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SAFE MEDICATION USE AMONG HISPANIC COLLEGE STUDENTS: KNOWLEDGE, ATTITUDES AND BEHAVIORS

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SAFE MEDICATION USE AMONG HISPANIC COLLEGE STUDENTS: KNOWLEDGE,
ATTITUDES AND BEHAVIORS

by

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THESIS

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Abstract

College students are at increased risk of medication errors. Research suggests that young adults are active users of over-the- counter (OTC) medications and other products that may increase the risk for negative health outcomes. Therefore, it is very important to analyze young adults' attitudes, beliefs, and behaviors about medication use among college students in order to provide them with the necessary information. Due to language and cultural factors, the issue is particularly relevant in U.S.-Mexico border communities. This casual-comparative study examined knowledge, attitudes, and behaviors regarding medication use among Hispanic college students. Data was collected through a survey developed by the investigator. Analyzes included descriptive statistics and ANOVAs.

A total of 494 students participated in the study. Results indicated that there was a significant mean difference in attitudes towards medication use based on age, place of birth, language, and major. There were significant mean differences in attitudes towards herbal products and dietary supplement use based on age, gender, and major. There was also a significant mean difference in behavior based on language and major. Results also indicated that there was a significant effect for place of birth (F $(1,441) = 23.454, p<.001$) and language ($F (2,440) = 24.543, p=0.002$) on attitudes toward medication use. Results also indicated a significant effect for language on behavior ($F (2,371) = 15.148, p<.001$). These factors may determine the acculturation level of the participants.

In summary, the data suggested that Hispanic college students are active users of medication, herbal products and dietary supplements. This suggests the need for research on intervention programs designed to address unsafe medication, herbal products, and dietary supplements use in the priority population and in other groups in which the prevalence of concurrent use is of concern.

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Chapter 1: Introduction

1.1 Background

Our population has become more diverse than ever before, and this tendency is expected to continue (U. S. Census Bureau, 2009). As the United States (U.S.) becomes more ethnically and racially diverse, the healthcare system and healthcare providers must respond to a patient's knowledge, attitudes, behaviors, traditions, values, and beliefs, about health and well-being. Failure to understand and manage socio-cultural differences may have considerable negative health consequences for minority groups in particular (Betancourt, Green, Carrillo, & Park, 2005).

There is evidence that minority groups tend to receive a lower quality of healthcare compared with non-minorities, and that minorities experience greater morbidity and mortality rates from different diseases than non-minorities (Egede & Bosworth, 2008). Research has confirmed that there are considerable disparities in access, quality, and outcomes of care related to race, ethnicity, and socio-economic level (Clancy & Stryer, 2001). Eliminating health disparities remains a national issue that warrants effective solutions (Kressin, 2005). Future research should examine the full range of variables relevant to racial differences in the provision of healthcare (Smedley, Stith, & Nelson Eds, 2002).

Scholars have indicated that health disparities exist among different groups in the U.S. (Soto Mas, Allensworth, & Phyllis, 2010). Hispanics health issues have not been adequately identified and analyzed (Howell, et al., 2006). College age Hispanic youth may experience different medical and emotional troubles related to academic, financial, and/or social problems which dictates the need for studies that prioritize this population. According to the American College Health Association (ACHA), the most frequent health problems among college students in general include allergies (52.2%), sinus infection (33.4%), depression (19.6%), and anxiety (13.4%) (American College Association, 2005).

Another study conducted with 31,044 U.S. adults suggested that 19% of adults in the U.S. have used an herbal or dietary supplement (Stasio, et al., 2008). Newberry, Beerman, Duncan, McGuire, and

Hillers (2001) conducted a survey among college students to evaluate dietary supplement use. They found that 48% of participants reported the use of at least one product. The study also suggested that a high percent of college students used over-the-counter (OTC) medications as well (Stasio, et al., 2008). Medication use, including prescription drugs, supplements, and an herbal product is very common among young adults (Hsiao, et al., 2005). Substance use among college students is a significant concern that needs to be addressed. Studies have found that young adults have the highest rate of substance abuse (Gfroerer, Greenblatt, & Douglas, 1997). Medication practices among young adults reveal the need of appropriate educational materials and information to increase knowledge and promote positive attitudes and behaviors regarding medication use.

Another problem that young adults face is self-medication. Medications and dietary supplements, are generally self-administered according to the users own knowledge and experience or the experience of a family member, the advice of a friend, or advertisements. The use of OTC medications and herbal/dietary supplements may enable personal management of one's health (Stasio, et al., 2008). Young adults actively use OTC medications and other products that increase the risk for negative health outcomes as a result of not seeking medical provision, as opposed to older adults who are more likely to visit healthcare providers regardless of the seriousness of the problem (Roper Starch Worldwide [RSW], 2001).

Medication errors harm at least 1.5 million people every year. Self-medication is common for the treatment of colds, respiratory infections, and bronchitis. Research indicated that 400,000 preventable drug-related problems occur each year in hospitals, 800,000 in long-term care settings, and approximately 530,000 just among Medicare recipients in outpatient clinics (Aspden, Wolcott, Bootman, & Cronenwett, 2007).

1.2 Statement of the Problem

Given the continuous increase of the Hispanic population in the U.S., inadequate knowledge of medications such as prescription drugs, OTC, herbal products, and dietary supplements and their use constitutes a relevant health threat among Hispanic college students. Medication practices in the young population reveal the complex relationships between medication knowledge, attitudes, and behaviors that must be considered in order to provide effective education (Hsiao, et al., 2006).

1.3 The Purpose of the Study

The aim of this study is to explore the knowledge, attitudes, and behaviors regarding medication use among Hispanic college students. The health status of college students has received less attention than that of children and adolescents. It is very important to analyze knowledge, attitudes, and behaviors about medication use among college students in order to provide them the information needed to improve and protect their health.

1.4 Research Questions

The research aims of this quantitative study are to: a) explore the knowledge, attitudes, and behaviors regarding medication, herbal products and dietary supplements use among Hispanic college students; and b) explore the relationship between demographic variables and knowledge, attitudes, and behaviors regarding medication use among Hispanic college students. The following research questions were developed:

1. What are the overall mean differences on knowledge, attitudes, and behaviors regarding medication, herbal products or dietary supplement use across key demographic variables among Hispanic college students?

2. Is there a relationship between specific demographic variables and the sub-dimensions in the medication use scale?

1.5 The Need for the Study

Health status among college students has received less attention than that of children and adolescents. The U.S. Census Bureau reported that there are 27.1 million young adults 18-24 years of age. Critical health issues among young adults include reproductive health, injury, substance abuse, mental health, violence, obesity, and access to healthcare (Park, Mulye, Adams, Brindis, Irwin, & Charles E. 2006). Poor knowledge of medication use may cause negative health outcomes. The misuse of medications, herbal products, and dietary supplements can cause serious problems among college students.

College populations have changed dramatically during the last decades. The enrollment in college increased from 15.3 million to 17.2 million from 2000 to 2006 (U.S. Census Bureau, 2009). The U.S. Census Bureau (2009) reported that in 2008 48.6% of young adults aged 18-19 years were enrolled in college, and 48.5% aged 20-21years. In 2006, Hispanics represented 17.1 % of the college student population (Davis, & Bauman, 2008). The U.S. Census Bureau reported that in 2008, 34.3% of Hispanic young adults aged 18-19 years old are enrolled in college, 29.0% aged 20-21, and 18.0% aged 22-24 (2009).

This investigator believes that research is needed to explore knowledge, attitudes, and behaviors regarding medication, herbal products, and dietary supplement use among Hispanic college students. The Hispanic college student population is expected to increase, and new educational materials need to be available to prevent negative health outcomes. This study will provide additional information to further efforts to prevent medication errors among Hispanic college students.

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1.6 Assumptions

The following assumptions were considered true for this investigation. It was expected that subjects were active users of herbal products and dietary supplements, were unknowledgeable about safe medication use, and negative attitudes towards herbal product use.

1.7 Outline of the Chapters

Chapter I includes a description of the problem, including the purpose of the study, research questions, need for the study, and assumptions. Chapter 2 is a review of the literature of Hispanics' health. Chapter 3 includes a description of the research design, survey design, participant selection, data collection and analysis, and study variables. Chapter 4 contains a report of the study results. In Chapter 5 the results of the study are discussed with their implications, limitations, and recommendations for further research.

Chapter 2: Review of the Relevant Literature

This chapter introduces the studies that found a relationship between culture and health-related knowledge, attitudes, and behaviors. An explanation of each term is presented. A description of Hispanics' health, language, and culture is described.

2.1 Culture and Health

Each person acts and responds to certain situations according to his knowledge, attitudes, behaviors, and culture (Helman, 2001). People can sometimes share the same culture and knowledge, and differ in their perspectives. Culture is not easy to define because there are different ideas and perspectives about it. Scholars pointed out that the concept of culture has been misunderstood and misused (Helman, 2001). Cultures are never homogeneous, and therefore people should not use generalizations to explain peoples' beliefs and behaviors (Helman, 2001). People from the same society can have different ideas and values as those between members of other cultural groups.

There are different definitions of culture. Culture can be defined as a system of ideas and values that are shared and expressed according to the way that people live. Culture is rooted in institutions such as families and schools. (Helman, 2001). Based on these ideas, culture is perceived as a set of guidelines that people inherit as members of a particular society, which they use as a guide to perceive the world, how to emotionally identify it, and how to behave, and respond to supernatural forces or Gods (Helman, 2001). Culture is transmitted from generation to generation by the use of symbols, language, images, art, and rituals. People pass on their customs and ideas to their family members in order to preserve their identity. Scholars explained that the culture into which people are born, is not the only one that influences their life and ideas (Helman, 2001).

Based on these ideas, culture is perceived as a set of guidelines that people inherit as members of a particular society, which they use as a guide to perceive the world, how to emotionally identify it, and

how to behave, and respond to supernatural forces or Gods (Helman, 2001). Culture plays an important role in many aspects of people's lives, including their knowledge, attitudes, beliefs, behaviors, opinions, feelings, languages, religions, rituals, family structure, diet, dress, body images, perceptions of space and time, and attitudes towards disease, pain, and other forms of misfortune, all of which may have significant implications on health perceptions and healthcare (Helman, 2001).

Today, it is recognized that disease and health are strongly related to culture. The relationship between culture and health has been explored. The impact of culture on health is significant because it influences how diseases and symptoms are perceived. Culture plays an important role in the explanation of the causes of illnesses (Helman, 2001). There are different cultural, either causative or protective, factors that influence the development of illnesses. Some of the most commonly analyzed factors are economic situation, family structure, gender roles, marriage patterns, sexual behavior, contraceptive patterns, population policy, pregnancy and childbirth places, child-rearing practices, body image alterations, diet, dress, personal hygiene, housing and sanitation arrangements, occupations, religion, funerary customs, culturogenic stress, migrant status, seasonal travel, leisure pursuits, and self-treatment and lay therapies (Helman, 2001).

Anthropologists and sociologists have been trying to understand how culture may affect health. They have explained how variables such as socio-economic status, gender, lifestyle, and cultural beliefs can be related with the incidence and distribution of certain diseases. Sociologists Murphy and Brown (1980) demonstrated how psychological and physical ill health was preceded by one or more severe life events. Scholars explained that the events more likely to cause psychiatric disorders are those related to long term threat to the life space, such as an unexpected pregnancy, or terminal illness in a relative (Murphy, & Brown, 1980).

There is a relationship between social class and health. People with low socio-economic status tend to have poorer health habits and higher mortality rates than people from affluent classes (Helman,

2001). Marmot (1981) explained how cultural factors may influence risk-related behaviors. He points out that risk factors such as smoking, obesity, and food intake are evaluated, but often limited attention is given to cultural influences that shape dietary patterns, obesity, or smoking.

Recent studies have suggested that epidemiological strategies used to study diseases can also be used to understand folk illnesses and their impact on health. Sometimes, folk illnesses are perceived as real, and they affect people's health (Rubel, 1977). Folk illnesses are perceived as real by members of certain cultures just as healthcare providers see tuberculosis as real. Research suggested that folk illnesses have a tremendous impact on mental and physical health (Helman, 2001).

Although culture can sometimes help protect people against stressful situations, cultural factors can also lead to increased stress. Some cultural beliefs, values, ideas, and customs can increase the number of stressors that a person can have. For instance, each culture has different definitions of what can be considered good or bad behaviors. Each member of a society tries to reach the goals that were established by the community and failure to reach these goals may result in irritation, worry, depression, and stress (Helman, 2001).

Research has been conducted to explain how cultural rituals and beliefs may influence health. Every culture has different ways to deal with illness. In an unexpected situation of misfortune or ill health, rituals provide a way to explain and control the "unknown" (Helman, 2001). Some cultures use rituals, prayers, herbs, and *curanderos* (healers) to alleviate their symptoms. These methods are ancient practices that have been passed down from generation to generation (DeBellonia, et al., 2008). Research suggested that *curanderismo* may have a multilevel influence: psychological, physical, social, cultural, and spiritual (Helman, 2001). Althought how *curanderismo* helps people to alleviate their symptoms is not clearly understood, there is evidence that *curanderismo* may benefit people under certain circumstances. Anthropologists have found that more research is needed to find and understand the causes of more exotic diseases such as *kuru, mal de ojo, susto,* and others (Helman, 2001).

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Scholars have explained that there are other factors that may influence health behaviors, attitudes, and beliefs. These include but are not limited to age, gender, income, occupation, and weather. Sometimes, people may act or respond to certain situations not because it is part of their culture, but because they do not have another option (Helman, 2001). Helman (2001) explained that sometimes people may have high levels of stress or anxiety not because their culture makes them anxious, but because they are victims of discrimination or segregation.

To understand why a person gets a disease at a particular time, a wider range of factors, such as genetic, physical, psychological, and socio-cultural must be taken into consideration. Because relationships between the other factors that are difficult to identify and quantify, they can be difficult for epidemiologists and statisticians to analyze. However, there is enough evidence to confirm the role of these factors in illness development (Helman, 2001).

Health and diseases may be explained by personal experiences and ideas. People can define their own health or illness according to their ideas and perspectives because people learn from their culture and ideologies how to perceive health and how to recognize illnesses. The ideas and perspectives differ among cultures and people, and each person has his own ideas on which they construct their perspectives about what can be considered an illness or not (Spector, 1996).

Family is another factor that may impact health in a positive or negative way. In any community, family is the primary social group, and family compositions and perspectives vary among cultures. Family influence may have a positive or negative effect on health depending on the context. Family patterns may contribute to the development of negative behaviors such as alcohol use, while others may discourage it (Helman, 2001). Studies have shown that family can be considered a system in which patterns may influence people regarding health and disease (Christie-Seely, 1981). Researchers have explained that certain types of family structures are more likely to develop psychosomatic disorders such as anorexia (Minuchin, Rosman, & Baker, 1978). Byng-Hall (1988) has explained the concept of family

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script, which is passed from generation to generation. These ideas are ways of thinking, behaving, viewing, and perceiving the world, and they influence the perception of certain symptoms and how they are pass from generation to generation (Helman, 2001).

Culture also influences how people respond to pain. Social scientists, healthcare providers, and scholars have demonstrated that pain is a culture-bound phenomenon (Spector, 1996). The fact that culture plays an important role in how pain is perceived was suggested by Mark Zborowski (1952). He explained that each culture has a different way to express pain, and found that Jews and Italians have a tendency to exaggerate pain responses, while Americans tend to be more stoic, and the Irish tend to ignore pain. Pain behavior can be influenced by social, cultural and psychological factors. Some cultures are encouraged to express their feelings about pain, and others discourage it. Research has shown that perspectives of pain depend on cultural definitions (Helman, 2001).

2.2 Language and Health

Another factor that affects health is the inability to communicate. The U.S has been changing demographically and economically over the years, and as these changes have influenced health outcomes. One of the most important benefits that our community needs in order to have a productive and healthy life is disponibility and access to healthcare. When people have access to healthcare, their quality of life can increase and improve (Agency for Healthcare Research and Quality, 2004). People need to be informed about how they can improve their health. There is evidence that minority groups tend to have more limited access to healthcare and receive a lower quality of healthcare compared with non-minorities (Egede, & Bosworth, 2008). Researchers confirmed the existence of considerable disparities in access, quality, and outcomes of care related with race, ethnicity, language, and socio-economic level (Clancy, & Stryer, 2001). The 2000 Census, included questions related to language used at home. About 47.0 million (18%) of the total U.S. population reported that they spoke a language

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other than English (Shin & Kominski, 2010). The number of people in the U.S. who speak a language other than English at home has increased over the last years. The four major languages used in the U.S. are Spanish, Indo-European, and Asian and Pacific Island. In 2000 Spanish was the language other than English more spoken at home, and over of half of the Spanish speakers spoke English "very well." After English and Spanish, Chinese was the language most spoken at home, followed by German and French (Shin, & Kominski, 2010).

People who speak languages other than English are not distributed equally across the country. The U.S. Census Bureau pointed out that of those who speak a language other than English at home, 29% live in the west region, 20% in the northeast, 15% in the south, and only 9% in the midwest (Shin, & Kominski, 2010). The U.S. Census 2000 reflected that the higher proportion of speakers of non-English languages live in the West. People in that region experience more difficulties with English than those in other regions (Shin, & Kominski, 2010). The U.S. Census also pointed out that in 2007 California had the largest percentage of non-English-language speakers (43%), followed by New Mexico (36%), Texas (34%), Arizona (29%), New York (28%), and New Jersey (28%) (Shin, & Kominski, 2010). According to this information, people who speak a language other than English are concentrated in Border States. The 2000 Census also pointed out the importance of asking questions related to language use. Language-related questions provide the government with accurate information to develop programs in order to meet the needs of people who have difficulties speaking and understanding English (Shin, & Kominski, 2010).

There are different barriers that may prevent communication between healthcare providers and patients, but one of the main barriers is language. The ability to communicate with government and private agencies, schools, hospitals, business, and people in the U.S. depends on the ability to speak and understand English (Shin, & Kominski, 2010). Language problems have also been shown to be a major

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barrier to healthcare for Hispanic children and contribute to racial/ethnic disparities in children's healthcare (Bradshaw, Tomany-Korman, & Flores, 2007).

People who do not speak or understand English very well have difficulty communicating their ideas and needs. People with Limited English Proficiency (LEP) are less likely to have access to the healthcare services. When healthcare providers and patients speak a different language, the patient's health may be affected in different ways. Some of the consequences may be that patients will not be able to communicate their symptoms and healthcare providers will not be able to communicate a diagnosis or recommendation (Gregg, & Saha, 2007). People who have difficulties with English tend to have the worst access to healthcare, and to receive healthcare of poor quality (Jacobs, Chen, Karliner, Agger-Gupta, & Mutha, 2006). Poor communication between healthcare providers and patients can have negative consequences, such as the inability to understand instructions for taking medication, and medication side effects, and lower satisfaction with healthcare (Lavizzo-Mourey, 2007).

Language barriers can decrease the quality of healthcare and increase the risk for miscommunication between patients and healthcare providers (Ponce, Ku, Cunningham, & Brown, 2006). In 1998, the Office for Civil Rights of the Department of Health and Human Services issued a memorandum, which stated that the rejection or delay of medical care because of language barriers represents discrimination, and required that healthcare providers ensure adequate language support to patients with LEP. In 2000 a presidential executive order was issued to improve access to services (Flores, 2007). Unfortunately, most of the states that have the largest numbers of patients with LEP did not have the appropriate resources to adequately help them (Flores, 2007).

There are different resources that have been used by healthcare providers to help patients who do not speak English, but unfortunately not all of them have worked. Sometimes people enlisted to help patients are not properly trained to communicate or translate information. Often times family members, friends, staff members, and strangers are asked to interpret for patients (Flores, 2007). These

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"interpreters" lack appropriate training and usually make errors that may have adverse consequences (Flores, Laws, Mayo, Zuckerman, Medina, & Hardt, 2003). Other people who work as interpreters lack specific training in medical terminology and confidentiality (Flores, 2005).

Frequently, healthcare providers assist patients with a broad range of cultures, ideologies, and perspectives about health. Healthcare providers need to be informed about how they can educate and inform patients appropriately about their health. More research is needed in order to find effective ways to educate and inform patients on how to protect their health and prevent diseases.

2.3 Health Disparities

The literature confirms the existence of considerable disparities in access, quality, and outcomes of care related with race, ethnicity, and socio-economic level (Clancy, & Stryer, 2001). Scholars indicated that health disparities take place among different groups in the U.S. (Soto Mas, Allensworth, & Phyllis, 2010).

A disparity can be defined as the condition or circumstance of being unequal (Agency for Healthcare Research and Quality, 2004), and researchers and practitioners have proposed reasons to explain why disparities in healthcare exist. They relate to the patient, healthcare providers, and healthcare system (Kressin, 2005). There are different aspects that influence patients in decision-making regarding treatment. Some aspects that influence people are socio-demographic variables such as race, age, income, education, marital status, health insurance, disease burden, disease severity, health-related beliefs, attitudes, and preferences for care (Kressin, 2005). Kressin (2005) explained that the deficiency in health promotion and education may influence disparities in healthcare.

There is a national priority to decrease health disparities in healthcare. Disparities in health and healthcare have been recognized as a serious problem that is affecting our population (Kressin, 2005), and initiatives have been taken to eliminate health disparities. Under President Clinton, there were

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different programs that were developed to decrease health disparities (U.S. Department of Health and Human Services, 1998) related to cardiovascular disease, diabetes, infant mortality, cancer screening and management, HIV/AIDS, and immunizations (Kressin, 2005). In 2000, the Minority Health and Health Disparities Research and Education Act was developed and promoted (Kressin, 2005). The act empowered the National Institutes of Health (NIH) and its centers to develop and implement plans to modify and decrease health disparities (Warneche, et al., 2008). This initiative incorporated the idea that health disparities are not inevitable (Warneche, et al., 2008). For instance, the National Institute of Dental and Craniofacial Research (NIDCR) has implemented its plan to decrease craniofacial, oral, and dental health disparities (National Healthcare Disparities Report: Summary, 2004.). Health educators and promoters, funding agencies, and the community are looking for strategies and actions to decrease health and healthcare disparities (Kressin, 2005). The federal government also has identified possible solutions to decrease disparities (Soto Mas, Allensworth, & Phyllis, 2010).

To eliminate health disparities, scholars need to focus on the causes of health disparities across populations (Evans, Morris, & Marmor, 1994). Each culture is different, and people need appropriate information that reflects their culture. Multidimensional studies are needed to explore the full range of possible etiologies. Without specific and reliable information about factors that may cause health disparities, effective interventions to eliminate them cannot be designed and implemented (Kressin, 2005). Researchers indicated that appropriate health educational programs that address health disparities are essential in changing people's health status (Soto Mas, Allensworth, & Phyllis, 2010).

Future research should examine the full range of variables relevant to racial differences in the provision of healthcare (Smedley, Stith & Nelson, 2002). Cooper and Powe explained that improving health providers' cultural knowledge and communication skills, and incrementing the number of ethnic minority clinicians will improve the relationship between providers and patients. It also will increase people's satisfaction and improve health outcomes (Cooper, & Powe, 2004). Research suggested that

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another way to decrease health disparities is by increasing the awareness of researchers, clinicians, health educators and promoters, and patients about disparities (Kressin, 2005).

2.4 Hispanics in the United States

Hispanics are the largest minority group in the U.S. and represent a significant part of the population in areas such as the southwest (U.S. Census Bureau, 2004). Hispanics are considerably changing the demographic profile of the U.S. In 2009 there were 44.3 million of Hispanics in the U.S. and they represented 15.3% of the total population (U.S. Census Bureau, 2010). It is expected to grow to about 20% by 2030 and 25% by 2050 (U.S. Census Bureau, 2004) (See table 2.1).

Table 2.1: Percent of the Total Population who are Hispanics in the U.S.
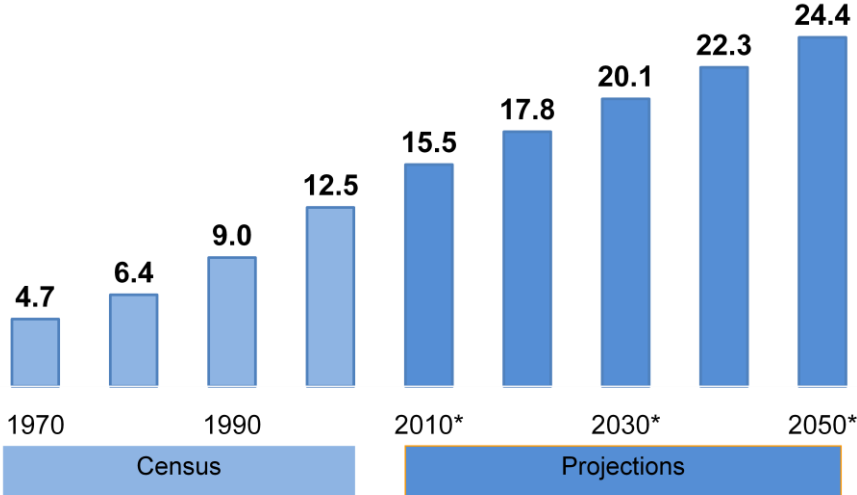
Source: U.S. Census Bureau, 2004

The states with the highest number of Hispanics are California, Texas, Florida, New York, and Illinois (U.S. Census Bureau, 2004) (See Table 2.2).

Table 2.2: Top Five States by Hispanic Population Size

Rank	State	Population Size
1	California	13,074,156
2	Texas	8,385,139
3	Florida	3,646,499
4	New York	3,139,456
5	Illinois	1,886,933

Source: U.S. Census Bureau, 2004.

In 2007, Hispanics represented a young population with a median age of 27.6 years; the median age for the U.S. population is about 36.6 years (U.S. Census Bureau, 2009). The Census Bureau (2009) reported that 34% of Hispanics were under 18 years (See table 2.3). In 2015, it is expected that 25% of U.S. teenagers will be Hispanics (Therrien, & Ramirez, 2001). Therefore, it is very important to develop appropriate health education and information to prevent negative health outcomes among Hispanic youth.

2.3 Age Distribution as a Percentage of Total U.S. Population by Race

	Under 18	Median Age
Hispanics	34%	27.6
Non-Hispanics White	21%	40.8
African Americans	31%	31.1

Source: U.S. Census Bureau, 2009.

Socioeconomic status is another variable that influences health status (Soto Mas, Allensworth, Jones, 2010). Studies have found that a lower socio-economic level is related to having poor health, which is expressed in morbidity and mortality rates (Chong, 2002). The Hispanic population is a relatively poor group. Economic constrains increase stress, poor health and discrimination. These factors affect negatively health outcomes. In addition, Hispanics in the U.S. are one of the most disadvantaged groups in terms of education attainment (Crissey, 2009).

2.4.2 Hispanics in Texas

Texas is one of the fastest growing states in the nation. It is the second-largest state in the U.S. In 2009, Texas had an estimated population of 24,782,302. The U.S. Census Bureau estimated that more than 52% of the Texas population was 25 to 64 years of age. Residents under the age of 25 represent 38% of the population, while 9.9% are aged 65 or older (Combs, 2008).

The Texas population is very diverse compared with other states. The U.S. Census Bureau reported that in 2009, 47.4% of the population was White; 36.5% Hispanic; 11.9% Black; and 5.7% belonged to the "other" category. Texas is known as one of the "majority-minority" states (U.S. Census Bureau, 2005). The state is divided in 12 economic regions. These regions are High Plains, Northwest Texas, Metroplex, Upper East Texas, Southeast Texas, Gulf Coast, Central Texas, Capital, Alamo, South Texas, West Texas and Upper Rio Grande (Combs, 2008) (See Figure 2.2).

Hispanics represent a majority in many regions in Texas (Hispanic Research Center, 2002) (See table 2.5). The 1990 Census showed that Texas had a Hispanic population of 4.34 million; the 2000 Census reported an increase of 2.38 million (Hispanic Research Center, 2002). This percentage is expected to increase in the 2010 census (U.S. Census Bureau, 2009).

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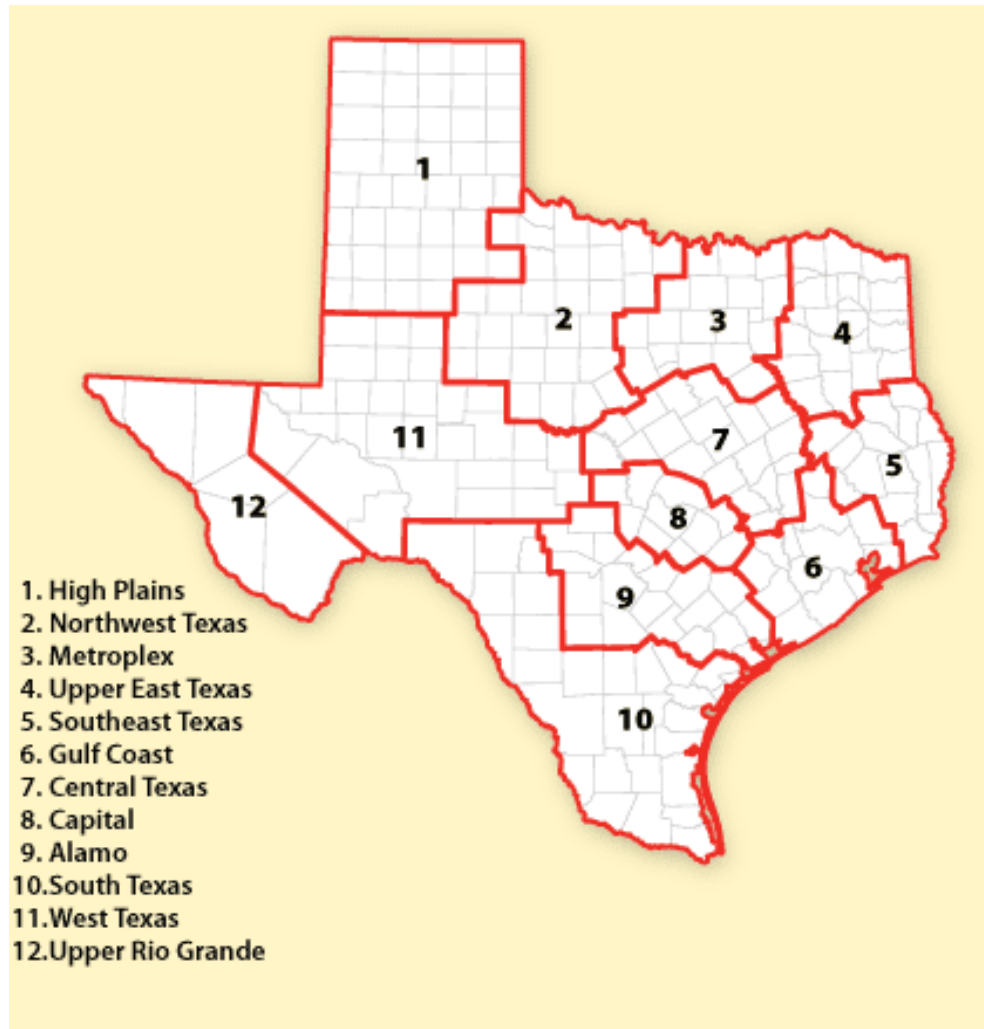
Figure 2.1 Texas Regions

Source: Combs, 2009

Table 2.4: Hispanic and Non-Hispanic Population in Texas
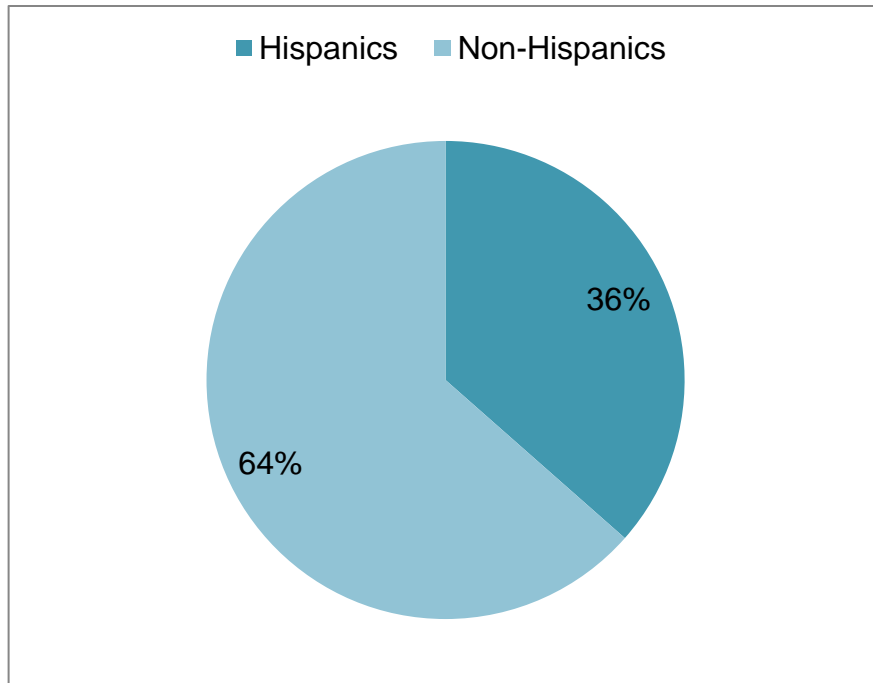
Source: US Census Bureau, 2006

There are many factors that are affecting health care access in Texas. Some of these factors are related to access to health care coverage, workforce shortages and the high cost, and prevalence of chronic disease. Research suggested that about 24.5% of the Texas population was uninsured in 2006 (Combs, 2008). The U.S. Census Bureau reported that Texas had the nation's highest percent of uninsured people (U.S. Census Bureau, 2009). All of these factors are facilitating negative health outcomes.

Education plays an important role in Texas population. Texas has the nation's second-largest elementary and secondary school enrollment. The state has been a leader among other states in taking steps to improve the quality of education (Combs, 2008). Studies pointed out that the total Hispanic enrollment at Texas public universities rose from 81,180 in fall 2000 to 117,816 in fall 2007 (Combs,

2008). Hispanic enrollment is expected to increase to 44.2% by 2040, while other ethnic groups are expected to decline as a percentage of the total. White enrollment is projected to decrease to 38.4%; Black enrollment to 9.4%; and other ethnicities to 7.9% (Texas Education Agency, 2001) (See table 2.6). As the Hispanic enrollment in higher education increases, new actions need to be taken into consideration to educate them about health issues. By educating and informing Hispanic college students on how to maintain and improve health, negative health outcomes may be prevented.

Table 2.5: Public College and University Enrollment by Ethnicity: 2000-2040

	Fall 2000	**Fall 2006**	**2040 Projected**
White	55.4%	49.7%	38.4%
Black	10.4%	11.3%	9.4%
Hispanic	24.4%	28.4%	44.2%
Other	9.8%	10.6%	7.9%
Total	**100.0%**	**100.0%**	**100.0%**

Source: Texas Education Agency, 2001

2.4.3 Hispanics in El Paso Texas

El Paso is the sixth-largest city in Texas and the 22nd largest city in the U.S. El Paso is located next to the Rio Grande (Rio Bravo), across the border from Ciudad Juárez Chihuahua, México. El Paso is part of the Upper Rio Grande region (See Table 2.6). The population of El Paso is mainly Hispanic and young, in contrast with Texas and the general U.S. population. The population average educational attainment is lower than that of Texas and U.S. (Combs, 2008).
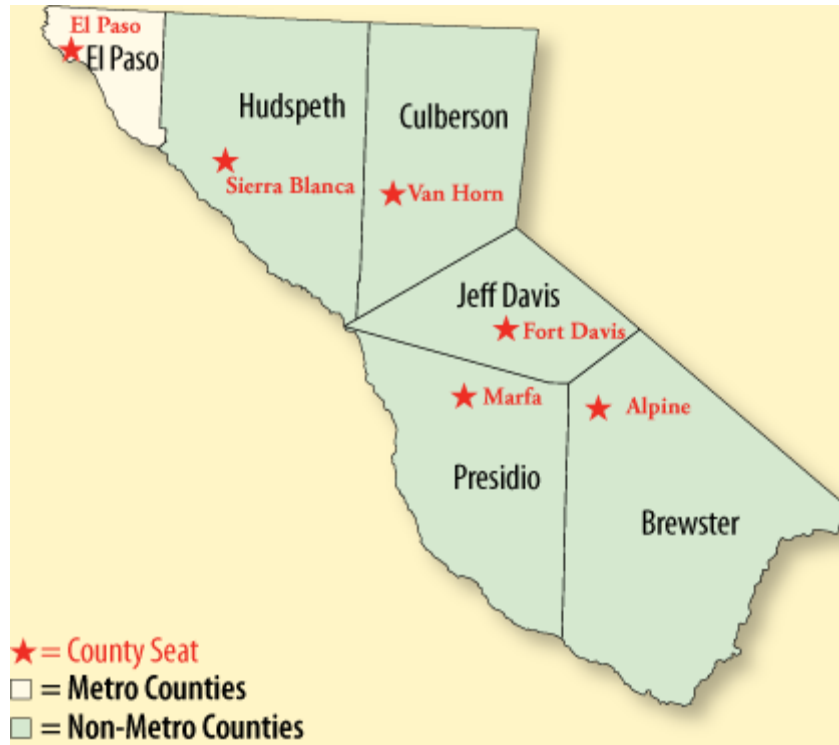
Figure 2.2: Upper Rio Grande Metro Counties

Source: Texas Comptroller of Public Accounts, 2009

El Paso has an estimated population of 731,496 (U.S. Census Bureau, 2006). Between 2003 and 2013, El Paso population is expected to increase by 12.5% (Combs, 2008). More than 70% of residents speak a language other than English at home. Whites represent 14% of the population; African-Americans 2.4% and 2.6% fell in the "other" category (Combs, 2008).

Geography in the Upper Rio Grande plays a significant role in the ability to acquire health care, as the main health care service centers are located in El Paso (Combs, 2008). Residents that live in other areas may have to drive a long distance to get medical attention. The region also has the highest percent of residents who lack health insurance (Combs, 2008).

In 2006, the Upper Rio Grande region had an increased adult obesity and diabetes prevalence rates compared to the Texas average (Combs, 2008). Diabetes is a serious health problem that is affecting the U.S. and Texas (Huang, Li, & Parrish, 2008). The diabetes prevalence has increase in

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Texas from 7.7% in 2004 to 10.3% in 2007. The Census Bureau reported that almost 66% of Upper Rio Grande people above the age of 25 had a high school diploma, a GED, or some higher education (Combs, 2008). In the region, 45,776 students were enrolled in colleges and undergraduate universities during 2008 (Combs, 2008). Education and health outcomes are related, if college students from the region receive the adequate health information, negative health outcomes may be prevented.

2.5.1 Health Status of the U.S. Hispanic Population

There is consensus on the fact that there are insufficient and inaccurate data on the health status of Hispanics. Scholars have tried to explain inconsistencies on the health status of the Hispanic population. The *Hispanic Paradox* and the *Healthy Migrant Effect* have been proposed.

The *Hispanic Paradox* was developed by Marvin Karno and Robert Edgerton in 1969 to explain the lack of correlation between Hispanics' socioeconomic profile and health outcomes. Immigration selectivity may be one of the reasons for this paradox. New immigrants are healthier than those living in the U.S. for longer periods (Abrafdo-Lanza, Dohrenwend, Ng-Mak, & Turner, 1999). When Hispanics arrive to the U.S. they come with eating habits, behaviors, and traditions. As they acculturate and adapt to the new environment, Hispanics engage in behaviors that do not promote health (Palloni, & Arias, 2004; Markides & Coreil 1991).

The *Healthy Migrant Effect* points out that Hispanics not born in the U.S. have a lower mortality rate than Hispanics born in the U.S. Scholars explained that foreign-born Hispanics sometimes have the desire to die in their country of origin and they go back after retirement, or when they are seriously ill (Abrafdo-Lanza, Dohrenwend, Ng-Mak, & Turner, 1999). U.S. surveillance systems do not capture this information, and as a consequence the data reflect inaccurate mortality rates among Hispanics.

2.5.2 Cultural Values of the Hispanic Population

The Hispanic population is a diverse group held together by common language and cultural values. Scholars suggested that first-generation immigrants are more attached to their culture, and they try to transmit it to their siblings in order to preserve their traditions and ideas in the new country. As time passes, people start acquiring new customs and traditions, and they gradually become integrated into the dominant culture (Chong, 2002).

Studies suggested that regardless of the level of acculturation or generation, Hispanics in the U.S. retain certain values that make them different from other groups. In order to provide Hispanics with the appropriate health information and education it is very important to take these factors into consideration. For instance, Hispanics are family-oriented, tend to seek harmonious relationships and cooperation, and respect comes with age (Lecca, Quervalu, Nunes, & Gonzalez, 1998). Educational materials and information need to be consistent with these cultural values in order to be effective.

2.5.3 Health Attitudes, Beliefs, and Practices among Hispanics

There are different perspectives and definitions of health, and scholars explained that most Hispanics describe health as a state of well-being. One's health perspective depends on factors such as education, country of origin, generation, and the number of years living in the U.S. (Manzanedo, Walters, & Lorig, 1980). These factors influence health perception and treatment. Research suggested that Hispanics with a higher level of education perceived health as a state of complete physical, mental, and social well-being and not just the lack of disease. In contrast, those with a lower level of education may see a relationship between disease and religion. For them, God is the giver of good health (Chong, 2002).

Each generation of Hispanics is different, and the way they perceive health differs. First-generation Hispanics in the U.S. are more attached to their customs than subsequent generations that

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usually adopt the healthcare beliefs of the dominant culture. Scholars have explained that adjustment to the new culture regarding health issues may generate family conflicts. For example, a Hispanic mother may have problems trying to explain her daughter that she should not iron her clothes and go out immediately because a warmed body exposed to cold may get sick To the contrary, a second-generation teenager of Hispanic origin who has been assimilated by the dominant culture may find this explanation illogical (Chong, 2002).

Hispanics' explanation of illness involves different perspectives. Some people believe that illness is caused by supernatural forces. In the Hispanics culture, women and children are seen more vulnerable than men, and as a consequence, they are more susceptible to folk illnesses. Scholars suggested that people who have a low educational level may use home remedies before deciding to take the infant to the hospital, which increases the mortality rate for babies (Chong, 2002). It is very important to take these factors into consideration to provide Hispanics with the information needed in order to promote positive behaviors and attitudes.

Hispanics' perception of illness and their educational level are important factors to determine when and who to ask for help. Hispanics commonly ask family members and friends for help to treat conditions such a sore throat, mild diarrhea, toothache, or a mild skin rash. Self-treatment with home remedies is usually used to treat these symptoms. Leftover medications are also used to treat symptoms that appear similar to423 those for which medicines were previously used (Chong, 2002).

2.6 Theoretical Constructs

Research has suggested that human behavior is guided by attitudes (Albarracin, D, et al, 2005). Attitude can be defined as a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object. Attitudes facilitate behaviors that can be acquisitive or avertive,

favorable or unfavorable, and affirmative or negative toward the object with which it is related (Fishbein, & Ajzen, 1975).

Attitude is viewed as a variable that guide and influence behavior. Knowing a person's attitude facilitates understanding and predicting specific behaviors (Fishbein, & Ajzen, 1975). Attitude determines beliefs about outcomes or attributes of performing the behavior based on evaluations of outcomes or attributes (Glanz, Rimer, & Viswanath, 2008). There are also other factors, besides attitude, that determine whether people engage in behaviors. These factors include social norms, self-efficacy, competence or skills, and previous behaviors and habits (Diclemente, R, et al, 2002).

Attitude is considered one of the most important constructs that determines behavior (Eagly & Chaiken, 1993). Researchers have used principles taken from learning theories from Hull, Spence, and Tolman to analyze the acquisition of beliefs and attitudes. These theories are focused on the processes whereby a given response becomes associated with a given stimulus (Fishbein, & Ajzen, 1975).

Attitude is included in theories and models such as the Balance Theory, the Congruity Principle, the Theory of Cognitive Dissonance, Theories of Attribution (Fishbein, & Ajzen, 1975), Theory of Planned behavior, and Theory of Reasoned Action (Glanz, Rimer, & Viswanath, 2008). The theories have been used to explain why people do or do not participate in certain behaviors (Fishbein, Middlestadt, & Hitchcock, 1994). Intentions to participate in certain behaviors are predicted by the attitude toward the behavior (Kashima, Gallois, & McCamish, 1992).

In terms of the use of these theories, various variables within the theory could be used to examine attitudes and behaviors associated with medication, herbal products, and dietary supplements use among Hispanic college students. Attitudes are frequently measured using direct self-report tools. People are asked how favorable or unfavorable and positive or negative they are towards certain behaviors (Diclemente, et al, 2002).

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2.7 Summary

This chapter discusses the relationship between culture and health-related knowledge, attitudes, and behaviors. A review of Hispanics' health, language, and culture is presented. Chapter 3 will discuss the research design, survey design, data collection methods, procedures, and protection of human subjects for the study.

Chapter 3: Methodology

Chapter two offers a synopsis of the relationship between culture and health, and how the health status of the U.S. Hispanic population may be influenced by knowledge, attitudes, and behaviors. Chapter three describes the methodology used for this study.

3.1 Research Design

This research study was relying primarily upon the causal-comparative survey research design which attempted to determine the cause or reason for existing differences in knowledge, attitudes, and behaviors about medication use among Hispanic college students in the border region. Students from business, education, engineering, health science, liberal arts, nursing, and sciences included. The aims of the survey were briefly explained to the teachers and permission was obtained to conduct the survey.

Quantitative data were collected using a survey developed by the investigator (see 3.3 below). The administration time was approximately 10 to 15 minutes. A short demographic survey was also included for all participants. It included the participating students' gender, age, ethnicity, place of birth, language use at home, classification, and major.

3.2 College Student Medication Survey Design

There is a lack of literature on the knowledge, attitudes, and behaviors regarding medication, herbal products, and dietary supplement use among Hispanic college students in border areas. Therefore, the College Student Medication Survey (CSMS) was developed from several instruments which were compiled from the literature. These instruments included: The *Patient Attitudes to OTC drugs Questionnaire* by Bradley, Riaz, Tobias, Kenkre and Dassu (1998), who examined attitudes toward OTC medications. Psychometrics for the instrument were not reported. The CSMS also includes items used in the *Herbal Product and Dietary Supplement Survey* by Marinac, et al. (2007) who examined herbal

products and dietary supplement use among older adults. Psychometrics for the instrument were not reported. Other sources included *Survey of Antibiotic Usage* by Chen, et al. (2004). Psychometrics were not reported. Additionally, other items used in *Medical Herb Use in a Population-Based Survey of Adults: Prevalence and Frequency of Use, Reasons for Use, and Use among Their Children.* by Wheaton, Blanck, Gizlice, and Reyes (2004) who analyzed medicinal herb use and *A Survey of the Use of Foreign-Purchased medication in a Border Community by* de Guzman, Khaleghi, Riffenberg, and Clark (2007) who studied the use of foreign-purchased medication in a border community. Items from the tools described above were selected/adapted to build the CSMS for the study.

The final CSMS consisted of 51-items divided in four sections. The first section consisted of 10-knowledge-based items regarding medication, herbal products, and dietary supplement use. The second section included 10-items regarding attitudes towards medication and herbal products. Items were scored on a four-point, Likert-type scale from SA (Strongly Agree) to SD (Strongly Disagree). The last section included 24 behavior-related items regarding medication, herbal products, and dietary supplement use. The questions were scored on a True/False and Yes/No scale. The survey also included a demographic section consisting of 7questions on gender, age group, race/ethnicity, place of birth, language used at home, classification, and major (See Appendix A).

3.3 Participant Selection

Participants consisted of Hispanic students attending the University of Texas at El Paso (UTEP). UTEP's student population is multicultural and reflects the demographics of the region (See Table 3.1).

Table 3.1 Student Profile, Fall 2009

Item	n	(%)
Enrollment		
Undergraduate	17,205	(81.8%)
Graduate	3,806	(18.1%)
TOTAL	**21,011**	
Gender		
Female	11,544	(59.9%)
Male	9,467	(45.06%)
Average Age		
Undergraduate	23	
Graduate	32	
Doctoral	35	
Race/Ethnicity		
Hispanic	15,877	(75.5%)
White Non-Hispanic	2,160	(10.2%)
Black Non-Hispanic	631	(3.0%)
Asian-American	268	(1.2%)
Native American	40	(0.1%)
International	1,903	(9.0%)
Unknown	132	(0.6%)
College/School		
Nursing	1,259	(5.99%)
Business	2,852	(13.57%)
Education	3,460	(16.46%)
Engineering	2,754	(13.10%)
Liberal Arts	6,134	(29.19%)
Science	2,169	(10.32%)
Health Sciences	1,448	(6.89%)

Source: The University of Texas at El Paso, 2009-2010 Facts (n.d.)

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The study received UTEP's Institutional Review Board approval (See Appendix B). Using purposive sampling selection from undergraduate classrooms, two classrooms per college were selected for a total of 494 participants. The sample was selected based on cluster sampling. Data was collected during class sessions. The only inclusion criterion was to be Hispanic. All students in the classroom had the opportunity to take the survey, but only the surveys that met the inclusion criteria were analyzed.

3.4 Data Collection

Selected classrooms were visited to explain the nature and requirements of the study. Prior to administration of the survey, the researcher presented each participant with the Informed Consent form and confidentiality procedures. If the student agreed to participate in the study, he/she was asked to sign the informed consent form. Each participant was then presented with the survey.

Completed surveys were coded, scored, and the results were presented in aggregate form. No individual participant was identified; complete confidentiality for each participant was maintained. The researcher followed all appropriate protocols as required by the Institutional Review Board and the University of Texas at El Paso.

3.5 Data Analysis

Data analysis and interpretation involved descriptive and inferential statistics. The SPSS 17.0 (Chicago, ILL: SPSS Inc., 2008) statistical software program was used to perform a variety of analyses, which included frequencies of responses to each question, and computing averages, scores, and standard deviations. Inferential statistics were used to determine differences among the independent variables by using a two-way analysis of variance procedure. Study variables are described below.

3.6 Study variables

Knowledge: A 10-item True/False sub-scale measured knowledge. A minimum score was 1 point for each right answer and 0 points for each wrong and not sure answer. Lower scores indicated an appropriate knowledge and higher scores indicated lack of knowledge regarding medication use.

Attitudes: Two 4-item Likert-type sub-scales measured attitudes toward medication use and herbal products and dietary supplements use. A composite score from 5 (strongly agree) to 20 (strongly disagree) was computed for each sub-scale. Negatively reworded questions were reverse coded to obtain positive attitudes.

Behavior: A 10-item Yes/No subscale measured behavior regarding medication. The minimum score was 1 point for each positive answer and 0 points for each negative and not sure answer. Lower scores indicated positive behaviors and higher scores indicated negative behaviors regarding medication use. Two 4-item sections measured behavior regarding herbal products and dietary supplements use. These were included in the frequency analysis, although due to the small number of items they were not included other analyses.

3.5 Informed Consent

Prior to administration of evaluation tools, the researcher presented each participant with the Informed Consent form and confidentiality procedures. If the student agreed to participate in the study, he/she was asked to sign the informed consent form. No participant was identified; complete confidentiality for each participant was maintained (See Appendix C).

3.6 Summary

This chapter described the population, instrument used in the study, data collection procedures. Chapter 4 contains a report of the results of the study.

Chapter 4: Results

The purpose of this chapter is to present the results of the statistical analyses conducted on the data collected. The chapter begins with a presentation of basic descriptive statistics on the demographic variables. Next, analyses are presented that report on the results of each purpose statement.

4.1 Internal Reliability

Cronbach's alpha was conducted to assess reliability. The alpha coefficient for all the selected survey items was estimated at 0.615 (30-items), 0.529 for the knowledge scale (10-items), 0.705 (10-items), and 0.252 for behaviors (10-items).

4.2 Survey results

Descriptive Statistics

A total of 494 college students participated in the survey. The demographics of this group are included in Table 4.1. The majority of the participants were Hispanic, female, in the age of 18-24 years-of- age group, and born in the Unites States. The majority of the participants had a major in Nursing and Engineering. All participates were undergraduate students.

Characteristics of this group are included in Table 4.2. A total of 446 were Hispanic. The majority of the Hispanic participants were female, of 18-24 years- of- age, born in the Unites States, and with Spanish as the language used at home.

Demographic characteristics of White/Anglo participants are included in Table 4.3. A total of 30 participants were White/Anglo. The majority of the White/Anglo participants were female, of 18-24 years- of- age, who were born in the Unites States, with English as the language used at home.

Demographic characteristics of Black/African-American participants are included in Table 4.4. A total of 11 students participated in the survey. The majority of the Black/African-American

participants were female, of 18-24 years- of- age, who were born in the Unites States, with English as the language used at home.

Table 4.1: Characteristics of College Students (N=494)

Item	n	(%)
Gender		
Female	281	(56.9%)
Male	212	(42.9%)
Age group		
18-24	376	(77.4%)
25-30	84	(17.3%)
31-36	26	(5.3%)
U.S born		
Yes	366	(74.4%)
No	126	(25.6%)
Language used at home		
English	190	(38.5%)
Spanish	208	(42.2%)
Both	95	(19.3%)
Undergraduate or Graduate		
Undergraduate	443	(100%)
Graduate	0	(0%)
Major		
Nursing	93	(18.8%)
Business	64	(13.0%)
Education	75	(15.2%)
Engineering	81	(16.4%)
Liberal Arts	79	(16.0%)
Science	51	(10.3%)
Health Sciences	51	(10.3%)

*Not all participants answered to all demographic questions

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Table 4.2: Characteristics of Hispanic College Students (N=443)

Item	n	(%)
Gender		
Female	255	(57.2%)
Male	190	(42.6%)
Age group		
18-24	347	(77.8%)
25-30	74	(16.6%)
31-36	22	(4.9%)
U.S born		
Yes	324	(72.6%)
No	122	(27.4%)
Language used at home		
English	146	(32.7%)
Spanish	206	(46.2%)
Both	94	(21.1%)
Undergraduate or Graduate		
Undergraduate	443	(100%)
Graduate	0	(0%)
Major		
Nursing	75	(16.8%)
Business	58	(13.0%)
Education	64	(14.3%)
Engineering	79	(17.7%)
Liberal Arts	68	(15.2%)
Science	51	(11.4%)
Health Sciences	51	(11.4%)

*Not all participants answered to all demographic questions

Table 4.3: Characteristics of White/Anglo College Students (N=30)

Item	n	(%)
Gender		
Female	17	(56.7%)
Male	13	(43.3%)
Age group		
18-24	21	(70.0%)
25-30	6	(20.0%)
31-36	1	(3.3%)
U.S born		
Yes	26	(86.7%)
No	2	(6.7%)
Language used at home		
English	29	(96.7%)
Spanish	0	(0%)
Both	0	(0%)
Undergraduate or Graduate		
Undergraduate	30	(100%)
Graduate	0	(0%)
Major		
Nursing	8	(26.7%)
Business	5	(16.7%)
Education	9	(30.0%)
Engineering	2	(6.7%)
Liberal Arts	6	(20.0%)
Science	30	(100.0%)
Health Sciences	8	(26.7%)

*Not all participants answered to all demographic questions

Table 4.4: Characteristics of Black/African-American College Students

Item	n	(%)
(N=11)		
Gender		
Female	5	(45.5%)
Male	6	(54.5%)
Age group		
18-24	4	(36.4%)
25-30	1	(9.1%)
31-36	3	(27.3%)
U.S born		
Yes	10	(90.9%)
No	1	(9.1%)
Language used at home		
English	11	(100%)
Spanish	0	(0%)
Both	0	(0%)
Undergraduate or Graduate		
Undergraduate	11	(100%)
Graduate	0	(0%)
Major		
Nursing	5	(45.5%)
Business	0	(0%)
Education	2	(18.2%)
Engineering	0	(0%)
Liberal Arts	4	(36.4%)
Science	0	(0%)
Health Sciences	0	(0%)

*Not all participants answered to all demographic questions

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A frequency distribution on knowledge regarding the use of medication, herbal products, and dietary supplements is presented in Table 4.5.

Table 4.5 Frequency Distribution in Knowledge Regarding the Use of Medication, Herbal Products, and Dietary Supplements

Question	True		False		Not Sure	
	n	*%*	*n*	*%*	*n*	*%*
1 FDA approval	354	(79.4%)	29	(13.2%)	30	(6.7%)
2 Stop medication use	56	(12.6%)	366	(82.1%)	22	(4.8%)
3 OTC & prescription	360	(80.7%)	69	(15.5%)	15	(3.4%)
4 OTC & FDA	106	(23.8%)	294	(65.9%)	46	(10.3%)
5 OTC are safe	37	(8.3%)	363	(81.4%)	43	(9.6%)
6 Vitamins risk free	112	(25.1%)	184	(63.7%)	49	(11.0%)
7 FDA and herbal	99	(22.2%)	221	(49.6%)	124	(27.8%)
8 Herbal products are safe	50	(11.2%	330	(74.0%)	63	(14.1%)
9 Labels	325	(72.9%)	33	(7.4%)	88	(19.7%)
10 Herbs and medications	282	(63.2%)	36	(8.1%)	127	(28.5%)

*Not all participants answered to all questions

Table 4.6 presents a frequency distribution on attitudes toward the use of medication. Participants indicated that they disagree with the statement that a person should never take medicine (52.2%). More than 56% agreed that pharmacists are a good source of information about medicines. More than 46% strongly agreed with the statement that asking a health care provider about whether to

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take a medication is always a good idea. Less than 41% disagreed with the idea that herbal products and

dietary supplements are a good alternative to prescription medications.

Table 4.6 Frequency Distribution in Attitudes toward the Use of Medication

Question	SA		A		D		SD	
	n	%	*n*	%	*n*	%	*n*	%
11 Don't take med	6	(1.3%)	31	(7.0%)	233	(52.2%)	176	(39.5%)
12 Pharmacist	94	(21.1%)	250	(56.1%)	85	(19.1%)	17	(3.8%)
13 OTC	154	(34.5%)	227	(50.9%)	46	(10.3%)	14	(3.8%)
14 Asking health care providers	206	(46.2%)	203	(45.5%)	32	(7.2%)	5	(1.1%)
15 Reading labels	144	(32.3%)	211	(47.3%)	78	(17.5%)	12	(2.7%)
16 Good alternative	42	(9.4%)	175	(39.2%)	184	(41.3%)	43	(9.6%)
17 Safer	27	(6.1%)	119	(26.7%)	237	(53.1%)	60	(13.5%)
18 Easier to handle	34	(34%)	191	(42.8%)	184	(41.3%)	32	(7.2%)
19 Keep people healthy	46	(10.3%)	261	(58.5%)	114	(25.6%)	21	(4.7%)
20 comfortable	60	(13.5%)	228	(51.1%)	123	(27.6%)	31	(7.0%)

*Not all participants answered to all questions

Regarding behaviors related to medication, herbal products, and dietary supplement use. This

section was divided in three parts. Part I included 12 questions. The first two questions were to

determine medication use among students (See Table 4.7). The majority of the participants (84.5%)

reported that they take medications. Sixteen percent of the participants responded that they never take

medications. Out of the 84.5% of students who responded that they take medications, 72.7% mentioned

that they are prescribed by a U.S. doctor. More than 44% responded that their medications were

prescribed by a Mexican doctor. More than 72% mentioned that medications were obtained through a

U.S. pharmacy, 46% through a Mexican pharmacy, 35% through a friend or family member, and 5% through the Internet.

Table 4.7 Students' Medication Use

Question	Yes		No	
	n	%	*n*	%
21 Never take medication	71	(15.9%)	372	(83.4%)
22 Take medication	377	(84.5%)	65	(14.6%)

*Not all participants answered to all questions

Table 4.8 Frequency Distribution in Behavior Use of Medication

Question	Yes		No		Not Sure	
	n	%	*n*	%	*n*	%
23 U.S. doctor	274	(72.7%)	90	(23.9%)	10	(2.7%)
24 Mexican doctor	166	(44%)	198	(52.5%)	10	(2.7%)
25 U.S. pharmacy	272	(72.1%)	95	(25.2%)	3	(0.8%)
26 Mexican pharmacy	175	(46.4%)	197	(52.3%)	1	(0.3%)
27 Friend or family member	133	(35.3%)	232	(61.5%)	5	(1.3%)
28 Internet	18	(4.8%)	352	(93.6%)	1	(0.3%)
29 Follow physician's instructions	327	(86.7%)	35	(9.3%)	10	(2.7%)
30 Stop taking medications	137	(36.3%)	226	(59.9%)	8	(2.1%)
31 Change dosage	47	(12.5%)	327	(86.7%)	1	(0.2%)
32Ttake medicine irregularly	112	(29.7%)	251	(66.6%)	11	(2.9%)

Participants were also asked whether or not they take herbal products. More than half (n= 243, 54.5%) responded that they never take herbal products (See table 4.8).

Table 4.9 Use of Herbal Supplements

Question	Yes		No	
	n	**%**	*n*	**%**
33 Never take herbal products	243	(54.5%)	193	(43.3%)
34 Take herbal products	188	(42.2%)	241	(54.0%)

Of those who reported taking herbal products, almost one third herbal products responded that they do not discuss the use of herbal products with their doctors, and approximately one-third use herbal products to maintain health, prevent illness, and treat illness.

Table 4.10 Frequency Distribution: Use of Herbal Supplements

Question	Yes		No		Not Sure	
	N	**%**	*n*	**%**	*n*	**%**
35 I discuss with my doctor	68	(36.8%)	114	(60.65)	3	(1.6%)
36 To maintain health	134	(71.3%)	45	(23.9%)	7	(3,7%)
37 To prevent illness	134	(71.3%)	45	(23.9%)	7	(3.7%)
38 To treat illness	118	(62.8%)	61	(32.4%)	4	(2.1%)

Regarding use of dietary supplements, 43.3% of the participants reported that they never take dietary supplements, and more than half of the students take dietary supplements (See table 4.10).

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Table 4.11 Behavior Use of Dietary Supplement Use

Question	Yes		No	
	n	%	*n*	%
39 Never take supplements	193	(43.3%)	246	(55.2%)
40 Take supplements	246	(55.2%)	190	(42.6%)

More than half of the participants that reported dietary supplement use do not it with their doctors. The majority use dietary supplements to maintain health, more than half to prevent illness, and almost one-third to treat illness (See table 4.12)

Table 4.12 Frequency Distribution in Behavior Use of Dietary Supplement Use

Question	Yes		No		Not Sure	
	N	%	*n*	%	*n*	%
41 I discuss with my doctor	80	(32.52%)	162	(65.85%)	0	(0%)
42 To maintain health	215	(87.39%)	28	(11.38%)	2	(0.81%)
43 To prevent illness	154	(62.60%)	83	(33.73%)	7	(2.84%)
44 To treat illness	80	(32.50%)	160	(65.04%)	3	(1.21%)

The two purposes of this research study are described individually. A description of each purpose and relevant statistical analysis are presented. Purpose one is described below.

Purpose one was to investigate what were the overall mean differences on knowledge, attitudes, and behaviors regarding medication, herbal products or dietary supplement use across key demographic variables among Hispanic college students. Statistical analyses were conducted with the three domains of interest: knowledge, attitudes, and behaviors. Table 4.12 presents the measures of knowledge, attitudes, and behavior responses. The mean for each response scale total is presented across key demographic variables. There was a significant mean difference in attitudes towards medication use based on age, place of birth, language, and major. There were significant mean differences in attitudes towards herbal products and dietary supplement use based on age, gender, and major. There was also a significant mean difference in behavior based on language and major.

Table 4.13 Mean Scores across Key Demographic Variables

N=446

Category		K		A1		A2		B	
		Mean	N	Mean	N	Mean	N	Mean	N
Gender	Female	4.4042	240	10.6270	252	12.5357	252	4.3767	223
	Male	4.5957	188	10.8526	190	11.9135	185	4.4933	150
	Total	4.4883	428	10.7240	442	12.2723	437	4.4236	373
Age group	18-24	4.5463	335	10.6493	345	12.2147	340	4.4775	289
	25-30	4.2754	69	10.9452	73	12.1096	73	4.3167	60
	31-36	4.0455	22	11.0909	22	13.5455	22	4.4091	22
	Total	4.4765	426	10.7205	440	12.2644	435	4.4474	371
US born	yes	4.5224	312	10.4486	321	12.3186	317	4.3597	278
	no	4.3932	117	11.4508	122	12.1322	121	4.6667	96
	Total	4.4872	429	10.7246	443	12.2671	438	4.4385	374
Language	English	4.6596	141	10.4000	145	12.6690	142	3.8702	131
	Spanish	4.3850	200	11.0829	205	12.0591	203	4.7083	168
	both	4.4432	88	10.4409	93	12.1075	93	4.8267	75
	Total	4.4872	429	10.7246	443	12.2671	438	4.4385	374
Major	nursing	4.7826	69	10.2329	73	12.5811	74	4.3134	67
	business	4.3684	57	10.4561	57	11.6379	58	5.1400	50
	education	4.2581	62	10.8125	64	12.9687	64	4.4182	55
	engineering	4.7692	78	11.1899	79	12.0789	76	4.7213	61
	LART	4.1061	66	10.7206	68	12.2985	67	4.4630	54
	science	4.4681	47	10.9608	51	11.7400	50	3.9535	43
	health sciences	4.5800	50	10.6667	51	12.4082	49	3.9091	44
	Total	4.4872	429	10.7246	443	12.2671	438	4.4385	374

Note: K= Total score for knowledge variable

A1= Total score for attitudes towards medication variable

A2= Total score for attitudes towards herbal products and dietary supplement variable

B= Total score for behavior variable

Comparison tests

Purpose two was to investigate if there was a relationship between specific demographic variables and the sub-dimensions in the medication use scale. Eight one-way between-subjects analyses of variance (ANOVA) were conducted to explore whether there were significant mean differences on

any of the measures across demographic variables of place of birth (U.S. born or non-U.S. born) and language used at home.

The ANOVA comparing attitudes towards medication scores by place of birth revealed a significant main effect, *F (1,441) = 23.454, p<.001* (See Table 4.14).

Table 4.14 Attitudes by Place of Birth (ANOVA)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	88.795	1	88.795	23.454	.000
Within Groups	1669.607	441	3.786		
Total	1758.402	442			

The ANOVA comparing attitudes towards medication scores by language used at home revealed a significant main effect, *F (2,440) = 24.543, p=0.002* (See Table 4.15).

Table 4.15 Attitudes by Language (ANOVA)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	49.087	2	24.543	6.318	.002
Within Groups	1709.315	440	3.885		
Total	1758.402	442			

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The ANOVA comparing behavior scores by language was significant, *F (2,371) = 15.148, p<.001*. Planned contrast indicated that this difference was significant between English and Spanish and English and speakers of "both" languages. Table 4.16 shows the results of the analysis.

Table 4.16 Behaviors by Language Use (ANOVA)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	65.837	2	32.918	15.148	.000
Within Groups	806.249	371	2.173		
Total	872.086	373			

4.3 Summary

The results of the statistical procedures used in analyzing the data were presented in this chapter. The frequencies of the participants' demographic data were reported, as well as ANOVAs. An analysis of the purposes of the study was presented and the findings reported. Chapter 5 has a discussion of the findings, limitations, and suggestions for future research.

Chapter 5: Discussion and Conclusion

5.1 Overview

The major sections of this chapter include the purpose of the study, the theories and models to guide the research, and discussion of findings. The last section consists of future research about medication use that must be conducted among Hispanic college students. Finally, the limitations of the study are discussed.

This study was aimed of analyzing the knowledge, attitudes, and behaviors regarding medication, herbal products, and dietary supplement use among Hispanic college students. Moreover, the research also investigated the demographic variables that contribute to medication use among the participating population. It is important to understand not only the level of knowledge, attitudes, and behaviors among Hispanic college students, but it is also important to analyze the demographic variables that contribute to safe medication use.

The results of the study are significant because it is crucial to gain more information about a population that has been understudied. The study tested two research questions:

1   What are the overall mean differences on knowledge, attitudes, and behaviors regarding medication, herbal products or dietary supplement use across key demographic variables among Hispanic college students?

2   Is there a relationship between specific demographic variables and the sub-dimensions in the medication use scale?

To answer these two questions, frequency distributions were generated and carefully examined for errors in data collection, tabulation, and transcription. The research questions proposed in the study were tested by running mean, one-way ANOVA, and Chi-square statistical procedures. All analyses were derived from the data set described earlier.

The sample size was 494 and represents approximately 3% of the UTEP student population. See Table 3.1 and 4.1.

A frequency distribution on knowledge regarding the use of medication, herbal products, and dietary supplements was conducted. Most participants (79.4%) correctly indicated that all prescription medications sold in the U.S. must be approved by the Food and Drug Administration (FDA), reported that it is not okay to stop taking prescribed medications when symptoms improve, that OTC medications are not always safe to take, and that herbal products sold in the U.S. are not always safe to use (See Table 4.5). These findings are also consisted with a previous study conducted among Hispanics. A study conducted by Howell et al. (2006) regarding herbal remedies among Hispanics revealed that herb users (60%) were significantly more likely than nonusers (36%) to know that herbs are considered drugs and that herbs could harm a baby if they are taken during pregnancy. The study also reported that one third of participants believed that some herbs could interact with prescription medication, and that herbs were not safe to use during pregnancy, compared with prescription or OTC.

Results indicated that participants have an appropriate knowledge about medication, herbal products, and dietary supplement use. However, some participants were not knowledgeable about basic information regarding medication, herbal products, and supplement use. For example, approximately one fourth of the participants agreed with the statement that vitamins are risk free. Medication, herbal products, and dietary supplement knowledge is important in determining adequate medication use. Research suggested that inadequate knowledge of medication use may lead to serious outcomes (Hsiao, et al., 2006). Based on these findings, more education is necessary to increase participants' knowledge of medication, herbal products, and dietary supplement use.

A frequency distribution on attitudes toward the use of medication was conducted. More than half of the participants indicated that they disagreed with the statement that a person should never take medicine, and agreed with the idea that pharmacists are a good source of information about medicines.

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The majority agreed with the statement that reading the label on a package or container is a good way to decide which medicine they should take (See Table 4.6). As it was mentioned in Chapter 1, some studies reported that medications are generally self-administered according to the users own knowledge and experience (Stasio, et al., 2008). The results of this study support this argument.

Results indicated that the majority of the participants have good attitudes towards medication use. However, there are many participants that reported negative attitudes. Less than half agreed with the statement that reading the label on a package or container is a good way to decide which medicine they should take (See Table 4.6). This attitude can cause negative health outcomes if students are not appropriately informed about medication use. Self-medication is a problem that young adults face and this may increase negative health outcomes as a result of not seeking medical provision. Research indicates that OTC use begins at an early age (Stasio, et al., 2008). A study conducted in Canada indicated that 75% of high school students reported self-administering OTC pain medication (Reid, 1997). The researchers pointed out that about 6% to 20% of students were not taking the medication appropriately (Reid, 1997). Medication errors harm at least 1.5 million people every year (Aspden, Wolcott, Bootman, & Cronenwett, 2007). In order to prevent medication errors, positive attitudes should be promoted among Hispanic college students.

A frequency distribution on attitudes toward the use of herbal products and dietary supplements was conducted. Almost 40% of participants agreed that herbal products and dietary supplements are a good alternative to prescription medications, about one-third that herbal products and dietary supplements are safer than prescription medications, and more than 40% that herbal products and dietary supplements are easier to use or handle than prescription medications (See Table 4.6). It is important to mention that attitudes guide behavioral actions. The Theory of Reasoned Action points out that the strength of a person's intention to perform a behavior is a function of attitude toward the behavior (Kashima, Galloins, & McCamish, 1992). Therefore, it is very important to create positive attitudes

toward safe herbal products and dietary supplement use, as this in turn may contribute to behavioral intention and greater likelihood of safe medication use.

A frequency distribution in behavior use of medicine, herbal products and dietary supplements was conducted. Results indicate that more than 40% of the participants received their prescriptions from a Mexican doctor or health care provider, and almost half reported that they obtained their medications through a Mexican pharmacy (See Table 4.7) Scholars have argued that Mexico serves as a potential source of medications (de Guzman, Khaleghi, Riffenberg, & Clark, 2007). The research findings of this study are corroborated by a study done among Hispanics in El Paso, Texas. Rivera, Ortiz, and Cardenas (2009) indicated that 33% of adult residents of El Paso reported crossing the border to buy medication, 7% reported crossing the border to see a doctor, and 9.4% to see a dentist. Consistent with previous studies, the authors indicated that the main factor associated with crossing the border to buy medications among El Paso residents was lack of insurance.

The study also indicates that more than 40% of participants take herbal products, and of those, more than 60% do not discuss the use herbal products with their doctors (See Table 4.9). These findings are also consisted with a previous study conducted among El Paso residents. A recent study reported that herbal products use seems to be common among the majority of Hispanics living in the U.S.-Mexico border region. Some of the reasons include cultural beliefs and traditions to treat illness (González-Stuart, Rivera, Rodriguez, & Hughnes, 2006). Similar conclusions have been reported by other researchers (Howell, et al., 2006) who found that the majority of the Hispanics take herbal remedies without discussing it with their physicians. It seems that Hispanic young adults follow herbal use patterns that are similar to those of the general Hispanic population in El Paso. However, there are no studies exploring how young adults communicate the use of herbal products to their health care providers. This relationship could have important implications for health care in this particular group (Gardiner, Kemper, Legedza, & Phillis, 2007). As it was presented in Chapter 2, the impact of culture on

health is significant because it influences how diseases and symptoms are perceived and treated (Sricastava, 2007). There is evidence to suggest that herbal products may have ingredients that can interact with specific medications. Effective health care provider-patient communication is vital to decrease negative health outcomes (Howell, et al., 2006). As the U.S. becomes more ethnically and racially diverse, the healthcare system and providers need to respond to patients' perspectives, ideas, customs, traditions, values, beliefs, and behaviors about health and well-being. Failure to understand and manage socio-cultural differences may have negative health consequences for minority groups (Betancourt, Green, & Carrillo, 2005).

Eight one-way between-subject ANOVAs were conducted to explore whether if there were significant differences on any of the measures across demographic variables of birthplace (U.S. born or non-U.S. born) and language used at home (English, Spanish, or both). The ANOVAs revealed significant effects for place of birth and language on attitudes toward medication use (See Table 4.4). The effect size index of η^2 suggests that in this sample about 5% of the difference or variation in scores on attitudes scale can be accounted by place of birth and 2.7% by language use at home. These are considered to be small effects. U.S. born respondents scored lower (m=10.4486) than non- U.S. born respondents (m=11.4508). English speakers scored lower (m=10.4000) than Spanish (m=11.0829) or "both" (m=10.7246) speakers. Results also indicate a significant effect for language on behavior. Only about 7.54% of the difference or variation in scores on behavior scale can be accounted for by language use at home. This is considered a medium effect. Planned contrasts indicate that this difference was significant between English and Spanish speakers and English or "both" speakers.

It was expected that there would be differences in attitudes based on place of birth and language used at home. These factors may determine the acculturation level of the participants. Many of the methods used to assess acculturation level in previous studies include language used at home as indicator of acculturation. Hispanics that represent the first-generation in the U.S. are more attached to

their customs, while subsequent generations usually adopt beliefs of the dominant culture. Research suggested that use of the English language measures in some way functional integration into the non-Hispanic society (Negy, & Woods, 1992).

These differences may also be explained by further measures of acculturation, such as length of time in the country and country of origin, which not included in the survey used for this study. Also, the differences should be explored more fully. Findings from this study provide preliminary information for research on the topic.

5.2 Recommendations

The results of this study highlight the need to improve safe medication use among Hispanic college students. Little is known about medication use among Hispanic college students in border communities. The results of this study suggest potential problems related to medication, herbal products, and dietary supplement use among college students.

The results of this study also point out to the need for research on intervention programs to address safe medication use in the participating population and in other groups in which the prevalence of medication errors is of concern. Hispanic college students need appropriate educational materials and information about safe medication use. These programs should focus on increasing positive attitudes and behaviors regarding medication, herbal products, and dietary supplement use. The Hispanic college population is expected to increase, and local agencies should seek appropriate ways to inform and educate students.

5.3 Limitations

Several limitations must be taken into account when examining the results of this study:

- The sample for this study was a purposive sample, and may not represent the general Hispanic college student population. However, this study might provide significant data about Hispanic college students' knowledge, attitudes, and behaviors regarding medication, herbal product, and dietary supplement use in similar geographic or college settings.

- Because the questionnaire used was a self-report instrument, some participants may have responded in a biased manner.

- There are limitations to our survey development. The attitude section included positive and negative attitudes. Negatively reworded questions were reverse coded to obtain positive attitudes. Questions should be modified to obtain only positive attitudes. The behavior section was scored on a Yes, No and Not Sure sub-scale. Continuously measured responses would have allowed more sensitive statistical analyses to have been performed.

5.4 Conclusions

This study explored knowledge, attitudes, and behaviors regarding medication use among Hispanic college students. The results indicated that Hispanic college students are active users of medication, herbal products and dietary supplements. Therefore, it is very important to educate Hispanic college students about positive attitudes and behaviors regarding medication use to avoid adverse health outcomes.

This study contributes to health disparity research and to further efforts to prevent medication errors among Hispanic college students. The findings also hold implications for healthcare practitioners to develop appropriate educational materials to inform Hispanic college students about safe medication practices. College students in this study continued to expose themselves to unsafe medication attitudes and behaviors.

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Appendix A

Survey of Medication Use

Thank you very much for agreeing to complete this questionnaire. It will take approximately ten minutes to fill out.

Demographics

1.	What is your gender?	☐ Female	☐ Male	
2.	What is your age group?	☐ 18-24	☐ 25-30	☐ 31-36
3.	What is your race/ethnicity?	☐ Hispanic/Latino	☐ White/Anglo	☐ Black/African American
4.	Were you born in the United States?	☐ Yes	☐ No	☐ Don't know
5.	Which language do you used most at home?	☐ English	☐ Spanish	☐ Both
6.	Are you an undergraduate or graduate student?	☐ Undergraduate	☐ Graduate	
7.	What is your major?	☐ Major: _____	☐ Undecided	☐ Don't know

Knowledge regarding the use of medication, herbal products (such as ginseng, St. John's Wart, or chamomile) and dietary supplements (such as vitamins and minerals):

1	All prescription medications sold in the U.S. must be approved by the Food and Drug Administration (FDA)	True	False	Not Sure
2	It is okay to stop taking prescribed medications when symptoms improve	True	False	Not Sure
3	Over-the-counter medications can be purchased without a physician's prescription	True	False	Not Sure
4	Over-the-counter medications do not require approval by the U.S. Food and Drug Administration (FDA)	True	False	Not Sure
5	Over-the-counter medications are always safe to take	True	False	Not Sure
6	Vitamin and mineral supplements are risk free to the general public	True	False	Not Sure
7	The Food and Drug Administration (FDA) controls the manufacture and sell of herbal products	True	False	Not Sure
8	Herbal products sold in the U.S. are always safe to use	True	False	Not Sure
9	All dietary supplements and herbal products must carry the labeling, "This product is not intended to diagnose, treat, cure, or prevent disease"	True	False	Not Sure
10	Herbs can be dangerous when combined with prescription medications	True	False	Not Sure

Attitudes toward the use of medication
SA= Strongly Agree   A= Agree   D= Disagree   SD= Strongly Disagree

11	I feel that a person should never take medicine	SA	A	D	SD
12	I feel that the pharmacist is a good source of advice/information about taking medicine	SA	A	D	SD
13	I feel it is important to have access to medications one can buy without a prescription to relieve minor health problems	SA	A	D	SD
14	I feel that asking a health care provider about whether to take a medication is always a good idea	SA	A	D	SD
15	I feel that reading the label on a package or container is a good way to decide which medicine I should take	SA	A	D	SD

Attitudes toward the use of herbal products and dietary supplements
SA= Strongly Agree   A= Agree   D= Disagree   SD= Strongly Disagree

16	I feel that herbal products and dietary supplements are a good alternative to prescription medications	SA	A	D	SD
17	I feel that herbal products and dietary supplements are safer than prescription medications	SA	A	D	SD
18	I feel that herbal products and dietary supplements are easier to handle than prescription medications	SA	A	D	SD
19	I feel that herbal products and dietary supplements help to keep people healthy	SA	A	D	SD
20	I feel comfortable taking herbal products and dietary supplements	SA	A	D	SD

Behavior (use of medication, herbal products and dietary supplements)

21 __ I never take medications (if you checked this answer, go to # 33 below)
22 __ I take medications. When I take medications…

23	They are prescribed by a U.S. doctor or health care provider	Yes	No	Not Sure
24	They are prescribed by a Mexican doctor or health care provider	Yes	No	Not Sure
25	I obtain them through a U.S. pharmacist	Yes	No	Not Sure
26	I obtain them through a Mexican pharmacist	Yes	No	Not Sure
27	I obtain them through a friend or family member	Yes	No	Not Sure
28	I obtain them over the Internet	Yes	No	Not Sure
29	I follow the physician's instructions	Yes	No	Not Sure
30	I stop taking them without consulting a health care provider	Yes	No	Not Sure
31	I change the dosage without consulting a health care provider	Yes	No	Not Sure
32	I take the medicine irregularly	Yes	No	Not Sure

33 __ I never take herbal products such as ginseng, St. John's Wart, or chamomile (if you checked this answer, go to # 39 below, otherwise continue)
34 __ I take herbal products. When I take herbal products…

35	I discuss the use of herbal products with my doctor	Yes	No	Not Sure
36	I use of herbal products to maintain health	Yes	No	Not Sure
37	I use of herbal products to prevent illness	Yes	No	Not Sure
38	I use of herbal products to treat illness	Yes	No	Not Sure

39 __ I never take dietary supplements such as vitamins or minerals (if you checked this answer <u>you have completed the survey, thank you</u>! Otherwise continue)

40 __ I take dietary supplements. When I take dietary supplements…

41	I discuss the use of dietary supplements with my doctor	Yes	No	Not Sure
42	I use dietary supplements to maintain health	Yes	No	Not Sure
43	I use dietary supplements to prevent illness	Yes	No	Not Sure
44	I use dietary supplements to treat illness	Yes	No	Not Sure

University of Texas at El Paso (UTEP) Institutional Review Board
Informed Consent Form for Research Involving Human Subjects

Protocol Title: Safe Medication, Herbal Products, and Dietary Supplements Use among Hispanic College Students: Knowledge, Attitudes, and Behaviors

Principal Investigator: Tania Guadalupe Quiroz

Co-investigators: Francisco Soto Mas, Amanda Loya, Sharon Thompson, Arturo Olivárez

UTEP: College of Education

In this consent form, "you" always means the study subject. If you are a legally authorized representative (such as a parent or guardian), please remember that "you" refers to the study subject.

1. Introduction

You are being asked to take part voluntarily in the research project described below. Please take your time making a decision and feel free to discuss it with your friends and family. Before agreeing to take part in this research study, it is important that you read the consent form that describes the study. Please ask the study researcher to explain any words or information that you do not clearly understand.

2. Why is this study being done?

You have been asked to take part in a research study because you are a college/university student. You are invited to complete a Safe Medication, Herbal Products, and Dietary Supplements Use Survey (assessment) under the direction of Principal Investigator Tania Guadalupe Quiroz.
Approximately, 350 participants will be enrolling in this study at UTEP.
You are being asked to be in the study because you are 18 years of age or older and a currently enrolled UTEP student. If you decide to enroll in this study, your involvement will last about 10 minutes.

3. What is involved in the study?

If you agree to take part in this study, the research team will: You are invited to complete a Safe Medication, Herbal Products, and Dietary Supplements Use Survey. The survey includes a demographic section including gender, age, race-ethnicity, place of birth, language used, academic level, and major. Other questions are related to medication, herbal products, and dietary supplements use, as well as knowledge and attitudes about Over-the-Counter and prescription medication, herbal products, and dietary supplements, and actual behaviors about medication, herbal products, and dietary supplements use. No personal information will be gathered during the study.

4. What are the risks and discomforts of the study?

There are no known risks to you should you choose to participate in this study other than a loss of confidentiality, which is unlikely because there are no names attached to the survey forms.

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5. What will happen if I am injured in this study?

The University of Texas at El Paso and its affiliates do not offer to pay for or cover the cost of medical treatment for research related illness or injury. No funds have been set aside to pay or reimburse you in the event of such injury or illness. You will not give up any of your legal rights by signing this consent form. You should report any such injury to Tania Guadalupe Quiroz 915-740-1119 and to the UTEP Institutional Review Board (IRB) at (915-747-8841) or irb.orsp@utep.edu.

6. Are there benefits to taking part in this study?

There will be no direct benefits to you for taking part in this study. Your participation may benefit you and others as you will contribute to the study, which may benefit the health of your community and the population at large.

7. What other options are there?

You have the option not to take part in this study. There will be no penalties involved if you choose not to take part in this study.

8. Who is paying for this study?

Internal Funding: N/A

External funding: N/A

9. What are my costs?

There are no direct costs.

10. Will i be paid to participate in this study?

You will not be paid for taking part in this research study.

11. What if I want to withdraw, or am asked to withdraw from this study?

Taking part in this study is voluntary. You have the right to choose not to take part in this study. If you do not take part in the study, there will be no penalty.
If you choose to take part, you have the right to stop at any time. However, we encourage you to talk to a member of the research group so that they know why you are leaving the study. If there are any new findings during the study that may affect whether you want to continue to take part, you will be told about them.
The researcher may decide to stop your participation without your permission, if he or she thinks that being in the study may cause you harm, or you are not following the recommended instructions.

12. Who do I call if I have questions or problems?

You may ask any questions you have now. If you have questions later, you may call Tania Guadalupe Quiroz at 915-

740-1119 or tgquiroz@miners.utep.edu

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If you have questions or concerns about your participation as a research subject, please contact the UTEP Institutional Review Board (IRB) at (915-747-8841) or irb.orsp@utep.edu.

13. What about confidentiality?

Your part in this study and your responses will be strictly confidential. Your name appears only on this consent form and not on your survey. All completed surveys will be kept in a locked file cabinet.

14. Mandatory reporting

N/A

15. Authorization Statement

I have read each page of this paper about the study (or it was read to me). I know that being in this study is voluntary and I choose to be in this study. I know I can stop being in this study without penalty. I will get a copy of this consent form now and can get information on results of the study later if I wish.

Participant Name: _____   Date: _____

Participant Signature: _____   Time: _____

Participant or Parent/Guardian: ___N/A_____   Date: _____

Consent form explained/witnessed by: _____   Time: _____

      Signature

Printed name: _____

Date: _____   Time: _____

Appendix C

THE UNIVERSITY OF TEXAS AT EL PASO
Office of the Vice President for Research and Sponsored Projects
Institutional Review Board
El Paso, Texas 79968-0587
Phone: 915 747-8841   fax: 915 747-5931

DATE: February 26, 2010
TO: Tania Quiroz, BIS
FROM: University of Texas at El Paso IRB
STUDY TITLE: [154133-1] Safe Medication Use among Hispanic College Students: Knowledge, Attitudes

                  and Behaviors

IRB REFERENCE #:
SUBMISSION TYPE: New Project
ACTION: APPROVED
APPROVAL DATE: February 26, 2010
EXPIRATION DATE: February 25, 2011
REVIEW TYPE: Expedited Review

Thank you for your submission of New Project materials for this research study. University of Texas at
El Paso IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a
study design wherein the risks have been minimized. All research must be conducted in accordance with this
approved submission.

This study has received Expedited Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of
participant understanding followed by a signed consent form. Informed consent must continue throughout the
study via a dialogue between the researcher and research participant. Federal regulations require each
participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation.
Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate
adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

Please report all NON-COMPLIANCE issues or COMPLAINTS regarding this study to this office.

Please note that all research records must be retained for a minimum of three years after termination of the
project.

Based on the risks, this project requires Continuing Review by this office on an annual basis. Please usethe
appropriate renewal forms for this procedure.
If you have any questions, please contact Athena Fester at (915) 747-8841 or afester@utep.edu. Please include
your study title and reference number in all correspondence with this office.

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Vita

Tania Guadalupe Quiroz was born in El Paso, Texas. Tania has a bachelor of Interdisciplinary Studies with a major in Bilingual Education Generalist EC-4 from the University of Texas at El Paso and was awarded Cum Laude honors at this institution. Tania is a certified Bilingual Instructor by the state of Texas. Her education and experience motivated her to pursue a DrPH degree.

EDUCATION

Certified Bilingual Instructor (State of Texas).

The University of Texas at El Paso (UTEP)   Jan 08 – May 10
MA in Health Education

GPA: 4.0/4.0

Graduated with Honors- The University   Aug 02-Dec. 07
of Texas at El Paso (UTEP)
Bachelor of Interdisciplinary Studies
with a major in Bilingual Education Generalist EC-4

GPA:3.59/4.0

El Paso Community College   July 05- Aug 07
Overall GPA: 4.0/4.0

HONORS AND ACTIVITIES

Dean's List- Spring 2005, 2006 and Fall 2005, 2006, 2007
UTEP Mexican Student Association, (MexSA), Fall 2006
Graduate School Professional Funding Award 2009
Society of Public Health Education (SOPHE) Scholarship 2009
Society of Public Health Education (SOPHE), 2009- present
Spring 2010 Graduate School Banner Bearer

WORK EXPERIENCE

El Paso Independent School District   El Paso, TX
Substitute teacher   Jun 06- Present

University of Texas at El Paso   El Paso, TX
Translation Hispanic Health Research Initiative Aug 08-May 10
Graduate Research Assistant
- Data collector and analysis

University of Texas at El Paso   El Paso, TX
UTEP/UT Austin Cooperative   Aug 08-Present
Pharmacy Program
Graduate Research Assistant
- Data collector and analysis
  - Curriculum design

University of Texas at El Paso   El Paso, TX
Graduate Teaching Assistant   Aug. 09-May 10

U.S. Army Child, Youth, and School   El Paso, TX
Services   Jan. 10-Feb. 10
- Child care and development

RESEARCH EXPERIENCE

University of Texas at El Paso   El Paso, TX   Health
Literacy among Older Adults   Aug 08-May 10
- Data collector and analysis.

University of Texas at El Paso/UT Austin   El Paso, TX
Cooperative Pharmacy Program   Aug 08-present
A Theory-Based Spanish Health Literacy Curriculum.
- Data collection and analysis.
- Curriculum design

University of Texas at El Paso   El Paso, TX
Health Literacy among College Students   June 09
- Data collection and analysis.

University of Texas at El Paso   El Paso, TX
NIH Health Literacy Curriculum Development   Oct 09-May 10
- Data collection and analysis

CONFERENCES

Texas Association for Bilingual Education   Arlington, TX
(TABE)   October 08
- Presenter
  Globalization, Identity and Language Diversity:
  Perspectives from Future Educators

Congreso Internacional de Promoción   Hermosillo, MX
de la Salud   March 09
- Presenter
  Theory Based Spanish Health Literacy Curriculum

Mother-Daughter/Father-Son Program   El Paso, TX
Career Day 2009   April 09
- Presenter
  Theory Based Spanish Health Literacy Curriculum

Society for Public Health Education   New Orleans, LA
(SOPHE) Mid Year Scientific Conference   May 09
- Presenter
  Theory Based Spanish Health Literacy Curriculum

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Understanding Unique Patient Needs   El Paso, TX
Conference   Aug 09

- Presenter
  Health Literacy Using Culturally
  Competent Terms to Increase
  Medication Adherence

Society for Public Health Education   Philadelphia, PA
(SOPHE) 60th Annual Meeting   Nov. 09

- Presenter
  Evaluating the Use of Health Literacy
  Assessment Tools with Spanish-Speaking Adults

2010 Sun Conference on Teaching
and Learning   El Paso, TX

- Presenter   March 10
  Safe Medication Use among Hispanic
  College Students: Knowledge, Attitudes and Behaviors