing or recommendations if they are taking herbs.

her blood sugar.

I don't know who has been using [herbs] because most of the time they don't disclose or they don't know it needs to be disclosed to us.

Most of the time, I have no knowledge about that.

I didn't know about those resources, so I would think neither patients would know about those resources, either.

questions.

It goes back to cultural competency. We need to not judge our patients, it's opening lines of communication as they grow, were are here to work together, we are not here to judge.

If I were going to a different country and understanding their herbs and their culture, would create a bigger bond with their patient or that creates more compliance with the medication management.

I think [patients] are basing their intake based off of word of mouth as to how the medication might work, but I don't think they're even very well versed in knowing what the medication is taken for.

[Patients] don't see the [supplement] bottles as their prescribed in the typical orange bottles that pharmacies give, so they don't recognize them as medication.

Chapter 5 – Discussion and Conclusion

The importance of open communication between patients and healthcare providers

The relationship between healthcare providers (especially physicians) and patients is considered one of the most important topics in both medical sociology as well as health policy. It is hypothesized that thanks to mutual understanding, undistorted communication between healthcare provider and patients could lead to a mutually satisfactory experience for both patients and physicians alike. Additionally, it may also aid in reducing financial costs for the government healthcare system and the patients subscribed therein. Based on the preceding concepts, a grounded theory study was undertaken in southern Iran by Kalateh Sadati et al. (2016) in order to ascertain what measures could be taken to improve the communication between physicians and patients attending government run healthcare facilities. The results of the study showed that the communication between patients and physicians was distorted, due to deficiencies inherent to the structure of the Iranian healthcare system and related to various cultural barriers. In this scenario, the physicians' personalities seemed determine the direction of their communication with their patients. In some cases, this can cause patients' distrust and dissatisfaction with the medical system as well as a lack of mutual understanding between them and various healthcare providers. The authors of the study recommended that the governmental health care system should reform its inefficient infrastructures in order to foster improved patient and physician communications in an ethical manner.

Asnani (2009) points out that a communicative relationship between healthcare providers and patients is of primordial importance in the proper management of various chronic diseases. However, a plethora of research studies have demonstrated that notwithstanding the level of

knowledge that a physician might possess, if he/she is unable to initiate good communication venues with the patient, the physician may not be of any true beneficial assistance. Even though it is common knowledge that the consultation between a healthcare provider and patient is one of the most common procedures throughout a healthcare provider's career, an unfortunate lack in open communication with the patient currently exists.

Studies show a very strong relationship between various healthcare providers' communication skills and their patients' ability to adequately comply with their self-management of chronic disease, medication regimens, as well as adopting preventive health actions. Research has demonstrated that the healthcare provider's skills (or lack of thereof) in explaining, listening attentively, and empathizing with his or her patients may possess a very important effect (positive or negative) upon patients' health outcomes and overall satisfaction with their experience of healthcare. A salient feature of adequate communication between healthcare providers and patients is that the empathy or the positive connection that a patient feels with his or her provider can have a positive impact upon their health. This can be achieved via their enhanced empowerment or participation in the sequence of care, their compliance with medications or treatment, as well as patient self-management of their condition (Institute for Healthcare Communication, 2011).

Substantial evidence exists associating inadequate communication between patients and healthcare providers with an increase in the risk of patient non-adherence to medication regimens, patient dissatisfaction with healthcare, and even an increase in malpractice on the part of healthcare providers. For the reasons mentioned before, there is a clear need to address and enhance communication skills in order to improve patient health outcomes (Institute for Healthcare Communication, 2011).

Immigrants and herbal product use

The extensive fluid border between Mexico and the United States comprises a bi-national population of more than 10 million people, making this a unique arena for the multiple interactions between Hispanic patients and HCP's. Some patients may come from a more rural or agricultural background, and also have personal, cultural, and even religious beliefs regarding the use of certain plants for the treatment of a plethora of physical, emotional, and even spiritual ailments as dictated by their origin and culture. Failure to appreciate or at least take into account these important factors, due to racial, cultural or other prejudices, only serves to buttress this barrier against open communication. For this reason, Poss et al. (2005), mentioned that HCP's should possess knowledge regarding the use of herbal remedies among immigrant farm laborers. If the HCP's demonstrate sensitivity and respect for the cultural values associated to the use of these remedies, they will be able to conduct more complete health assessments, thus offering their patients culturally competent care.

Traditional medicinal plant use among various ethnic groups who immigrate to other countries defiantly prevails as an integral part of their culture and identity (Pieroni and Vanderbroek, 2007). Mexican migrant workers living in the U.S. possess knowledge regarding the healing herbal repertoire or *traditional materia medica*, known for centuries by their ancestors (Holland, 1996). This is especially true of Mexicans and other Latinos who are now rapidly populating areas of the U.S. located far from the southern border, such as the Midwest, for example. A study with Latino immigrants living in Wisconsin mentioned that these ethnic groups continue to use various medicinal plants common to their culture, as well as integrating new ones sold in the U.S. as herbal supplements. However, disclosure of herbal use to their healthcare providers remains low due to various factors, including language and culture, among

others. In some cases, patients are reluctant to divulge their herbal product use because some healthcare providers lack knowledge about herbs or have been disrespectful when the patient mentioned the topic in an earlier medical visit. The authors of the study mentioned that research efforts in the future are warranted in order to further understand that this non-disclosure could encourage safer herbal use. In this way, if patients and their healthcare providers openly discuss herbal product use, it is feasible the certain negative herb-drug interactions could be avoided (Kiefer et al., 2014; Howell et al., 2006).

A study by Howell et al. (2006) assessed the level of knowledge and the use of herbs among 620 Hispanic patients receiving treatment in five Indianapolis urban health centers, and evaluated their experiences when disclosing their use of herbs with their healthcare provider. The results of the study showed that the majority (80.3%) mentioned using herbs. Those participants who used herbs were more at ease speaking Spanish (91.9%) and had resided in the U.S. less than 5 years (47.0%). Herbs were considered as medications by most users (60.5%). There was more awareness among herbal users that certain herbs could be deleterious to the baby if taken during pregnancy (56.4%). Most of the respondents did not know the English name for the majority (23 out of 25) herbs used. The majority of them indicated their healthcare provider did not know they were taking herbs. Only 17.4% mentioned that their healthcare provider inquired about the use of herbs. Less than half of the respondents (41.6%) thought their physician would understand their herb use, and only 1.8% believed their physician would encourage them to continue using herbs. No significant differences were found between herb users and nonusers regarding their perception of patient-physician communication levels. The authors of the study also mentioned that effective communication between patients and healthcare providers is of vital importance in order to reduce hazardous herb-drug interactions.

Since a number of cancer patients do not usually disclose their use of various natural supplements (herbal or non-herbal), it is necessary to develop and maintain an open and nonjudgmental communication between patients and their healthcare providers. These discussions should focus on the patients' health needs, as well as include issues regarding the safety and possible efficacy of the products (Ben Ayre et al., 2013).

In order to explore the nondisclosure of CAM use among cancer patients, a systematic review was conducted by Davis et al. (2012) that reviewed research studies focusing on the communication of CAM use by cancer patients. Twenty-one studies were included, which mentioned a range between 11% and 95% of prevalence of CAM use among cancer patients. Of these, from 20% to 77% did not mention their use of alternative therapies to their healthcare providers. The review found that the principal reasons for patient nondisclosure included some related to the physician, as well as some related to the patients themselves. The reasons included the following: the physician did not ask, the patients anticipated perception of the physician's lack of approval, lack of interest by the physician, or inability to assist; and the patient's perception that mentioning his or her use of CAM was not relevant to their use of conventional medications. Interestingly, the review also found some evidence suggesting that communication between patients and physicians regarding CAM use was related to an improved relationship between them, as well as higher patient satisfaction.

Some patients may use dietary supplements during their stay in the hospital, and this may have certain potential risks including diminishing the efficacy of a medication and or of having interactions between the supplement and certain medications. These events may exacerbate complications in perioperative patients. For the reasons mentioned above, a study undertaken by

Ben Ayre et al. (2014) focused on developing socio-culturally-sensitive patient histories in order to discover if hospitalized patients from diverse backgrounds were using dietary supplements. The prospective cohort study of eight months duration included 895 patients, and employed mixed methods consisting of a quantitative fraction (questionnaires), as well as a qualitative component (semi-structured interviews) in order to ascertain if patients were using any dietary supplements. Out of the 895 patients contacted, 691(77.2%) responded. Of these, 359 (51.9%) mentioned consuming a dietary supplement within the previous 12 months. Less than half of the respondents (168 or 46.8%) answered they were using a supplements following a standard question regarding supplement consumption. Slightly more than half (191 or 53.2%) mentioned their use of supplements only following further questioning employing keywords related to dietary supplements. Certain techniques employed in questioning that elicited the patients' admission of dietary supplement use included: naming common dietary supplements as well as using keywords related to herbal or traditional healing, for example, teas (infusions) and herbs from the garden. The authors of the study concluded that improvements in history taking related to the use of dietary supplements among hospitalized patients could be achieved by employing specific keywords that are related to cultural factors. These include questions such as, "Do you use any natural, folk, traditional, grandma remedies, herbs picked in the garden, infusions or herbal teas to improve your health?".

A study by Poss et al. (2003) explored herbal use among underserved Mexicans and Mexican Americans living in El Paso, Texas. The study findings showed that most of the people interviewed were using some sort of herbal remedy alongside prescribed medications. Additionally, the results showed that most Mexican Americans using herbal remedies are reluctant to share their experience with a healthcare provider for fear of being scolded by the

medical professional. The study participants further commented that most physicians in the United States did not believe in using herbal products. Even those participants who were not using any herbal product commented that they wished that physicians in the U.S. knew more about herbal medicine. Many of the participants also stated that it would be ideal for healthcare providers to understand the use of traditional herbal remedies and be willing to use both Western medicine as well as traditional systems of healing in order to treat various diseases, including diabetes.

Roter et al. (2017) mentioned that cancer patients who employ some sort of CAM do not usually discuss this with their healthcare providers. In a study with 327 cancer patients, more than half (58%) of whom were female, the researchers found that alternative therapies were mentioned only in 36 of 327 visits. The discussions regarding CAM were usually very brief (i.e. less than one minute duration), and more than half (65%) of the discussions were initiated by the patients, as well as more common among patients undergoing the initial phases of cancer. When patient visits were longer (35 vs. minutes), and they engaged more actively in the discussion versus verbal dominance by the healthcare providers, the satisfaction was higher for both patients as well as the providers, when including a discussion about CAM. The results of the study showed that discussions regarding CAM are not a stochastic event. Instead, they take place when patient-centered communication takes place and this event results in greater satisfaction with the medical visit.

Role of the pharmacist in patient communication

A survey was mailed to 400 randomly selected community pharmacists living in cities on the Texas–Mexico border in order to assess how frequently do pharmacists ask about patients’

use of CAM, actions taken in response to patients' use of CAM use, as well as demographic or professional characteristics that predict differences in the actions that pharmacists take. The results of the study showed that more than half (63.8%) of the pharmacists had known patients who used some form of CAM. The pharmacists reported the use of CAM in 9.8% of cases and 39.4% of them were monitored for drug-related problems. Pharmacists also referred patients to their physicians. Some pharmacists did not feel at ease when patients asked them about CAM, but stated that patients required adequate knowledge about CAM. Pharmacists only sometimes asked their patients about CAM use. Additionally, pharmacists inquired more regarding CAM use when they had additional training in that modality. With regard to herbal or homeopathic products available at the pharmacy, pharmacists were more likely to recommend other CAM therapies deemed more adequate for the patients' health conditions. The authors of the study concluded that pharmacists were not very proactive in asking their patients about CAM use, and showed rather passive actions (e.g., referral to physician). In spite of this pharmacists should routinely inquire about and record the use of CAM by patients in order to enhance the outcomes of medication therapy (Brown et al., 2003).

Cipariano and Andrews (2015) posit that when treating people of Hispanic descent, proper communication between patients and pharmacists goes beyond the language barrier regarding non-compliance with medications. The authors further state that more attention should be given to the fact that the ability of some bilingual pharmacists to speak Spanish does not necessarily eliminate the barrier for non-compliance, since it is also of primordial importance for them to be culturally sensitive regarding their patients' belief systems. The pharmacists also need to recognize, appreciate, and accept some of their patients' possible cultural differences. If not, the impact on their patients' response could still be suboptimal. A pharmacist who both

understands and shares cultural values with his/her patients foments their interest in their own self-care.

Patients diagnosed with cancer usually consume various herbal and other types of nutritional supplements in the belief that if they are “natural”, they must be safe. The role that pharmacists exert in conventional healthcare is clearly defined and important within treatment regimens that require prescription medications. However, since most supplements are classified as food and not drugs, they have an over the counter (OTC) status and therefore do not require a pharmacist to fill a prescription. For this reason, the role of the pharmacist in communicating with cancer patients regarding their use of herbal and nutritional supplements is not as clear. A study reviewed various scientific articles published between 2003 and 2016 regarding CAM, herbal medicine, nutritional supplements, as well as the pharmacists’ role in communicating with the patients. The results of the study revealed that herbal and other types of supplement use is very prevalent among cancer patients, who take them believing they are safe. Additionally, the authors of the study mentioned that if pharmacists were equipped with adequate knowledge about natural supplements, they would be in a strategic position to fill the communication gap that currently exists between cancer patients and healthcare providers. However, further research is needed in order to develop guidelines for pharmacist regarding the correct use of various supplements (Le et al., 2016).

In the United States, the majority of patients obtain information about using herbal products as well as other supplements from various sources, including the Internet, family members or friends, but rarely from their physicians or other healthcare professionals (Pettigrew et al., 2004). Studies have shown that some physicians do not commonly ask patients about their complementary and alternative medicine (CAM) use, and some patients may feel uncomfortable

discussing it. However, concomitant use of certain herbs or herbal supplements with prescription or over-the-counter (OTC) medications can place patients at risk for various herb-drug interactions drug interactions (Anastasi et al., 2011).

Kennedy et al. (2008) mention that in spite of the increase in the usage of various herbal products in the United States, approximately only thirty percent of patients disclose their herbal product use to their doctors. In the same vein, Hispanics commonly do not inform their various healthcare providers (physicians, pharmacists, etc.) about using diverse alternative healing modalities. More importantly, if patients perceive their healthcare provider has a negative attitude toward alternative healing practices, they are much less likely to disclose or discuss this information. This situation is explained, at least in part, by the lack of conventional healthcare providers' knowledge about alternative healing practices. This in turn may place patients at increased risk of an herb-pharmaceutical drug interaction. Precisely the lack of adequate training and education regarding herbal and other natural products in many healthcare providers could additionally lead to unnecessary changes in medical therapy if a drug-herb drug interaction leads to a change in the therapeutic effect of the prescribed medication(s) or to various negative health effects (Ortiz et al., 2007).

The use of CAM in conjunction with conventional cancer treatments can challenge and frustrate the physician as well as the patient; the physician can become frustrated if he or she has a limited knowledge of CAM, and the patient can become frustrated when he or she cannot discuss CAM use with the physician (Frenkel et al., 2010).

No in-depth qualitative study such as this, aimed at evaluating the factors related to herbal product use concomitant to prescription medications, as well as assessing the level of communication between patients/healthcare providers, had been previously undertaken in our

international border setting. This study focuses on obtaining critical data that have been omitted or only superficially covered by limited quantitative research regarding herbal product use in our border area. This innovative approach includes interviews with not only patients, but also with their healthcare providers (physicians, pharmacists, nurses, and health promoters), regarding the use of herbal products and the potential communication barriers between patients and health professionals associated with disclosure of herbal product use and its potential effects on health outcomes.

The results of this study will be used to develop a user-friendly bilingual (English-Spanish) booklet highlighting possible caveats regarding herb-medication interactions. This resource will be distributed free of charge to stakeholders to benefit patients and healthcare providers, as part of a community-based participatory (CBPR) approach to research.

Focus group sessions

Demographic characteristics of the study population.

In order to establish the salient characteristics of the sample population, the participants were queried about their gender, age, birthplace, level of education, frequency of using herbs, sources of information regarding herbs, reasons for using herbs, principal herbs used, income level, and health insurance status (Table 3).

Table 3 *Focus group demographics*

	Total	Percent		
	Male	Female	Male	Female
Gender	7	30	18.92	81.08
Age group				
a) 18-30	0	2	0.00	6.90
b) 31-40	0	4	0.00	13.79
c) 41-50	1	7	14.29	24.14
d) 51-60	1	8	14.29	27.59
e) 61-70	2	6	28.57	20.69
f) >70	3	2	42.86	6.90
Birth Place				
a) Mexico	5	26	71.43	100.00
b) United States	2	0	28.57	0.00
c) Other	0	0	0.00	0.00
Years attended				
School				
a) 1-3	2	2	28.57	6.90
b) 4-6	2	4	28.57	13.79
c) 7-9	0	5	0.00	17.24
d) 10-12	2	13	28.57	44.83
e) more than 12	1	5	14.29	17.24
Income level				
a) Below \$15, 000	6	20	85.71	68.97
b) \$15,000-\$19, 000	0	4	0.00	13.79
c) \$20,000-\$24,000	1	2	14.29	6.90
d) \$25,000-\$29,000	0	0	0.00	0.00
e) I prefer not to answer	0	3	0.00	10.34

Health Insurance				
a) Yes	6	8	85.71	27.59
b) No	1	21	14.29	72.41

Table 4 *Herbal use, knowledge, and disclosure to healthcare providers*

Total	Male	Female	Male (%)	Female (%)
How did you acquire knowledge in use of natural products, herbs, and teas for the treatment of illnesses?				
a) Family members	4	19	57.14	63.33
b) Physician (M.D.)	0	0	0.00	0.00
c) Naturopath or herbalist	2	7	28.57	23.33
d) Books or courses	1	9	14.29	30.00
e) Magazines, radio, or television	1	5	14.29	16.67
f) other	0	1	0.00	3.33
What are the reasons why you chose to use herbal products for the treatment of illnesses?				
a) Family tradition	3	15	42.86	50.00
b) Herbs work better than prescription medications	2	11	28.57	36.67
c) Herbal products have less secondary effects	3	14	42.86	46.67
d) Herbal products are cheaper than medications	3	3	42.86	10.00
e) other	0	3	0.00	10.00
How frequently do you use herbal products to treat an illness?				
a) Every day	2	3	28.57	10.00
b) 3-5 times a week	1	9	14.29	30.00
c) Once a month	1	5	14.29	16.67
d) Only when I feel ill	4	13	57.14	43.33
When you talk to your medical provider, do you tell them that you are using teas and/or herbal products?				
a) Always	1	7	14.29	25.93
b) Every once in a while	2	7	28.57	25.93

c) Only if I mention it first	1	7	14.29	25.93
d) Never	3	6	42.86	22.22
During consultation with your medical providers, do you feel comfortable talking to them about your use of herbal products?				
a) Yes	6	22	85.71	75.86
b) No	1	7	14.29	24.14

The following figures graphically illustrate the demographic parameters mentioned above.

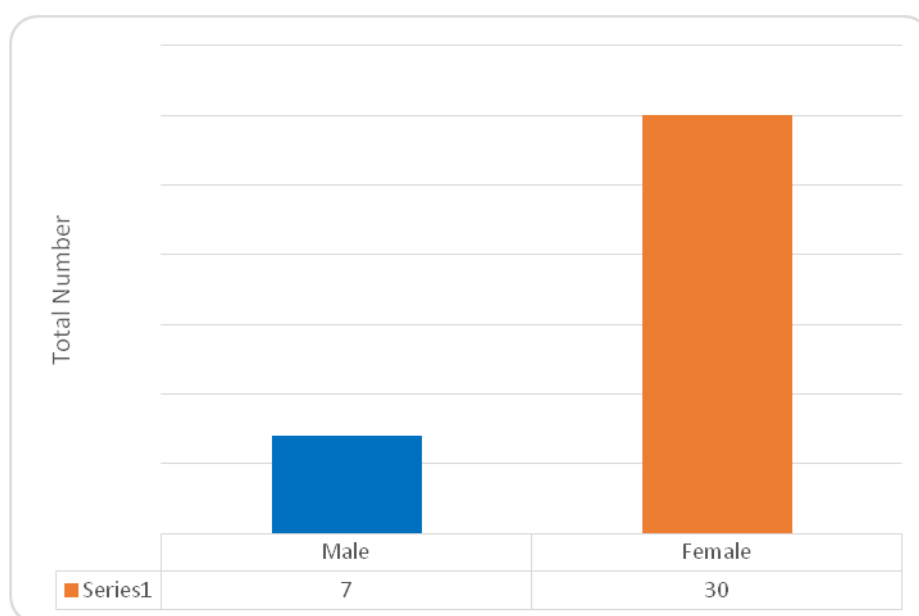


Figure 3. Focus group participants by gender

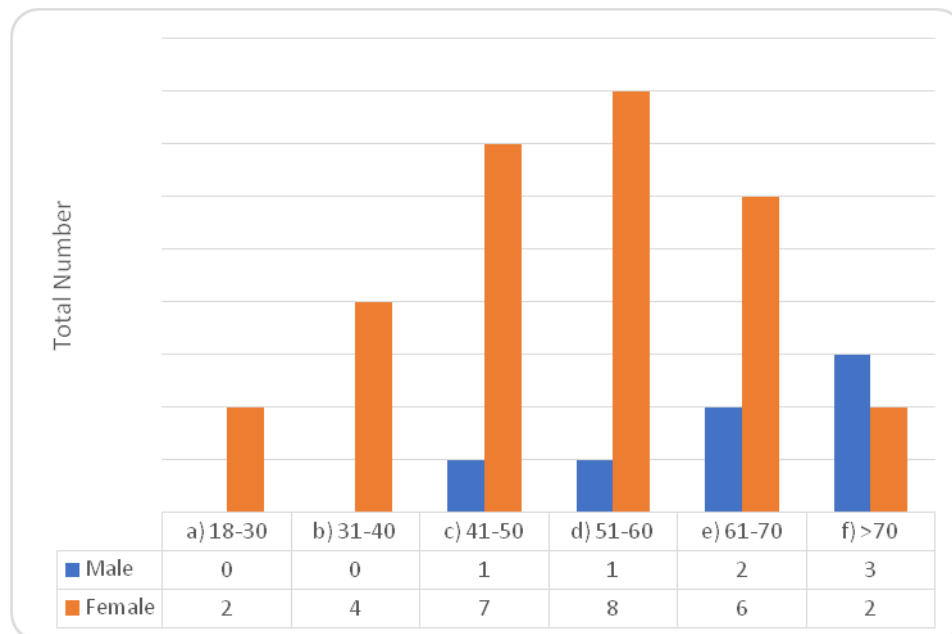


Figure 4. Focus group participants by age

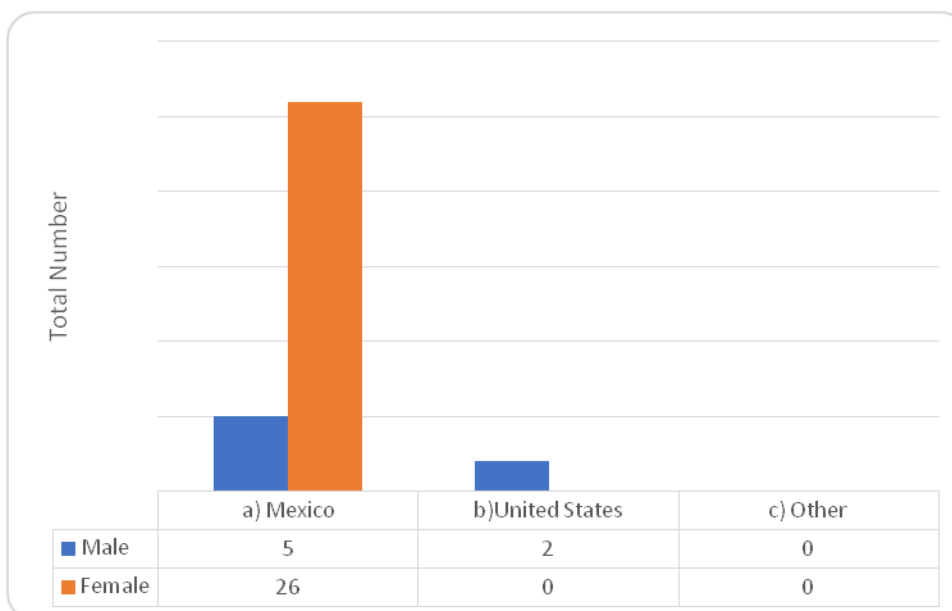


Figure 5. Place of birth

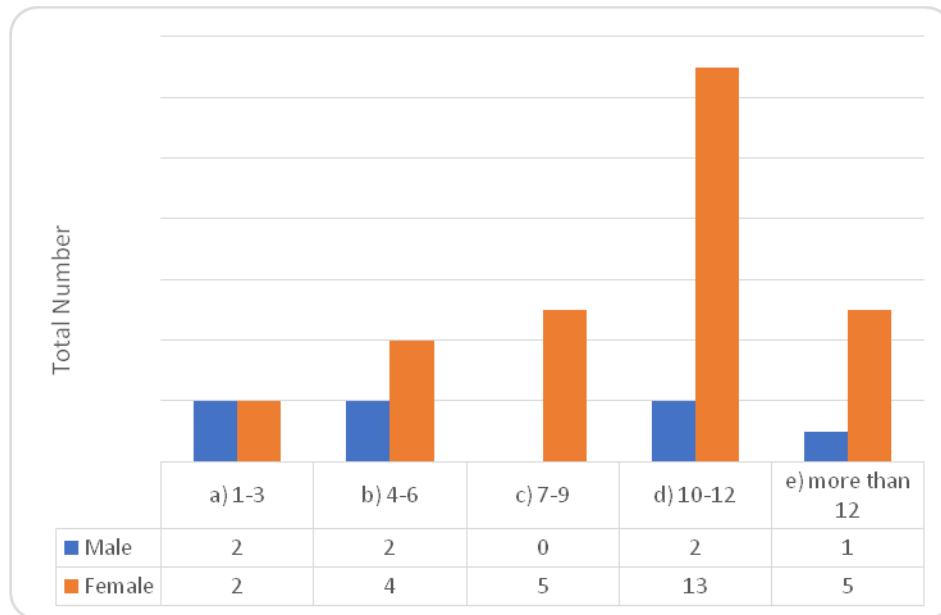


Figure 6. Years attended school

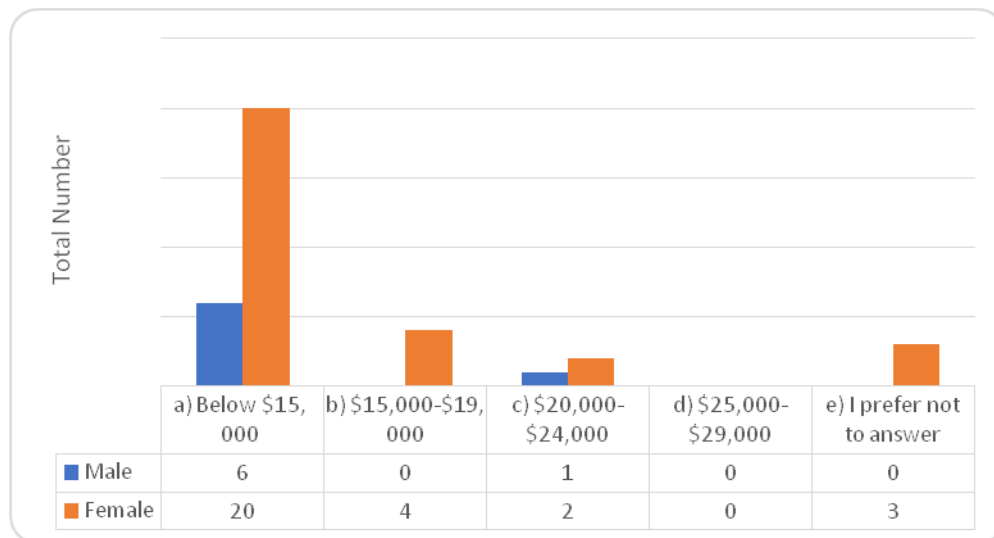


Figure 7. Annual income level

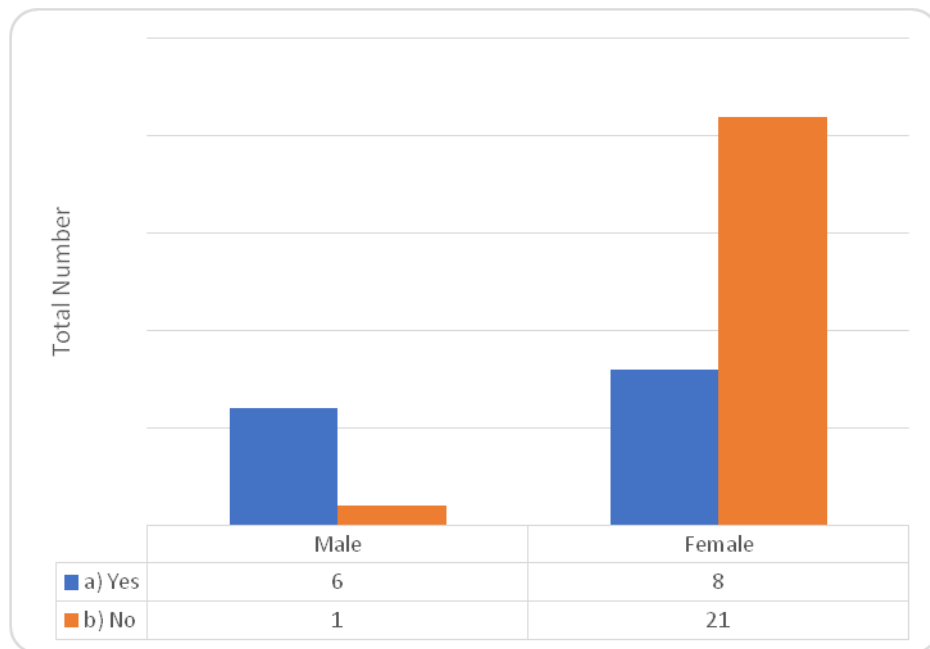


Figure 8. Possess health insurance

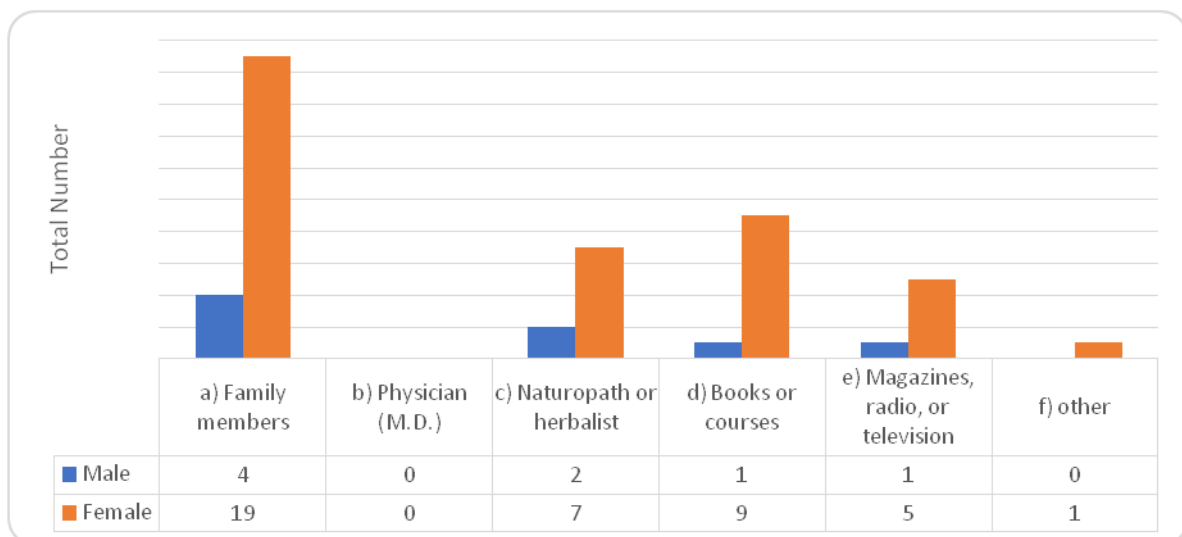


Figure 9. Sources of knowledge about medicinal herbs

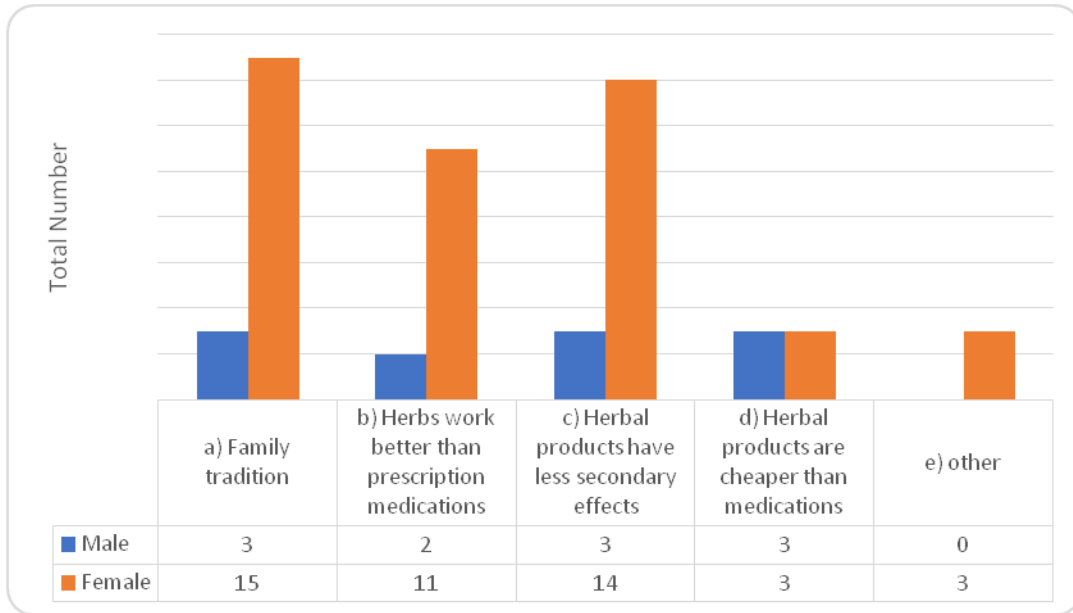


Figure 10. Reasons for choosing herbs for treatment

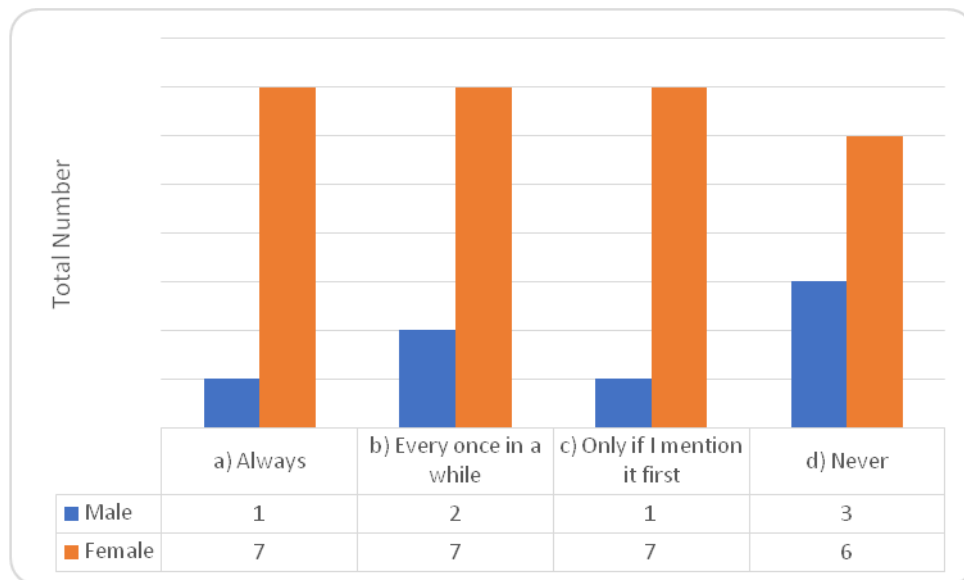


Figure 11. Frequency of herbal product use

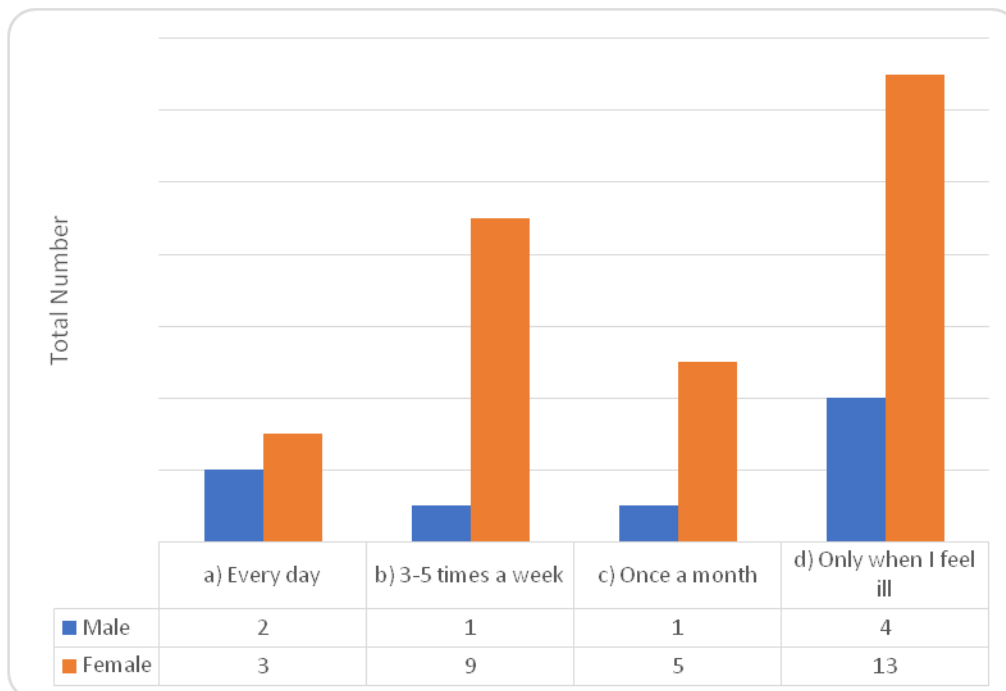


Figure 12. Disclosure of herbal product use to provider

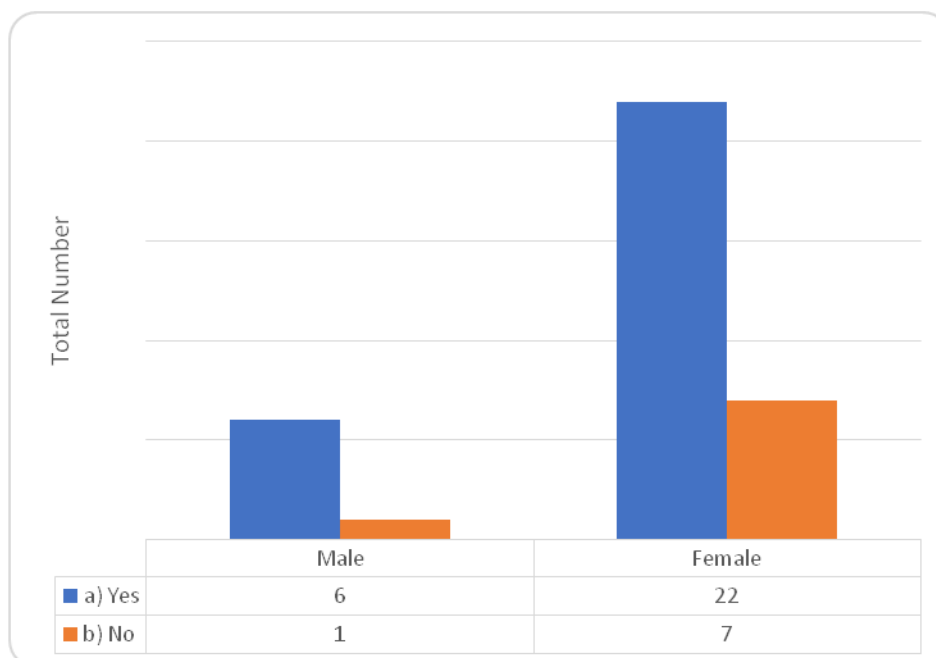


Figure 13. Felt comfortable discussing herbal use with healthcare provider

Focus group narratives: medicinal herbs are important in my life.

As has been posited before, the use of herbs is a very important cultural and healing activity among many people of Hispanic origin. The narratives below “bring to life”, so to speak, the value and respect that many people of various ages bestow upon herbs used for healing. Personal as well as family and national identity are also intertwined with the use of medicinal herbs. However, due to various factors mentioned below, frank disclosure of herbal use to a physician or other healthcare providers can sometimes be difficult due to various reasons stated by some of the participants.

Herbs are a source of natural healing

The majority of the focus group participants opined that herbs and other supplements were better than prescription medications because plants came from nature and were meant to heal. They also mentioned that they are usually safer compared to prescription medications. For some participants, conventional medicine is more expensive than herbs and sometimes harmful. Additionally, it was stated that conventional medicine and medications might treat one illness but affect another organ in the body, and cause other health problems. It was important to use natural plants to prevent illnesses and some participants mentioned that when they were young, especially during their infancy, their mother would never take them to see a physician. Every health issue was resolved with teas or something simple based on herbs.

A common theme that arose in various responses from participants was that their mothers or other family members used herbs to treat them as a first hand attempt to heal, and that physicians were sought only when the herbs did not work. Some respondents mentioned that they would prefer to try a medicinal herb first, rather than visit a physician who might tell them

that they needed an operation. One of the female participants mentioned that she “listens to her body and to her inner self” rather than taking pills, because the body has internal wisdom and knows what it needs, instead of just taking medications. Some of the participants use herbs when they don’t have money or are out of work. According to one man, “herbs and teas can be better and less expensive instead of spending \$20.00 - \$30.00 dollars on a medication that sometimes won’t work”.

Many participants opined, “Herbs are more effective than medications because prescription drugs contain many chemicals that over time can destroy some of the body’s organs”. One of the participants said that he had used herbs since he was a boy, especially herbs used in the state of Chihuahua by the Indians. He further stated that he had been well for many years using herbs until a physician told him he had diabetes. Another participant said that plants were important because they were less harmful to his body than taking medications because they had fewer side effects.

A female participant said that she has always taken chamomile to help with blood pressure and it has helped. A male participant said he liked to take teas to help him with diverse health problems because he thought, “the tea helps and does no harm”. Another use of herbs was to calm the patients down and some felt better using herbs been taking the pills the physicians prescribed for the same condition. One of the women mentioned using chamomile for menstrual colic and Bougainville flowers as a tea for cough. Furthermore, cinnamon was used for diabetes and sour-sop was used as a tea and in tablet form for cancer. For these reasons, some of the participants had more confidence in using herbs and telling other people that they were good against cancer.

Another participant said that she had always use herbs recommended by her mother from Mexico, such as oregano, coriander, spearmint, and aloe vera; each one has its unique use. Oregano is used for coughs and aloe vera for cuts and burns. Garlic is used both internally as well as topically as an antibiotic and coriander is also used as a spice plant. She also mentioned that spearmint teas have helped her very much, and are natural. Another participant said she felt sick at this time, having a sore throat and cough. For this reason, she drinks tea from eucalyptus leaves with honey and key-lime juice and felt less congested and was going to continue with this treatment but had also taken chamomile for pain, spearmint for stomach pain and sour sop to prevent cancer, because her sister had died from cancer and she is trying to prevent it with herbs. Furthermore, she commonly used cinnamon eucalyptus, hibiscus and *chile* (chili) and “had much faith in those herbs”.

A woman mentioned taking watercress had helped to promote circulation in the liver and ingested ground rattlesnake meat to lower her blood pressure. She had also used cayenne pepper to increase her metabolism, as well as *tepozán* and arnica for athlete’s foot infections. She also used salt with anise for stomach pains and as an antibiotic, and had also used a Mexican proprietary blend made for different herbs (Riñosán[®]) when she felt ill from her kidneys. She also used eucalyptus flowers as a decongestant for respiratory problems. Garlic was used with key lime for a sore throat and ginger with garlic to regulate her metabolism, lose weight and lower the inflammation in her joints. Ground beet is employed for body metabolism and to cleanse the liver and Chinese mushrooms to lower blood pressure and lose weight. Chamomile was used for eye problems applied topically, and taken internally for stomach problems, while spearmint tea helped to decongest the sinuses. The participant said she had also used tea tree as

massage oil for stomach problems and for her hair to have a shine. Linden tree tea was taken to calm her down the same thing with watermelon.

A male participant said that he also used flower tea from the Linden tree to relax and used “*palo azul*” (“kidney wood”) and “*cola de caballo*” (“horsetail”) for his kidneys when he felt ill. A woman participant said that the results she’d gotten from taking herbs have long been good, and have taken away any sickness that she had, very quickly. Another stated that that for her psychological problems, the most natural solution would be to use marijuana (cannabis) instead of the antidepressant medications given by physicians. She said that marijuana proved to be very medicinal for her, and that she would rather do things naturally to treat herself such as cleansing her liver naturally. Furthermore, she stated that she would not take any medications for her heart; instead, she would take fish oil.

Some participants said that they were not comfortable with seeking help from physicians; they just used herbs and teas and felt much more comfortable using them. Others stated that herbs had always given them good effects, but that certain medications had also been efficient in helping them. However, it was still better to use herbs to heal themselves. When one participant went to visit his primary physician, due to kidney problems, he would tell the M.D. that he used “kidney wood” and that the physician never commented whether that was good or bad, but that he never forbade him from using it.

For the treatment of stomach pains, one of the participants said that her mother boiled “*hierbabuena*” (spearmint) and “*estafiate*” (wormwood) leaves and gave them to her as a tea, when she was a child. Another participant said that it was important for her to use medicinal herbs because they help the body and they don’t have secondary effects, “even though they should be used only for a limited time”. She also stated that herbs had helped her and her family

very much, especially with one of her children who had surgery in the appendix when he was six years old and that his incision healed very well using arnica topically on the wound. The child didn't suffer from any secondary effects and had no further complications.

Another female participant said she had faith in medicinal plants because they had helped her very much. She used oregano often for chest and throat infections and said it was very helpful. Another female participant said that she, like many families, had many good experiences using herbs. Her mother made teas for colic and that she drank a lot of linden flower and chamomile tea in order to help her sleep, because she couldn't take any pills, since "they didn't do her any good". When she took the herbs, they didn't give her any problems in the morning to wake up.

Another woman said she consumed herbs and teas since she was very young and that they were very useful, especially ginger, turmeric, and moringa teas to treat inflammation. She uses chamomile tea to relax, raw garlic as an antibiotic and to lower cholesterol. Another participant said she "loved natural herbs and used a lot of purple onion when her children were younger to treat the flu and for bronchitis". She would give the infants the onion as a tea with raw honey, and said, "it worked very well", and she still uses it. She also recently used arnica because she had minor eye surgery, and it worked for her to promote scarring and reduce inflammation. She also used garlic as an antibiotic, but was now drinking arnica tea.

A tea made from "*tila*" (linden flower) was preferred to taking sleeping pills for insomnia. Spearmint tea was taken for colic, and aloe vera was used by one of the participant's mother, who had cancer. Most of the participants mentioned that cinnamon, spearmint and chamomile were among the most popular herbs taken as tea (Table 5). Again, the importance of herbs in the participants' lives stemmed from their perception that "they were from nature and

that they help to prevent illnesses essentially, that is the most important thing to prevent and to heal”. Participants mentioned the importance of taking care of themselves, of their own health.

Table 5 *Top ten herbs used by focus group participants*

Common name	Male	Female	Male (%)	Female (%)
Cinnamon	6	28	85.71	93.33
Chamomile	6	26	85.71	86.67
Aloe Vera	5	22	71.43	73.33
Garlic	5	22	71.43	73.33
Arnica	3	20	42.86	66.67
Onion	5	18	71.43	60.00
Hibiscus	4	20	57.14	66.67
Oregano	4	23	57.14	76.67
Horsetail	4	14	57.14	46.67
Key Lime	4	14	57.14	46.67

One of the participants mentioned using many tea tree products as well as essential oils like rosemary and others in order to prevent illnesses. Cinnamon, aloe vera, spearmint, and garlic were also used, and it was mentioned that garlic helped the cardiovascular system. Some of the participants said that medicinal plants were essential because “they were what Mother Nature had to offer us” and that was how their ancestors healed themselves when sick. Oregano and honey as a tea was popular for coughs as well as “gordolobo” (“everlasting”). Also, aloe vera is applied topically for wounds and eating prickly pear cactus stems helps to lower cholesterol levels. Ginseng was also mentioned as being beneficial for the immune system taken with key-lime juice and cinnamon, as a tea (Table 6). The use of raw onion with key-lime juice for respiratory problems was mentioned again, and a few of the respondents drank green tea almost every day.

Table 6 *Principal uses for selected medicinal herbs*

Common name in English	Common name in Spanish	Form of use	Applications
Chamomile	Manzanilla	Tea	Insomnia, nervousness, colic, pain, to accelerate labor
Cinnamon	Canela	Tea, Capsules	Diabetes, respiratory problems
Aloe	Zábila	Poultice	Gel externally for cuts or burns- Whole leaf internally for cancer
Arnica	Árnica	Ointment or tea	Ointment applied externally for bruises- Tea taken as anti- inflammatory
Garlic	Ajo	Raw, ingested or applied topically	Infections

Common name in English	Common name in Spanish	Form of use	Applications
Onion	Cebolla	Raw, ingested or applied topically	Infections
Hibiscus	Flor de Jamaica	Tea	Cholesterol
Oregano	Orégano	Tea / ingested	Respiratory and stomach ailments
Key lime	Limón verde	Ingested	Immune enhancer, infections
Horsetail	Cola de caballo	Tea	Kidney problems

Aloe vera, ginger, cinnamon, nopal (prickly pear cactus), hibiscus, guanábana (sour sop or graviola) tea, peppermint, spearmint and aromatic essential oils were also mentioned as being important to health. “Hierba de la víbora” (Zornia) was mentioned along with cinnamon and onion, applied as a poultice topically in order to decongest the lungs. In addition, using lavender and rosemary essential oils was important, and the ingestion of “nopal” (prickly pear cactus) was recommended for Type 2 diabetes. According to a female respondent, Valerian tea seemed to be healthier than drugs to combat viruses much quicker or any other illnesses that affect the body, and passionflower tea helped her to relax and sleep well.

For inflammation, various patients mentioned arnica ointment, as well as lavender oil. Flaxseed was ingested as a laxative or to treat inflammation of the stomach. Pomegranate tea was taken for kidneys ailments and to treat urinary infections, especially when people have been consuming too much “soda pop” or sugar. Stevia, a natural sweetener, is used to lower blood

glucose and echinacea helps to maintain our immune system, taken as a pill or a capsule.

Eucalyptus is used for coughs and “flor de Jamaica” (hibiscus flower) as a diuretic, little hand flower (“flor de manita”) was employed as a tea for external use and Linden flower to relax. For one participant, cinnamon tea acted as a diuretic sometimes mixed with a decoction of pineapple peel.

The use of star anise tea as a relaxant was mentioned. This was interesting, as this plant is most commonly used for digestive complaints. “Horsetail” tea was useful for the kidneys but also could be used when a person feels ill after consuming something bad. Star anise was again mentioned to be good as a tea for the nerves and to relax, while arnica ointment was used for bone fractures, applied only externally. Cinnamon tea was mentioned to be good against the flu and hibiscus flower tea was taken to cleanse the body internally.

One female participant mentioned that her mother had had cancer and was given many medications; including chemotherapy, which affect her nervous and gastrointestinal system. The family instead gave her alternative medicine and she healed, living 10 more years before she died of another cause. For her mother’s cancer, one of the participants used cat’s claw and rattlesnake meat internally. She also mentioned that they used apricot seed as natural chemotherapy.

Chamomile tea was recommend by a female participant for a colic or “air or wind chill” on her back and she further stated that she didn’t use any medications. Another said she had been using cinnamon for diabetes as a decoction of the whole bark. The leaf of “laurel” (bay laurel) was recommended to be taken as a tea when you have “air” or “wind chill”. A popular tea used in our border area, consisting of various ingredients, mainly the flowers of various citrus trees, is commonly known in Spanish as “siete azahares” (“seven flowers”). It is commonly used as a relaxant in order to sleep well.

One of the female participants mentioned an interesting use for the herb known as “cascara sagrada”, primarily used as a laxative in the United States. Her mother employed it as a remedy to dissolve kidney and gallbladder stones, as well as to prevent their formation. A tea, presumably from the bark of the tree, was ingested in order to treat gall bladder pain. However, the use of this plant for gallbladder problems was not mentioned in the botanical literature, since the plant is primarily used to treat constipation.

Stevia is used in replacement of sugar to sweeten teas, chamomile as a tea to relax, and wormwood for stomach pains and diarrhea. For this, for leaves of wormwood are decocted in water and taken as a tea four times a day until the diarrhea subsides. Valerian drops are taken in water as a relaxant to sleep. Turmeric taken as pills or capsules for bone pains and rheumatism was mentioned. Lavender essential oils or lotions were applied externally as drops or inhaled, in order to help children relax. Lavender as well as everlasting were boiled (decocted) in a pot of water and then the vapors would be inhaled by people suffering from bronchitis or respiratory problems. Chamomile was also used for colds and taken with aspirin; this is an example of how certain herbs are used alongside over-the-counter medications and adopted as home remedies. Elderberry flowers were decocted water and taken as a tea against coughs asthma and other respiratory problems; and was deemed to be effective. A female participant remembered that when she was a child, her family would give her cinnamon with milk to drink, instead of coffee. Also “té de tila” (linden flower tea), chamomile, and bay laurel teas were also very commonly used to treat a variety of ailments.

A participant’s mother who was a diabetic healed herself drinking a cold tea made from “gobernadora” (creosote bush) leaves and twigs. She would drink many glasses a day of that decoction which she prepared by rinsing three branches of the bush and dipping them three times

in boiling water. Care is taken not to leave the branches too long in the boiling water, since it can make the tea too bitter. The decoction is allowed to cool and then it is taken internally. Her mother is 75 years old and has been drinking approximately 1 gallon of this decoction per week for many years, apparently not showing any ill effects for such prolonged use. It is interesting to note that creosote bush is one of the most versatile plants in the Chihuahuan desert, used by the ancient indigenous peoples as well as the Europeans who later populated northern Mexico and the southwestern United States. This plant, although with undeniable therapeutic value, can also be toxic to the liver and other organs if taken in concentrated form, especially as a pill (Arteaga et al., 2005).

Another respondent said she used a teaspoon of olive oil with a squeeze of key lime juice every day to lower her cholesterol levels. She stated that her cholesterol levels had decreased considerably after taking this remedy. Additionally she consumes a teaspoon or two of flaxseed in a shake or smoothie comprised also of spinach, pineapple, and apple fruit. This also helps to lower her cholesterol levels. Chamomile tea was mentioned as being useful to accelerate labor, especially when the uterine contractions have already begun. One of the respondents mentioned that she started taking chamomile tea without knowing that her cervix had not yet dilated and it caused her much pain. Taking the tea also affected her baby, who, when delivered by the physician, presented an accelerated heart rate. She further stated that the physician was angry with her for having taken the tea.

Another question posited to the groups was regarding the traditional use of tobacco among the indigenous population of the American continent. Only a few of the focus group participants had any knowledge of the ways tobacco was used medicinally centuries ago, before the arrival of the Europeans. A female participant said that tobacco was used with an herb to help stop

bleeding and hemorrhages; it was especially used for serious bleeding, applying the ground leaves on the cut as a styptic. Another participant said she knew that tobacco was used to be pure and free of the chemicals it contains today. She further added the indigenous peoples with smoke tobacco in a peace pipe and in peace rituals. A female participant corroborated that tobacco leaves were effectively used to treat cuts. She said her grandfather used to smoke pure tobacco leaves, he would grind that tobacco leaf along with the maize (“corn”) leaf related tobacco with his own saliva and that he never died of anything related to tobacco use. She remembered that when her grandfather would cut himself he would grab a tobacco leaf from his bag and would make a paste and place it on the wound. She further said that “the tobacco smelled very sweet back then”.

A female participant said that the tobacco leaves were used to cover wounds; she remembered when she was a child that her mother would use the tobacco from a cigarette and apply directly on the wounds in order to ease the bleeding. Another participant corroborated this form of use, and stated that her mother would also use tobacco leaves applied to wounds in order to stop bleeding. In addition, her grandmother would grind the tobacco leaves and boil them in water to make an infusion or tea and place it topically on the skin to take away any irritation; its main use was to heal the skin. A male participant said that his childhood home, his grandparents used tobacco leaves to treat headaches; they would place the leaves on the part of the head that was hurting.

An alternate use for tobacco was for the treatment of earaches, by placing a lighted cigarette, butt end first, in the ear and wait for it to consume itself until it reached the filter, before taking it out. According to the participant, the lighted cigarette takes out the air from the

ear (which is causing the pain), and then the ear hole is covered with cotton so that the air will not get back in to the ear.

One female participant remembered that her mother, who came from a small town in Mexico, would use tobacco leaves when someone was sick of the bronchi. One of the family members would light up a cigarette and blow the smoke at the person's nose. Tobacco was also used to treat earaches, by blowing cigarette smoke into the ear, through a paper cone previously placed in the ear, as a means to apply the tobacco smoke into it effectively. After blowing cigarette smoke into the ear for some time, the cone would be removed and replaced immediately with a cotton swab. Other participants also corroborated both of these uses.

A female participant said she remembered that her grandmother would use tobacco in order to repel pests for the plants in her garden. She would make an infusion in a spray bottle with tobacco leaves and would spray it on the plants to drive away the pests. This use was also mentioned by another participant who said that her mother would steep tobacco leaves in plenty of water and then apply the water to kill the pests, she thought it was a better insecticide and less harmful than the synthetic chemical pesticides we use today. This use of tobacco as a pesticide is corroborated by science and history, since nicotine is an extremely toxic substance that is lethal to many, although not all, insect pests. The Chinese imported tobacco from the American continent many years ago, and continue to use nicotine as an effective botanical pesticide (Yang et al., 2018).

Another female participant said that she used to smoke marijuana before, but not anymore because it is illegal, and also affects the lungs. She said that people want to legalize marijuana use, but she thought the best and most natural way to use it was by using its oil instead of smoking it, which she deemed unhealthy.

In summary, the majority of the participants appealed to the use of herbs as a first option, instead of medications, when they felt sick.

Herbs are part of my culture

We learn mostly from family and tradition

Under these themes, we placed the responses by most of the participants regarding where and by whom they had learned the use of herbal remedies. Almost all the respondents mentioned that families and friends were the main sources of information regarding the use of herbs to treat various illnesses, especially when they were very young. The role of aunts, nannies, mothers, mothers-in-law, and grandmothers was exemplified as the main source of information regarding the traditional use of herbs. Notably, only one respondent mentioned grandfathers or other male members of the family.

For most of the respondents, herbs were important because they were part of tradition, much like a family legacy. Since using herbs was part of cherished childhood memories, most respondents, male and female, saw herbal medicine as part of their cultural and even national identities. Even though some respondents could not remember all the names of the herbs that their families had given them as infants, many still recalled the most sought after herbs, such as garlic, spearmint, chamomile, and aloe vera, among others. Only a few of the respondents mentioned that they had learned about the use of herbs for healing principally by visiting herbal stores or by reading library books and magazines regarding this topic. Others mentioned that they knew indigenous people from Mexico who had taught them the use of herbs when they were still very young. One of the respondents mentioned she learned the use of herbs by watching television wherein a physician had a program in which she recommended the use of medicinal

herbs, while another said that she would search the Internet, especially Google, as a source of information for the herbs that she should take. Some participants mentioned that they tried to continue the family tradition of using herbs to heal their children and grandchildren.

All the participants, without exception, mentioned that they were eager to learn more about herbs, including those that could be beneficial as well as possibly toxic. They also mentioned it was necessary to have more information available to the public in our border area regarding the safe use of herbs for the treatment of various ailments. Some of the respondents mentioned that they obtain their herbs from Mexico, while others stated that they grow some of the medicinal herbs in their own gardens.

Open communication with HCP's

I feel comfortable communicating, respected

Under these themes, we included the responses from the participants who had a positive or open communication with their healthcare providers. It is worthy to note that there were fewer responses among the focus group participants regarding positive or open communication compared to the responses regarding negative or impaired communication with their healthcare providers, especially physicians or MDs. However, paradoxically, the demographic data mentioned above showed that the majority of respondents felt comfortable talking to their HCP's about herbs.

The participants who mentioned they had good communication with their physicians stated that they felt comfortable talking about their herbal product use, even though certain MDs do not show much belief in that practice. According to some respondents, the attitude that their physicians have is that if the herbs they are using are not causing them any problems they should

continue with that practice. In other cases, the physicians are mentioned as being somewhat aloof, but not showing any negative or disrespectful comments about the use of herbal products. However, the main issue mentioned repeatedly was that HCP's do not have knowledge regarding the herbs their patients are taking, and are therefore unable to give them any competent advice regarding their use.

It was interesting to note that only two of the participants mentioned that their physicians actually encouraged them to continue taking the herbs for their maladies and telling them that herbs can also be very effective. A few physicians seemed to understand the patients' concern about the negative side effects of certain medications and do not deter their patients from taking alternative remedies. Some respondents would like to know if the herbs they are taking could have interactions with the medications prescribed by their healthcare providers. Again, the doubt exists due to the lack of preparation among most HCP's regarding the herbs used in our international border. A few of the participants mentioned that their physicians have actually witnessed the benefits of using herbs, since the lab results of their patients have shown improvements in their health status.

Impaired communication with HCP's

I feel afraid to communicate with my HCP, disrespected

A review of the literature showed that many patients, especially belonging to certain minorities including Hispanics, are sometimes reluctant to reveal their use of herbs and other alternative therapies, due to fear of being scolded or disrespected by their healthcare provider, especially a physician. The majority of the responses regarding a lack of adequate communication with their healthcare providers were due to the physicians not being

knowledgeable or not believing in the beneficial potential of using herbs. Many respondents mentioned that the physicians have negative views of herbs, sometimes saying that they do not work, are not effective, or can be a potential danger to the patients taking them alongside prescription medications.

Some patients stated that the physicians become angry with them for mentioning that they are taking herbs, saying things and showing negative gestures that make the patients very uncomfortable, and therefore reluctant to mention the topic again. For example, a woman said: “I also don’t visit the doctor frequently. When I get sick, which is very uncommon, I also self-prescribe. When I do go to the doctor, I do tell them what I take. They don’t believe me, they make negative gestures. They don’t say anything, they just make negative gestures and they ignore me”. One patient said, “They make an odd face because I tell them that I have faith in my herbs”. Another comment from a female patient was that “I don’t mention anything to my doctors about alternative options, because the times that I have done so, they don’t agree and tell me I should suspend them. It is something I do on the side and in secret or hidden”. Another man’s response was, “The reality is it is an impossibility that the physicians would give any attention to herbs, since it doesn’t benefit them, there is no business in it for them”. The physicians don’t seem to be very pleased when I tell them I’m using herbs because they study conventional medicine even though natural medicine is an option. They side more with science and they sometimes don’t believe in herbs”.

The topic of pharmaceutical companies becoming very powerful and controlling modern medicine also was mentioned by some of the respondents: “It is for this reason, that physicians nowadays are not usually trained in herbal medicine, since only chemical or synthetic pharmaceuticals are promoted by the various healthcare providers as being effective”. In our

view, this reaction on behalf of some of the patients was to be expected, especially if they have been using herbs as part of tradition and family for many decades. It also shows the lack of cultural competency that certain healthcare providers demonstrate when treating patients, especially if the patients belong to a minority group who may have a cultural background that is very different to that of the attending physician. Again, this type of problem seems to be encountered every day in various parts of the United States, but it is plausible to infer it could be even more prevalent along the extensive border between Mexico and the United States, due to its unique geopolitical and ethnic characteristics.

The lack of communication due to fear of disclosure, added to the negative attitude that some physicians have regarding herbal product use by their patients, may translate into lack of adherence to the medication regimen, as exemplified by one of the respondents who said: “I have neglected taking prescription medications and instead take my herbs and teas. I am not comfortable talking to the physicians about my use of herbs”. Another stated that “if they want to give me treatments for high blood pressure and cholesterol, I would accept the medication but I won’t take it. I don’t take anything that deals with my heart, I don’t have confidence in medicine, it is just a bunch of chemicals and that affects the liver”.

Another comment related to limited communication between patients and HCP’s was that “I hardly talk to the physicians about natural things when I visit them. Because when go see the doctors, I just go for high blood pressure and cholesterol medications. I never asked them or they have never asked me about herbal we use”. Others mentioned that even though their physicians have told him not to take herbs or other remedies, they will continue to do so if they make them feel better. Another responded, “No, I don’t tell physicians I’m taking herbs, because I am scared they are going to tell me that it is not good for me, that medications are better than herbs”.

A middle-aged woman stated, “When I was younger I had my babies, and I remember mentioning to the pediatrician that I was using oils or tea for my boy, he was more than six months old. I understand when they are newborn it is different, but I did start use oils and teas after a few months. The pediatrician scolded me and told me that I should not use them and that I did not know what I was doing, that using herbs was bad and I shouldn’t do it. I felt offended and I told the doctor that I did not believe in that, which was how I grew up [believing in herbal remedies]. I have seen my aunts and my sisters that they have attended to their kids in that way. I felt sorry that the physician did share the same opinion, but I was offended and so I went to see a different pediatrician”.

Another female participant replied, “When I go to the doctor they don’t even ask me if I’m taking a alternative medicine, ever. I don’t talk to them about what I am taking because I think they’re against alternative medicine and plants”. I seek medical help in Mexico, but here in the US they told me I should use them (herbs) that they are “stupid” and I shouldn’t take any”.

“When the doctors asked me if I’m taking herbs, I told them that I am taking something, but if they don’t ask me I won’t mention it. I have also had disagreeable experiences with the doctors because they tell you that they (herbs) won’t help, instead it will be worse and that they are not responsible if you’re mixing certain herbs with other medications that aren’t what they prescribed”.

“When I go to the doctor and ask him about natural things, he also gets bothered. He even tells me I should go to another doctor; they don’t want me to take herbs, they get bothered a lot, even with my children. Yes, I shouldn’t go to see that doctor then. He says that it is very dangerous to use herbs; that herbs don’t help, and that is [sic] all lies”.

“I don’t like talking to the doctors about this because it seems that they don’t believe in herbs. That those things are true and that they come for your family grandparents, and they don’t believe in it because of all they have studied. For them, medications are the only things that can help. With my kids, especially my son who suffers from autism, he has been prescribed more than 20 or 30 medications, and none of them has helped. I have asked the physicians if they could recommend an herb that could help him, and they tell me that only medications can help, herbs can’t help. They need to be changing his medications until one works. That is why I don’t share my opinions with them”.

“Personally, I don’t like telling the doctors anything because there is so much indifference on their part. They simply want to fix a problem using medications and medications are more harmful to the body. I rather take various kinds of teas and cut down on medications. For me, teas are a better option compared to medications”.

“There are other MDs at tell you know, to suspend the use of herbs because they will have secondary effects and they recommend medical things, like pills. Another respondent commented that the physicians told her that she should not mix prescription medications with herbs, especially if she was taking “controlled” drugs (a term usually applied in Spanish to psychotropic and similar pharmaceuticals only available with physician’s prescription); because of sometimes they have secondary effects due to an herb-drug interaction. “With my kids, I don’t give them herbs because they take “controlled” medications and I have to be telling the doctors with their taking. All they take is her medications from the doctor.”

Improvements in communication between patients and HCP’s

HCP’s should be knowledgeable about herbal products

Practically all of the participants mentioned that they would like their healthcare providers, especially the MD's, to believe in medicinal plants, "since our ancestors have used them for many years". The participants showed an earnest eagerness to know more about plants; they shared the hope that their physicians could guide them on how to improve their health using natural medicine, versus only pharmaceuticals based on synthetic chemicals. Some participants mentioned that it seemed strange to them that certain physicians did not believe in herbal medicine, since many of the medications sold today came originally from herbs. They would like the physician to be more open-minded towards herbs and other alternative therapies that could benefit some of the patient's and not only focus on medications and allopathic medicine. Interestingly, all of the HCP's interviewed also mentioned an interest in knowing more about herbs, but were unsure as to the best source of information to do so.

One man commented, "Personally, I would like some feedback from the physicians. I would want the medication to be in some part plant-based; they should use alternative medicine and ask the laboratories to make more plant-based products for every type of sickness. They should use more herbs that they produce less hardware organ systems. That is what I would like". "Here in the U. S., that is how laboratories make their money; by using pills and chemicals, they suppose it might work. They have always known the natural potential of plants, and that they do work. If you don't like giving us herbs that will work or legalize certain herbs, then other countries should take advantage of that and make medications for us instead of the non-natural medications they make here in the U.S."

Another focus group participant said, "I would like them to be more open-minded in relation to the use of herbs they need to realize that herbs are part of medicine I would like them to study more about it, advise us of any secondary effects, to tell us which herbs are good or bad.

I would like the doctor to have better communication with us; they could tell us what herbs to take to heal, of course without the absence medications. I would like the MDs to be more educated on herbs both doctors and nurses, so that they could educate us they need to find alternatives using herbs or something against medications with secondary effects that harm us. There are effects behind other effects”.

One man said, “I would like MD’s to advise us about an herb that could help us and harm us less than medications; I would like for the MD’s to agree with the herbs I am taking, but I told him and he give me the necessary medications, but that I also can take what I think is good for me”. He further stated, “I wish they (physicians) had an open attitude and that they could be more accessible. If I ask about certain herbs, they should know their benefits and for how long you can take them to avoid secondary effects. New line likewise I would also like the doctors to be more accessible to what someone has to say about them so they could help us. They should learn just as much as we’re learning from them about natural medicine”.

More comments regarding the need for physicians and other healthcare providers to be knowledgeable about herbs included the following: “I would like for them to be honest over everything, to tell us the truth about what they believe and I think about combining this I think they believe that that herbs are good and if the really work”. “I would like doctors to be knowledgeable on both sides, that is, allopathic or conventional medicine, as well as natural medicine, to heal people because one side is just as important as the other; one does not take the value from the other. Alternatives could have better results. Perhaps combining certain alternative and allopathic medications could be stronger against sicknesses. That would be excellent”. It would be good to have communication with medical personnel to be able to tell

them what herbs you're taking. The conversation would be a lot more "modern". I would like to see my doctors that I am drinking green tea, and then they tell me that it is okay".

"Well, I would like the doctors to be more open-minded to the topic because in reality, it isn't a hidden subject, and the majority of people are using natural products to take care prevent and heal themselves. We do need more active participation with the physicians so that they can help each other mutually, us with our own health and then by helping us to live a healthier life". "I would like if they were more open-minded with us. Doctors and nurses should approve alternative medicine like plants and herbs. In reality, herbs are very healing but, sadly, the association between drug and pharmaceutical companies are against them, but I hope that one day to become more open-minded". "I would like if there were more there was more communication between doctors and us for the use alternative medicine. It is mainly a question of economics, which is why we are limited in alternative medicine. It would be good if the physicians and nurses would be more accessible to us to comment on what we are taking, it would be more practical for the patients".

"I would like it if physicians were more open-minded in informing themselves to give us the right attention. They need to be more interested. Natural medicine is better since it doesn't contain any harmful substances that could damage our body. Hopefully, someday in the future, physicians can be more open to alternative medicine". "I would like the interaction (between patient and physician) to be very open, because herbs are something natural and safer. Also, they don't have chemicals and many additives and therefore are better for your health".

Some patients commented they would like doctors to prescribe them medicinal plants, because, in their opinion, herbs are very useful. Others commented that when they visit a physician, they would like for him or her to explain the naturopathic science related to their

health. One man said, “I would like my doctor to believe in herbs as they do help. I would like for my doctor to pay more attention to medicinal herbs, they are also very good for your health”.

“I think it will be great if they could be fluent in knowledge about medicine. Telling us you know what try this herb *Stevia*, works and, if not, we can work with another measure or something. Find like a middle point something natural and it may be but still not working, then go into something medical or pharmaceutical”. “I would like that they would be more open and if it was more communication, but I think that they need to change their pattern about medicine and they need to educate themselves and herbalism so they could give us information and have better medication.

Another comment related to the physicians’ level of knowledge regarding herbs was, “Yes, if doctors would be more inclined toward herbal medicine, that could result in a career for them in herbalism; they would offer more services and one could decide with to go the medical doctor or the herbal doctor, but this option does not exist”. “I would also like the idea of having physicians that work with herbalism because my medications cause many secondary effects. I see that natural products would work better because medications that doctors prescribe would have more secondary effects. The sickness that someone may have could add more side effects with the medications”.

“I think all doctors should be open about this topic, I think they should know more so they could tell us which herbs are good to take, and which ones to avoid”. “As I said before, doctors don’t believe in herbal medicine but they should know that some herbs work well. Some MD’s should acknowledge that and learn more about what their patients are taking, instead of scoffing at them and pretending that what the patients are using is worthless”.

A female participant said, “I want MDs to respect my choices and not to make fun of me or disrespect me because I use herbs or other treatments. I don’t want to be scolded, I am not a child, it would be important to me if they listen to us without judging us”. Another woman remarked, “I think some physicians should learn about herbs when they are in school. This would help when they talk to the patients, instead of dismissing the use of herbs altogether. What do they know about herbs if they haven’t studied them? That is why I always heed what my body is telling me that is good for me, not just with the physician says I should take”. “They should be more understanding of the tradition behind the use of herbs and should listen attentively to their patients and make him feel bad, that is why some people don’t tell them they are using herb al remedies or other supplements”.

It was observed that the majority of patients look up to the physicians and other healthcare providers as reliable sources of information regarding their health, but the apparent lack of knowledge among healthcare providers regarding various herbs commonly used in our border area stands as important handicap that hinders them from adequately advising their patients. It is understood that the topic of herbal medicine is not common within the current medical teaching curricula at most universities in North America. However, the persisting paradigm and algorithm of medical treatment seems to obstruct the communication between providers and patients.

Future Recommendations for improvement

Innovation and open communication are key factors for changing attitudes and paradigms. This is no exception when referring to the thousands of herbal products available in stores/markets on both sides of the border, as well as by ordering them from various venues on the Internet. However, our study concludes that there is only a dearth of information regarding a wide array of

herbal products, especially those employed in Mexican traditional medicine, used by Hispanic patients. Both the patients as well as the diverse healthcare providers in our international border area would benefit from learning more about the risks, as well as benefits, of using certain locally available herbal products or remedies for the treatment of various chronic and degenerative diseases.

Importantly, both patients as well as healthcare providers clearly stated a desire to learn more about the herbal products used for treating various diseases. For this reason, we propose that herbal medicine workshops and courses be developed and offered to both patients and healthcare providers at diverse clinics, community centers, hospitals, and other venues in order to better inform the lay and professional audience about the main products being used on both sides of the bi-national border. The UTEP School of Pharmacy (SOP) has the resources capable of developing, as well as teaching these courses and possesses the bilingual (English Spanish) Herbal Safety website (herbalsafety.utep.edu), which is a unique tool for referencing various herbal products that are unique to our international border, thus scarcely known in other parts of the country. We emphatically suggest that all healthcare providers in our border area be better prepared in herbal medicine, and begin incorporating questions about herbal products, in a nonjudgmental manner, into their usual algorithm when talking to their patients.

Furthermore, we strongly suggest that all healthcare providers request their patients to bring all herbal or home remedies to the medical visit, whenever possible. Recording the common name of the herb or herbal remedy, as well as photographing the products is an invaluable source of information in order to adequately identify the plants, fungi, or animal products being used by the Hispanic population for the treatment of various diseases. These photographs and or products could be then sent to the UTEP SOP for their positive identification

and research into their active ingredients. The SOP would then convey the result of that research to all providers in our area, in order to inform them of the possible caveats or benefits associated with those products.

In this way, a database of herbal products (both local as well as foreign) could be established as part of the Herbal Safety website (www.herbalsafety.utep.edu), and would serve both the HCP's as a source of factual information when encountering herbal product use by their patients. In this way, adequate information could be offered to the patients, in a non-judgmental manner. This would set the basis for a more open communication with patients since they could have a more trusting attitude toward their HCP's and therefore enhance the level of herbal product disclosure.

Electronic resources for the healthcare providers

The hi-tech age we live in has ushered in a plethora of resources available to biomedical professionals to use on “smart phones” and other devices. These include a myriad of both free and paid of medical apps for disease management. According to Loy et al. (2016), as of 2012, 40,000 health care-related mobile apps existed on the global market. However, the majority these medical apps are not trustworthy, since most do not go through any stringent quality evaluation. This poses a hazard for consumers, since they can easily be misled or misinformed by dubious health-related information. We recommend the development of an app that includes reliable information about medicinal plant products that are commonly used in our international border region. The app would be used specifically by licensed medical and academic staff in their professional setting, without having to leave their workplace or office in order to attend seminars or courses. This would offer a great advantage, since the information they are seeking could be relayed within seconds. Additionally, there could be a direct link to the Herbal Safety website, as

well as a live service providing information related to new species or herbal products that have not been encountered before in our region.

Deliverables

Employing the results obtained from of the present study, we are currently preparing a publication summarizing the findings. This document will be given out for its free distribution among the participating La Fe Clinics, as well as to the healthcare providers and the patient population. This publication has the main objective of creating awareness among both the patient and healthcare provider sectors regarding the safe use of herbs, as well as mention options for enhancing the quality of communication between patients and healthcare professionals with the objective of improving patients' health outcomes.

Conclusions

The Flexner report, published over a century ago, greatly influenced medical education in North America, where it continues to possess a profound effect not only on the structure and content of the medical school curricula, but also developed a framework and paradigm related to categorizing, defining, and differentiating the “scientific” from the “nonscientific” approaches to health education. As encountered in the results of the various interviews with both patients and healthcare providers, this centennial publication and the outdated reductionist paradigm it is based upon, continue to exert an important effect on the application of medical treatment as well. This study concludes that herbal product among the Hispanic population is widespread in our border setting, and that the present lack of knowledge by most healthcare providers regarding herbs used in our border area can be barrier to disclosure of herbal product use by their patients. A recommended action to improve this situation is to modify the current limited algorithm used by HCP’s, to query their Hispanic patients, especially regarding possible herbal use. The algorithm currently does not include asking patients to bring heir herbal products to the consultation, nor for HCP’s to record the name (s) of the product (s) or take a picture of them for further elucidation. This recommendation could improve the rapport between patient and HCP and encourage disclosure of herbal product use. Improved communication between patients and healthcare providers is very necessary and important in order to avoid hazardous and sometimes fatal outcomes when taking potentially toxic plants sometimes included in certain herbal products, as well as improving proper adherence to the medication regimen.

The interviews show that certain patients who feel dissatisfied with their healthcare provider’s level of knowledge and or attitude toward herbs may continue to use herbal remedies in lieu of their prescribed medications, thus interfering with the projected health outcomes. The

suggested course of action would constitute a necessary step forward leading to an improved health status of our fluid bi-national community, by helping to improve communication between the diverse HCP's and their patients regarding herbs.

Various factors, mostly cultural and linguistic, seem to interfere with the proper disclosure of many Hispanic patients to their healthcare providers. Many of these factors include fear of being judged, ridiculed, or scolded, coupled with a lack of knowledge regarding herbs as interacting with medications, and lack of trust in certain healthcare providers, if not the allopathic medical profession itself. These seem to be some of the most salient barriers to disclosure.

- *Improving communication between Hispanic patients and healthcare providers:* Based on the patients' and healthcare providers' responses, we observed that the level of disclosure regarding herbal use by patients to their HCP's can be greatly enhanced by means of educating both the patients as well as the HCP's about the principal herbs used in our unique international border setting.
- *Augmenting the knowledge of patients and HCP's regarding herbal products, with particular emphasis on those used on the U.S.-Mexico border:* One of the first observations regarding the lack of communication among certain patients and their HCP's is primarily related the lack of knowledge by HCP's about various medicinal plants used on in our border area. As mentioned before, the level of knowledge that most biomedical professionals possess about herbs is extremely limited. This factor alone seems to predispose the patients to be reticent about their herbal product use and, as mentioned above, can have a negative impact upon medication adherence, as well as treatment efficacy and health outcomes.

References

- Almeida, J. C., & Grimsley, E. W. (1996). Coma from the health food store: interaction between kava and alprazolam. *Annals of Internal Medicine*, 125(11), 940-941. doi: 10.7326/0003-4819-125-11-199612010-00023
- Alsanad, S.M., Williamson, E.M., & Howard, R.L. (2014). Cancer patients at risk of herb/food supplement-drug interactions: a systematic review. *Phytotherapy Research*, 28(12):1749-55. doi: 10.1002/ptr.5213.
- Ambrecht, A. (n.d.). Plant Medicine and Social Justice with Dana Woodruff. Numen Blog. Retrieved from <http://www.numenfilm.com/blog/danawoodruff/>.
- American Cancer Society (2013). Holistic Medicine. Retrieved from <http://www.cancer.org/treatment/treatmentsandsideeffects/complementaryandalternativemedicine/mindbodyandspirit/holistic-medicine>.
- American Diabetes Association. (2017). Standards of Medical Care in Diabetes—2017. *Diabetes Care*, 40(Suppl 1):S4-S5. doi:10.2337/dc17-S003.
- American Heritage Dictionary of the English Language* (2000). New York: Houghton Mifflin.
- Anastasi, J. K., Chang, M., & Capili, B. (2011). Herbal Supplements: Talking With Your Patients. *Journal of Nurse Practitioners*, 7(1):29-35. doi.org/10.1016/j.nurpra.2010.06.004.
- Arcury, T.A., Sandberg, J.C., Mora, D.C., Talton, J.W., & Quandt, S.A. (2016). North Carolina Latino Farmworkers' Use of Traditional Healers: A Pilot Study. *Journal of Agromedicine*, 21(3):253-8. doi: 10.1080/1059924X.2016.1180272.
- Argueta, A. (1994). *Atlas de las Plantas Medicinales de México*, 4 Vols. México, D.F.: Instituto Nacional Indigenista.

- Asnani, MR (2009). Patient-physician communication.
West Indian Medical Journal, 58(4):357-61.
- Arteaga, S., Andrade-Cetto, A., & Cárdenas, R. Larrea tridentata (Creosote bush), an abundant plant of Mexican and US-American deserts and its metabolite nordihydroguaiaretic acid (2005). *Journal of Ethnopharmacology* 98(3):231-9.
- Avila, E. (2000). *Woman Who Glows in the Dark*.
New York: Tarcher Perigee.
- Bandara, V., Weinstein, S.A., White, J., & Eddleston, M. (2010). A review of the natural history, toxinology, diagnosis and clinical management of Nerium oleander (common oleander) and Thevetia peruviana (yellow oleander) poisoning. *Toxicon*, 56(3):273-81. doi: 10.1016/j.toxicon.2010.03.026.
- Barker, J. C., Guerra, C., Gonzalez-Vargas, M. J., & Hoeft, K. S. (2017). An ethnographic study of salt use and humoral concepts in a Latino farm worker community in California's Central Valley. *Journal of Ethnobiology and Ethnomedicine*, 13, 11.
<http://doi.org/10.1186/s13002-017-0140-4>.
- Barnes, P.M., Powell-Griner, E., McFann, K., & Nahin, R.L. (2004). Complementary and alternative medicine use among adults: United States, 2002. *Adv Data*; 27(343):1-19.
- Bastien, J. (1992). *Drum and Stethoscope*.
Salt Lake City, UT: University of Utah Press.
- Ben-Arye, E., Polliack A., Schiff E., Tadmor T., & Samuels, N. (2013). Advising patients on the use of non-herbal nutritional supplements during cancer therapy: a need for doctor-patient

- communication. *Journal of Pain Symptom Management*, 46(6):887-96. doi: 10.1016/j.jpainsymman.2013.02.010.
- Ben-Arye, E., Halabi, I., Attias, S., Goldstein, L., & Schiff, E. (2014). Asking patients the right questions about herbal and dietary supplements: Cross cultural perspectives. *Complementary Therapy Medicine*, 22(2):304-10. doi: 10.1016/j.ctim.2014.01.005.
- Black, D. S., Lam, C. N., Nguyen, N. T., Ihenacho, U., & Figueiredo, J. C. (2016). Complementary and Integrative Health Practices Among Hispanics Diagnosed with Colorectal Cancer: Utilization and Communication with Physicians. *Journal of Alternative and Complementary Medicine*, 22(6), 473–479. <http://doi.org/10.1089/acm.2015.0332>
- Bone, K., & Mills, S. (2013). *Principles and Practice of Phytotherapy* 2nd Ed. London: Churchill- Livingstone.
- Brijnath, B., & Antoniadis, J. (2016). “I’m running my depression.” Self-management of depression in neoliberal Australia. *Social Science & Medicine. Social Science & Medicine*, 152:1-8. doi: 10.1016/j.socscimed.2016.01.022.
- Brinker, F. (2010). *Herb Contraindications and Drug Interactions* 4th Ed. Sandy, OR: Eclectic Medical Publications.
- Brown, C.M., Pena, A., & Resendiz, K. (2003). Pharmacists' actions when patients use complementary and alternative medicine with medications: A look at Texas-Mexico border cities. *Journal of the American Pharmacists Association*, 51(5):619-22. doi: 10.1331/JAPhA.2011.10021.
- Burge, S. K., Albright, T. L., & The Residency Research Network Of South Texas (RRNeST) Investigators (2002). Use of Complementary and Alternative Medicine Among Family

- Practice Patients in South Texas. *American Journal of Public Health*, 92(10), 1614–1616.
- Caldecott, T. (2006). *Ayurveda: The Divine Science of Life*.
New York: Mosby.
- Campos-Navarro, R. (1996). *Nosotros los Curanderos*.
México, D.F.: Nueva Imagen.
- Capra, F. (1982). *The Turning Point*.
New York: Simon and Schuster.
- Capra, F. (1996). *The Web of Life*.
New York: Anchor.
- Centers for Disease Control and Prevention. (2005). Lead poisoning associated with use of
litargirio--Rhode Island, 2003. *Morbidity and Mortality Weekly Report*, 54(9):227-9.
- Centers for Disease Control and Prevention. HIV in the United States (2011). Retrieved from
<http://www.cdc.gov/hiv/resources/factsheets/PDF/us.pdf>.
- Centers for Disease Control and Prevention. National Diabetes Statistics Report (2014).
Retrieved from <http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf>.
- Centers for Disease Control and Prevention. Death and Mortality. (2013). NCHS FastStats Web
site. Retrieved from <http://www.cdc.gov/nchs/fastats/deaths.htm>.
- Centers for Disease Control and Prevention. NCHS Obesity (2015). Data. Retrieved from
http://www.cdc.gov/nchs/data/factsheets/factsheet_obesity.htm.
- Centers for Disease Control and Prevention. National Diabetes Fact Sheet, 2011. Atlanta, GA:
Centers for Disease Control and Prevention, US Dept. of Health and Human Services;

2011. Retrieved from http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf[PDF - 2.66 MB].
- Centro de Salud Familiar La Fe, Inc. (2017). Retrieved from <http://www.lafe-ep.org/services.php>
- Chang, H.Y., Chang, H.L., Siren, B. (2013). Exploring the decision to disclose the use of natural products among outpatients: a mixed-method study.
Bio Med Central Complementary and Alternative Medicine, 13:319. doi: 10.1186/1472-6882-13-319.
- Chao, M. T., Wade, C., & Kronenberg, F. (2008). Disclosure of Complementary and Alternative Medicine to Conventional Medical Providers: Variation by Race/Ethnicity and Type of CAM. *Journal of the National Medical Association*, 100(11), 1341–1349.
- Chen, X.W., Serag, E.S., Sneed, K.B., Liang, J., Chew, H., Pan, S.Y., & Zhou, S.F. (2011). Clinical herbal interactions with conventional drugs: from molecules to maladies.
Current Medicinal Chemistry., 18 (31):4836-50.
- Chen, X. W., Sneed, K.B., Pan, S. Y., Cao, C. R., Kanwar, J., Chew, H., & Zhou, S. F. (2012). Herb-drug interactions and mechanistic and clinical considerations. *Current drug metabolism*, 13(5), 640-651. doi: 10.2174/1389200211209050640.
- Cho, H.J., & Yoon, I.S. (2015). Pharmacokinetic interactions of herbs with cytochrome p450 and p-glycoprotein. *Evidence Based Complementary and Alternative Medicine*. 2015:736431. doi: 10.1155/2015/736431.
- Corey, G. (2005). *Theory and Practice of Counseling and Psychotherapy* 7th ed.
Belmont, CA: Cengage Learning.

- DasGupta, S., Fornari, A., Geer, K., Hahn, L., Kumar, V., Lee,.....Gold, M. (2006).
Medical education for social justice: Paulo Freire revisited.
Journal of Medical Humanities; 27(4):245-51. doi: 10.1007/s10912-006-9021-x
- David, H.M., Bonetti, O.P., & da Silva, M.R. (2012). [Brazilian nursing and the democratization of health: notes on the National Policy of Popular Education in Health] [Article in Portuguese]. *Revista Brasileira de Enfermeria*; 65(1):179-85. doi.org/10.1590/S0034-71672012000100026 .
- Davidow, J. (1999). *Infusions of Healing*.
New York; Fireside Books.
- Davis, E.L., Oh, B., Butow, P.N., Mullan, B.A., Clarke, S. (2012). Cancer patient disclosure and patient-doctor communication of complementary and alternative medicine use: a systematic review. *Oncologist*,17(11):1475-81. doi: 10.1634/theoncologist.2012-0223.
- De Bellonia, R.R., Marcus, S., Shih R., Kashani, J., Rella, J.G., Ruck, B. (2008). Curanderismo: consequences of folk medicine. *Pediatric Emergency Care*, 24(4):228-9. doi: 10.1097/PEC.0b013e31816b7a92.
- Dickinson, A. (2011). History and overview of DSHEA.
Fitoterapia, 82(1):5-10.
- Duffy, T.P. (2011). The Flexner Report--100 years later.
Yale Journal of Biology and Medicine, 84(3):269-76.
- Dwivedi, S., Aggarwal, A., Sharma, V. (2011). Cardiotoxicity from 'safe' herbomineral formulations. *Tropical Doctor*, 41(2):113-5.

- Eisenberg, D.M., Davis, R.B., Ettner, S.L., Appel, S., Wilkey, S., Van Rompay, M., & Kessler, R.C. (1998). Trends in Alternative medicine use in the United States. 1990-1997. *Journal of the American Medical Association*, 280:1569-75.
- Eisenberg, D.M., Kaptchuk, T.J., Post, D.E., Hrbek, A.L., O'Connor, B.B., Osypiuk, K., Wayne, P.M., Buring, J.E., & Levy, D.B. (2016). Establishing an Integrative Medicine Program Within an Academic Health Center: Essential Considerations. *Academic Medicine*, 91(9):1223-30. doi: 10.1097/ACM.0000000000001173.
- Faurot, K. R., Siega-Riz, A. M., Gardiner, P., Rivera, J. O., Young, L. A., Poole, C., ... Van Horn, L. (2016). Comparison of a medication inventory and a dietary supplement interview in assessing dietary supplement use in the Hispanic community health study/study of Latinos. *Integrative Medicine Insights*, 11, 1-10.
DOI: 10.4137/IMI.S25587
- Favazza Titus, S.K. (2014). Seeking and Utilizing a Curandero in the United States: A Literature Review. *Journal of Holistic Nursing*, 32(3):189-201. doi: 10.1177/0898010113512560.
- Fetrow, C. J. & Avila, J. *The Complete Guide to Herbal Medicines*.
New York: Lippincott Williams & Wilkins; 2000.
- Firn, R. (2010). *Nature's Chemicals: The Natural Products that Shaped our World*.
London: Oxford University Press.
- Flexner, A. (1910). *Medical Education in the United States and Canada*.
Boston, MA: Merrymount Press.
- Fonseka, M.M., Seneviratne, S.L., de Silva, C.E., Gunatilake, S.B., & de Silva, H.J. (2002). Yellow oleander poisoning in Sri Lanka: outcome in a secondary care hospital. *Human Experimental Toxicology*, 21(6):293-5.

- Foster, G.M. (1994). *Hippocrates' Latin American Legacy: Humoral Medicine in the New World*. Langhorne, PA; Gordon and Breach.
- Freire, P. (1990). *Pedagogy of the Oppressed*.
New York: Continuum.
- Freire, P. (1998). *Pedagogy of Freedom*.
New York: Rowan and Littlefield.
- Gardiner, P., Whelan, J., White, L. F., Filippelli, A. C., Bharmal, N., & Kaptchuk, T. J. (2013). A Systematic Review of the Prevalence of Herb Usage Among Racial/Ethnic Minorities in the United States. *Journal of Immigrant and Minority Health / Center for Minority Public Health*, 15(4), 817–828. <http://doi.org/10.1007/s10903-012-9661-z>.
- Gerber, R. (2001). *Vibrational Medicine* 3rd ed.
Rochester, VT; Bear and Company.
- Glaser, B. & Strauss, A. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago: Aldine.
- González-Stuart, A., & Rivera, J. (2009). Comparison of Herbal Product Use in the Two Largest Border Communities between the US and Mexico. *HerbalGram*, (81); 58-65.
- González-Stuart, A. (2011). Herbal product use by older adults.
Maturitas, 68(1):52-5. doi: 10.1016/j.maturitas.2010.09.006.
- Gratus, C., Wilson, S., Greenfield, S.M., Damery, S.L., Warmington, S.A., Grieve, R., Steven, N.M., & Routledge, P. (2009). The use of herbal medicines by people with cancer: a qualitative study. *BMC Complementary and Alternative Medicine*, 14;9:14. doi: 10.1186/1472-6882-9-14.

- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage; pp. 105-117.
- Harrigan, J.T. (2011). Patient disclosure of the use of complementary and alternative medicine to their obstetrician/gynaecologist. *Journal of Obstetrics and Gynecology*, 31(1):59–61.
- Hayes-Bautista, D. & Chiprut, R. (2008). *The Art of Healing Latinos*. Los Angeles, CA: UCLA Center for the Study of Latino Health and Culture.
- Hendrickson, B. (2014). *Border Medicine; A Transcultural History of Mexican-American Curanderismo*. : New York University Press; pp. 10-12, 80-82, 152-153.
- Hiatt M., & Stockton, C. (n.d.) The Impact of the Flexner Report on the Fate of Medical Schools in North America After 1909. Retrieved from <http://www.jpands.org/vol8no2/hiatttext.pdf>
- Heinrich, M., & Jäger, A. (2015). *Ethnopharmacology*. New York: Wiley.
- Ho D.V., Nguyen J., Liu M.A., Nguyen A.L., Kilgore, D.B. (2015). Use of and interests in complementary and alternative medicine by Hispanic patients of a community health center. *Journal of the American Board of Family Medicine*, 28(2):175-83. doi: 10.3122/jabfm.2015.02.140210.
- Hofmann, J. C. (1988). Problem-Based Medical Education: A Comparative Study of Three Medical Schools. UC Berkeley: UC Berkeley/UCSF Joint Medical Program. Retrieved from: <http://escholarship.org/uc/item/9b494918>. April 4, 2017.
- Holland, K. (1996). *Medicinal Plants of the Migrant Workers*. Gettysburg, PA: Gettysburg College. Retrieved from <http://lib.ncfh.org/?plugin=ecomm&content=item&sku=4145>.

- Hosseinzadeh, S., Jafarikukhdan, A., Hosseini, A. & Armand, R. (2015). The Application of Medicinal Plants in Traditional and Modern Medicine: A Review of *Thymus vulgaris*. *International Journal of Clinical Medicine*, 6, 635-642. doi: 10.4236/ijcm.2015.69084.
- Howell L., Kochhar, K., Saywell, R. Jr, Zollinger T., Koehler J., Mandzuk C., Sutton B., Sevilla-Martir J., Allen D. et al.(2006). Use of herbal remedies by Hispanic patients: do they inform their physician? *Journal of the American Board of Family Medicine*, 19(6):566–78.
- Imes, S., & Landry, D. (2002). Don't underestimate the power of culture. *American Association of Spinal Cord Injury Nurses*, 19(4):172-6.
- Institute for Healthcare Communication. (2011). Impact of Communication in Healthcare. Retrieved from <http://healthcarecomm.org/about-us/impact-of-communication-in-healthcare/>
- Iwu, M. (2014). *Handbook of African Medicinal Plants* 2nd ed. Boca Raton, FL: CRC Press; pp. 1-6.
- Jana, .S, & Rastogi, H. (2017). Effects of Caffeic Acid and Quercetin on In Vitro Permeability, Metabolism and In Vivo Pharmacokinetics of Melatonin in Rats: Potential for Herb-Drug Interaction. *European Journal of Drug Metabolism Pharmacokinetics*, Jan 9. doi: 10.1007/s13318-016-0393-7.
- Jones, M. O. & Hernández, C. J. (2009). Latina/o Traditional Medicine in Los Angeles: Asking About, Archiving, and Advocating Cultural Resources. *InterActions: UCLA Journal of Education and Information Studies*, 5(1), Article 4. Retrieved from: <http://escholarship.org/uc/item/8ms520r9>.
- Johnson, G. A. (1984). The Flexner Report and Black Medical Schools. *Journal of the American Medical Association*, 76 (3); 223-225. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2561635/pdf/jnma00237-0013.pdf>

- Jou, J., & Johnson, P.J. (2016). Nondisclosure of Complementary and Alternative Medicine Use to Primary Care Physicians: Findings From the 2012 National Health Interview Survey. *Journal of the American Medical Association Internal Medicine*, 176(4):545-6. doi: 10.1001/jamainternmed.2015.8593.
- Juckett, G. (2013). Caring for Latino Patients. *American Family Physician*, 87(1):48-54.
- Kalateh Sadati, A., Tabei, S. Z., Ebrahimzade, N., Zohri, M., Argasi, H., & Bagheri Lankarani, K. (2016). The paradigm model of distorted doctor-patient relationship in Southern Iran: a grounded theory study. *Journal of Medical Ethics and History of Medicine*, 9, 2. doi.org/10.20529/ijme.2016.042 .
- Keegan, L. (1996). Use of alternative therapies among Mexican Americans in the Texas Rio Grande Valley. *Journal of Holistic Nursing*., 14(4):277-94.
- Kennedy, J., Wang, C.C., Wu, C.H. (2008). Patient disclosure about herb and supplement use among adults in the US. *Evidence Based Complementary and Alternative Medicine*, 5:451–456.
- Kiefer, D., Tellez-Girón, P., Bradbury, E.J. (2014). A pilot study of herbal medicine use in a Midwest Latino population. *Wisconsin Medical Journal*, 113(2):64-71.
- Kleinman, A., Eisenberg, L., & Good, B. (1978). Culture, illness, and care: clinical lessons from anthropologic and cross-cultural research. *Annals of Internal Medicine*, 88(2):251-8.
- Ko, E., Zúñiga, M.L., Peacher, D., Palomino, H., & Watson, M.(2018). Efficacy of Cancer Care Communication Between Clinicians and Latino Patients in a Rural US-Mexico Border Region: a Qualitative Study of Barriers and Facilitators to Better Communication. *Journal of Cancer Education*, 33(1):116-127. doi: 10.1007/s13187-016-1100-8.

- Kristanc, L., & Kreft, S. (2016). European medicinal and edible plants associated with subacute and chronic toxicity part II: Plants with hepato-, neuro-, nephro- and immunotoxic effects. *Food Chemical Toxicology*, Mar 21. pii: S0278-6915(16)30077-1. doi: 10.1016/j.fct.2016.03.014.
- Kumagai, A.K., & Lypson, M.L. (2009). Beyond cultural competence: critical consciousness, social justice, and multicultural education. *Academic Medicine*, 84(6):782-7. doi: 10.1097/ACM.0b013e3181a42398.
- Le, T.Q., Smith L., Harnett, J. (2016). A systematic review - Biologically-based complementary medicine use by people living with cancer - is a more clearly defined role for the pharmacist required? *Research in Social and Administrative Pharmacy*, Oct 29. pii: S1551-7411(16)30386-2. doi: 10.1016/j.sapharm.2016.10.018.
- Lee, J.H., Goldstein, M.S., Brown, E.R., & Ballard-Barbash, R. (2010). How does acculturation affect the use of complementary and alternative medicine providers among Mexican- and Asian-Americans? *Journal of Immigrant and Minority Health*, 12(3):302-9. doi: 10.1007/s10903-008-9171-1.
- Levine, R.E., & Gaw, A.C. (1995). Culture-bound syndromes. *Psychiatric Clinics of North America*, 18(3):523-36.
- Levy, B.S., & Patz, J.A. (2015). Climate Change, Human Rights, and Social Justice. *Annals of Global Health*, 81(3):310-22. doi: 10.1016/j.aogh.2015.08.008.
- Kelle, U. & Kluge, S. (1999). *From an individual case to a type. Case comparison and case contrast in qualitative social research*. Opladen: Leske and Budrich.
- Lobb, A.L. (2012). Science in liquid dietary supplement promotion: the misleading case of mangosteen juice. *Hawaii Journal of Medicine and Public Health*, 71(2):46-8.

- Loy, J.S, Ali, E.E., & Yap, K.Y. (2016). Quality Assessment of Medical Apps that Target Medication-Related Problems. *Journal of managed care & specialty pharmacy*, 22(10):1124-40. doi: 10.18553/jmcp.2016.22.10.1124.
- Lozoya, X. (1996). Medicinal Plants of Mexico: A Program for Their Scientific Validation. Chapter 22. In: Balick, M., Elisabetsky, E. & Laird, S. (Editors). *Medicinal Resources of the Tropical Forest*. New York: Columbia University Press.
- Lozoya, X. (1999). *Xiuhpatli: Herba officinalis*. México, D.F.: SSA/UNAM; pp. 82-85.
- Maciocia, G. (2015). *The Practice of Chinese Medicine* 3rd Ed. New York: Elsevier.
- Mädge, I., Cramer, L., Rahaus, I., Jerz, G., Winterhalter, P., & Beuerle, T. (2015). Pyrrolizidine alkaloids in herbal teas for infants, pregnant or lactating women. *Food Chemistry*, 187:491-8. doi: 10.1016/j.foodchem.2015.04.067.
- Madsen, C. (1965). *A study of Change in Mexican Folk Medicine*. New Orleans, LA: Tulane University-Middle American Research Institute; pp. 99-100.
- Madsen, W. (1973). *The Mexican-Americans of South Texas* 2nd ed. New York: Holt, Rinehart and Winston; pp.70-98.
- Maduro, R. (1983). Curanderismo and Latino views of disease and curing. *Western Journal of Medicine*, 139(6):868-74.
- Malterud, K. (2001). The art and science of clinical knowledge: evidence beyond measures and numbers. *The Lancet*, 358(9279):397-400.
- Marcus, D.M. (2016). Dietary supplements: What's in a name? What's in the bottle? *Drug Test Analysis*, 8(3-4):410-2. doi: 10.1002/dta.1855.

- Mata R., Cristians, S., Escandón-Rivera, S., Juárez-Reyes K., & Rivero-Cruz, I. (2013). Mexican antidiabetic herbs: valuable sources of inhibitors of α -glucosidases. *Journal of Natural Products*, 22; 76(3):468-83.
- Mattingly, C. (1998), In Search of the Good: Narrative Reasoning in Clinical Practice. *Medical Anthropology Quarterly*, 12: 273–297. doi:10.1525/maq.1998.12.3.273
- May M., & Schindler, C. (2016). Clinically and pharmacologically relevant interactions of antidiabetic drugs. *Therapeutic Advances in Endocrinology and Metabolism*. ;7(2):69-83.
- McEwen, B.J. (2015). The influence of herbal medicine on platelet function and coagulation: a narrative review. *Seminars in Thrombosis and Hemostasis*. ;41(3):300-14. doi: 10.1055/s-0035-1549089.
- McGettigan P., Henry, D. (2013). Use of non-steroidal anti-inflammatory drugs that elevate cardiovascular risk: an examination of sales and essential medicines lists in low- middle-, and high-income countries. *Public Library of Science Medicine*,10(2):e1001388. doi: 10.1371/journal.pmed.1001388.
- McKenzie, R. (2012). *Australia's Poisonous Plants, Fungi and Cyanobacteria*. Victoria, Australia: CSIRO Publishing; pp. 582-583.
- McNeill, B. & Cervantes, J. M. (2016). *Latina/o healing practices: Mestizo and indigenous perspectives*. New York: Routledge.
- Mehta, D. H., Gardiner, P. M., Phillips, R. S., & McCarthy, E. P. (2008). Herbal and Dietary Supplement Disclosure to Health Care Providers by Individuals with Chronic Conditions. *Journal of Alternative and Complementary Medicine*, 14(10), 1263–1269. <http://doi.org/10.1089/acm.2008.0290>

Merriam-Webster's Medical Desk Dictionary. (2005).

New York; Cengage Learning; 960 pp.

Micozzi, M. (2015). *Complementary and Integrative Medicine* 5th ed.

New York: Elsevier.

Micozzi, M. (2013). *Vital Healing*.

San Francisco, CA: Singing Dragon.

Mikhail, N., Wali, S., & Ziment, I. (2004). Use of alternative medicine among Hispanics.

Journal of Alternative and Complementary Medicine, 1:851–9. doi:

10.1089/acm.2004.10.851

Mills S., & Bone, K. (2005). *Essential Guide to Herbal Safety*.

St. Louis, MO: Churchill-Livingstone/Elsevier.

Minkler, M., & Cox, K. (1980). Creating critical consciousness in health: applications of Freire's philosophy and methods to the health care setting. *International Journal of Health Services*, 10 (2):311-22.

Murphy, J.M. (2015). *Botánicas: Sacred Spaces of Healing and Devotion in Urban America*.

Jackson, MS; University Press of Mississippi.

National Center for Complementary and Integrative Health. (2017). Definition for

Complementary and Alternative Medicine. Retrieved from

<https://nccih.nih.gov/health/integrative-health>.

National Center for Farmworker Health (NCFH).(2011). Folk Medicine and Traditional Healing.

Retrieved from http://www.ncfh.org/uploads/3/8/6/8/38685499/fs-folk_medicine.pdf.

- Nedrow, A.R., Heitkemper, M., Frenkel, M. Mann, D., Wayne, P., & Hughes, E. (2007). Collaborations between allopathic and complementary and alternative medicine health professionals: four initiatives. *Academic Medicine*, 82(10):962-6.
- Nelson, L, Shih, R, Balick, M. (2007). *Handbook of Poisonous and Injurious Plants*, 2nd ed. New York: Springer-Verlag; pp. 70-71.
- Neuman MG *et al.* (2015). Hepatotoxicity of Pyrrolizidine Alkaloids. *Journal of Pharmacy and Pharmaceutical Sciences*, 18(4):825-43.
- Nuland, SB. (2000). *The Mysteries Within*. New York: Simon & Schuster; pp. 44-64.
- Oschman, J. (2016). *Energy Medicine: The Scientific Basis* 2nd ed. New York: Elsevier.
- Pachter, LM. (1994). Culture and clinical care. Folk illness beliefs and behaviors and their implications for health care delivery. *Journal of the American Medical Association*, 271(9):690-4.
- Pettigrew, AC, King, MO, McGee, K, Rudolph, C. (2004). Complementary therapy use by women's health clinic clients. *Alternative Therapies in Health and Medicine*, 10(6):50–55.
- Pieroni, A. & Vanderbroek, I. (2007). *Traveling Cultures and Plants: The Ethnobiology and Ethnopharmacy of Human Migrations*. New York: Berghan Books.
- Poss, JE, Jezewski, MA, González-Stuart, A. (2003). Home remedies for type 2 diabetes used by Mexican Americans in El Paso, Texas. *Clinical Nursing Research*, 12(4):304-23. doi :10.1177/1054773803256872.
- Poss J, Pierce, R, Prieto, V. (2005). Herbal remedies used by selected migrant farmworkers in El Paso, Texas. *Journal of Rural Health*; 21(2):187-91.

- Pourbohloul B., & Kieny, M. (2011). Complex systems analysis: towards holistic approaches to health systems planning and policy. *Bulletin of the World Health Organization*; 89:242-242. doi: 10.2471/BLT.11.087544.
- Quinlan, M. B. (2010). Ethnomedicine and ethnobotany of fright, a Caribbean culture-bound psychiatric syndrome. *Journal of Ethnobiology and Ethnomedicine*, 6, 9. <http://doi.org/10.1186/1746-4269-6-9>.
- Rakel, D. (2017). *Integrative Medicine* 4th ed. New York: Saunders.
- Reyes-Ortiz, CA.; Rodriguez, M. & Markides, K S.(2009). The Role of Spirituality Healing with Perceptions of the Medical Encounter among Latinos. *Journal of General Internal Medicine*, 24(3), pp 542-547. doi: 10.1007/s11606-009-1067-9. Retrieved from: <http://escholarship.org/uc/item/3jw050m1>.
- Rivera, JO, Ortiz, M, Lawson, ME, & Verma, KM. (2002). Evaluation of the use of complementary and alternative medicine in the largest United States-Mexico border city. *Pharmacotherapy*; 22(2):256-64.
- Rivera, JO, Hughes, HW, González Stuart, A. (2004). Herbals and Asthma: Usage Patterns Among a Border Population. *Annals of Pharmacotherapy*; 38 (2):220-5. DOI 10.1345/aph.1D319)
- Rivera, J. O., González-Stuart, A., Ortiz, M., Rodríguez, J. C., Anaya, J. P., & Meza, A. (2005). Herbal product use in non-HIV and HIV-positive Hispanic patients. *Journal of the National Medical Association*, 97(12), 1686–1691.

- Rivera J.O., Ortiz M., González-Stuart A., Hughes, H. (2007). Bi-national evaluation of herbal product use on the United States/México border. *Journal of Herbal Pharmacotherapy*, 7(3-4):91-106. doi.org/10.1080/15228940802142621
- Roeder, B. (1998). *Chicano Folk Medicine from Los Angeles, California*. Berkeley, CA: University of California Press; 214-307.
- Roter, DL, Yost KJ, O'Byrne, T, & Tilburt, J. (2016). Communication predictors and consequences of Complementary and Alternative Medicine (CAM) discussions in oncology visits. *Patient Education Counseling*, 99(9):1519-25. doi: 10.1016/j.pec.2016.06.002.
- Rubel A., O'Neill, C., Collado-Ardón, R. (1984). *Susto: A Folk Illness*. Berkley: University of California Press.
- Samuelsson, G & Bohlin, L. (2015). *Drugs of Natural Origin: A Treatise of Pharmacognosy* 7th ed. Stockholm: Swedish Pharmaceutical Society.
- Sandelowski, M. (2000). Focus on research methods-whatever happened to qualitative description?. *Research in Nursing and Health*, 23(4), 334-340.
- Sandoval, A. (1996). *Homegrown Healing: Traditional Home Remedies from Mexico*. New York: Berkley Books.
- Scantlebury, C. E., Peachey, L., Hodgkinson, J., Matthews, J. B., Trawford, A., Mulugeta, G., ... Pinchbeck, G. L. (2013). Participatory study of medicinal plants used in the control of gastrointestinal parasites in donkeys in Eastern Shewa and Arsi zones of Oromia region, Ethiopia. *BMC Veterinary Research*, 9, 179. http://doi.org/10.1186/1746-6148-9-179
- Schiff, T., & Rieth, K. (2012). Projects in Medical Education: "Social Justice In Medicine" A Rationale for an Elective Program as Part of the Medical Education Curriculum at John A.

- Burns School of Medicine. *Hawai'i Journal of Medicine & Public Health*, 71(4 Suppl 1), 64–67.
- Schulke, DA. (2017). *Veneficium: Magic, Witchcraft and the Poison Path* 2nd ed. San Francisco, CA: Three Hands Press.
- Schultes, R., & Raffauf, R. (1990). *The Healing Forest*. Portland, OR: Dioscorides Press.
- Schwartz, S. J., Unger, J. B., Zamboanga, B. L., & Szapocznik, J. (2010). Rethinking the Concept of Acculturation: Implications for Theory and Research. *The American Psychologist*, 65(4), 237–251. <http://doi.org/10.1037/a0019330>.
- Scirica, B.M., Braunwald, E., Raz, I., Cavender, M.A., Morrow, D.A., Jarolim, P.....Bhat, D.L. (2015). Heart Failure, Saxagliptin, and Diabetes Mellitus: Observations from the SAVOR-TIMI 53 Randomized Trial. *Circulation*, 132(15):e198. doi: 10.1161/CIR.0000000000000330.
- Shirasaka, Y., Shichiri, M., Mori, T., Nakanishi, T., Tamai, I. (2013). Major active components in grapefruit, orange, and apple juices responsible for OATP2B1-mediated drug interactions. *Journal of Pharmaceutical Sciences*, 102(9):3418-26. doi: 10.1002/jps.23653.
- Skloot, R. (2011). *The Immortal Life of Henrietta Lacks*. New York: Crown Publishers.
- Small, E. (2012). *Top 100 Exotic Food Plants*. Boca Raton, FL: CRC Press; pp. 429-423.
- Smith, T., Kawa, K., Eck, V., Morton, C., & Stredneyd, R. (2017). Sales of Herbal Dietary Supplements in US Increased 7.7% in 2016. *HerbalGram*, 115; American Botanical Council. Retrieved from <http://cms.herbalgram.org/herbalgram/issue115/images/HG15-Mktrpt.pdf>

- Smurthwaite, K., & Bagheri, N. (2017). Using Geographical Convergence of Obesity, Cardiovascular Disease, and Type 2 Diabetes at the Neighborhood Level to Inform Policy and Practice. *Prevalence Chronic Diseases, 14*:170170. doi: <http://dx.doi.org/10.5888/pcd14.170170>
- Smuts, J.C. (1927). *Holism and Evolution* 2nd ed. London: Cambridge University Press.
- Sohl, SJ, Borowski, LA, Kent, EE, Smith, AW, Oakley-Girvan, I, Rothman, RL,& Arora, NK. (2015). Cancer survivors' disclosure of complementary health approaches to physicians: the role of patient-centered communication. *Cancer, 121*(6):900-7. doi: 10.1002/cncr.29138.
- Stub, T., Quandt, S.A., Arcury, T.A., Sandberg, J.C., Kristoffersen, A.E., Musial, F. & Salamonsen, A. (2016). Perception of risk and communication among conventional and complementary health care providers involving cancer patients' use of complementary therapies: a literature review. *Bio Med Central Complementary and Alternative Medicine, 16*:353. doi: 10.1186/s12906-016-1326-3.
- Su, D, Li, L, & Pagán, JA. (2008). Acculturation and the use of complementary and alternative medicine. *Social Science & Medicine, 66*(2):439-53.
- Taddei-Bringas, G.A., Santillana-Macedo, M.A., Romero-Cancio, J.A. & Romero-Tellez, M.B. (1999). Acceptance and use of medicinal plants in family medicine. *Salud Pública México, 41*:216–20.
- Tasaki, K., Maskarinec, G., Shumay, D. M., Tatsumura, Y. & Kakai, H. (2002), Communication between physicians and cancer patients about complementary and alternative medicine: exploring patients' perspectives. *Psycho-Oncology, 11*: 212–220. doi:10.1002/pon.552

- Tang, W., & Eisenbrand, G. (2008). *Handbook of Chinese Medicinal Plants*. New York: Wiley.
- Thorburn, S, Faith, J, Keon, KL, Tipples, KM. (2013). Discrimination in health care and CAM use in a representative sample of U.S. adults. *Journal of Alternative and Complementary Medicine*, 19(6):577-81. doi: 10.1089/acm.2012.0586.
- Torres, E. & Sawyer, T. (2005). *Curandero, A Life in Mexican Folk Healing*. Albuquerque, NM: University of New Mexico Press.
- Torres, E. (2006). *Healing with Herbs and Rituals*. Albuquerque, NM: University of New Mexico Press.
- United States Census Bureau (2015). QuickFacts El Paso County, Texas. Available from: Retrieved from <https://www.census.gov/quickfacts/table/RHI605210/48141>.
- United States Census Bureau (2009). El Paso, Texas population projections. Retrieved from <http://quickfacts.census.gov/qfd/states/48/4824000.html>.
- U.S. Department of Health and Human Services. (2007). *Guidance on reviewing and reporting unanticipated problems involving risks to subjects or others and adverse events*. Retrieved from <http://www.hhs.gov/ohrp/policy/advevntguid.html>
- VanWormer, JJ, Boucher, JL, Sidebottom, AC, Sillah, A, & Knickelbine, T. (2017). Lifestyle changes and prevention of metabolic syndrome in the Heart of New Ulm Project. *Preventive Medicine Report*, 6:242-245. doi: 10.1016/j.pmedr.2017.03.018.
- Wagstaff, J. (2008). *International Poisonous Plant Checklist: An Evidence-Based Reference*. Boca Raton, FL: CRC Press; pp. 396-397.

- Ward, B.W., Schiller, J.S. & Goodman, R.A. (2014). Multiple chronic conditions among US adults: a 2012 update. *Preventing Chronic Disease*, 11:130389. doi: <http://dx.doi.org/10.5888/pcd11.130389>.
- Washington, H.A. (2012). *Deadly Monopolies: The Shocking Corporate Takeover of Life Itself-- And the Consequences for Your Health and Our Medical Future*. New York: Anchor Books.
- Weller, SC, Baer, RD, Garcia de Alba Garcia, J & Salcedo Rocha, AL. (2012). Explanatory models of diabetes in the U.S. and Mexico: the patient-provider gap and cultural competence. *Social Sciences and Medicine*, 75 (6):1088-96. doi: 10.1016/j.socscimed.2012.05.003.
- Wells, R. E., Phillips, R. S., Schachter, S. C. & McCarthy, E. P. (2010). Complementary and Alternative Medicine Use among U.S. Adults with Common Neurological Conditions. *Journal of Neurology*, 257(11), 1822–1831. doi.org/10.1007/s00415-010-5616-2.
- Weil, A. (2009). *Why Our Health Matters*. New York: Hudson Street Press.
- Wendroff, A. P. (1995). Magico-religious mercury use and cultural sensitivity. *American Journal of Public Health*, 85(3), 409–410.
- Whitford, L. (1998). A Concept Analysis of Holism Using Preactive Research. Master's Thesis- Faculty of Nursing, University of Manitoba, Canada; 376 pp.
- Wiley, A & Allen, J (2013). *Medical Anthropology* 2nd ed. London: Oxford University Press; pp: 345-350.
- Wilson, HJ. (2000). The myth of objectivity: is medicine moving towards a social constructivist medical paradigm? *Family Practice*; **17**: 203–209
- World Health Organization (1998). Essential Medicines and Health Products Information Portal. Retrieved from <http://apps.who.int/medicinedocs/en/d/Jh2945e/4.html>.

- World Health Organization. (2005). Center for Health Development, WHO Global Atlas of Traditional, Complementary and Alternative Medicine. Kobe: Japan. Medicine Strategy 2014-2023. Retrieved from http://apps.who.int/iris/bitstream/10665/92455/1/9789241506090_eng.pdf?ua=1.
- World Health Organization. (2014). Traditional Medicine Strategy 2014-2023. Retrieved from http://apps.who.int/iris/bitstream/10665/92455/1/9789241506090_eng.pdf?ua=1.
- Wynn, S., & Bougere, B. (2007). Veterinary Herbal Medicine. New York: Elsevier.
- Yan, X., Kang, H., Feng, J., Yang, Y., Tang, K., Zhu, R..... Cao, Z. (2016). Identification of Toxic Pyrrolizidine Alkaloids and Their Common Hepatotoxicity Mechanism. *International Journal of Molecular Science*, 17(3). pii: E318. doi: 10.3390/ijms17030318.
- Yang, Y, Cheng, J, Garamus, VM, Li, N, & Zou, A. (2018). Preparation of an Environmentally Friendly Formulation of the Insecticide Nicotine Hydrochloride through Encapsulation in Chitosan/Tripolyphosphate Nanoparticles. *Journal of Agricultural and Food Chemistry* 7; 66(5):1067-1074. doi: 10.1021/acs.jafc.7b04147.
- Zaidi, Z, Verstegen, D, Vyas, R, Hamed, O, Dornan, T & Morahan, P. (2016). Cultural hegemony? Educators' perspectives on facilitating cross-cultural dialogue. *Medical Education Online*, 21(1):33145. doi: 10.3402/meo.v21.33145.
- Zavaleta, S. & Salinas, A. (2009). *Curandero Conversations*. Bloomington, IN: Authorhouse ; pp: 346-347.

Curriculum Vita

Armando Stuart González, IAZ, Ph.D.

Born Armando Enrique González Stuart, in Chihuahua, Mexico, he is currently research associate in herbal safety with the UTEP School of Pharmacy. Dr. González-Stuart obtained his B.Sc. in Animal Science and Agronomy (Ingeniero Agrónomo Zootécnico - IAZ) from the Center of Universitarian Studies in Monterrey, Mexico, his Master's Degree credits in Natural Resource Management from the Facultad de Zootecnia y Ecología -University of Chihuahua, Mexico, and his Doctorate in Alternative Medicines (distance learning) from the Open International University in Kolkata, India. He currently teaches alternative and integrative medicine, as well as herbal medicine at the Senior Adult Program - El Paso Community College (EPCC), and the Osher Lifelong Learning Institute (OLLI). As a researcher with the School of Pharmacy, he is co-founder and principal contributor of the bilingual (English-Spanish) Herbal Safety website (herbalsafety.utep.edu), the first non-commercial website dedicated to disseminating information regarding the safe use of herbal products on the United States-Mexico border. He has written books and book chapters about poisonous plants, preventive nutrition, and herbal medicine, as well as various peer reviewed articles in international journals related to medicinal plant use by Hispanic Americans and older adults. His main professional/research interests include Complementary, Alternative, and Integrative Medicine (CAIM), Phytoaromatherapy, Toxicology, Ayurveda, Traditional Chinese Medicine (TCM), and Ethnopharmacology.

Email Address: asgonzalez1@utep.edu

This dissertation was typed by Armando Stuart González