Mexican Health Paradox

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Abstract

Despite the broad array of research that exists on the Hispanic health paradox, no single explanation has been marked as the dominant reason for the disparities in life expectancy that exist between Mexican Americans and other Hispanic and non-Hispanic ethnic groups. This indicates that researchers must adopt a more open perspective that examines the influence of multidimensional factors that integrate culture, religious tradition, and lifestyle. The purpose of the current study is to 1) readily define the paradox and provide a thorough review of existing literature on the topic; 2) suggest a transition from exploring statistical explanations of the paradox to critically assessing health-related behaviors and influences such as familial support when trying to explain the paradox in the context of certain Hispanic ethnic groups; 3) elucidate sociocultural factors unique to Mexican American communities and their implications on Mexican health outcomes; and 4) consider avenues for further research concerning life expectancy and the paradox. The Mexican American health paradox is related to observable health-related influences, rather than statistical misrepresentation. Familial structure is one component that results in better physical health among members of this ethnic group. Still, similar familial bonding in Cuban American and Native American culture has not resulted in similar health outcomes, indicating additional factors behind the health advantage. The presence of an alternative-health care system with a more emotionally significant practitioner-client relationship appears to be the main factor that separates Mexican Americans from the other ethnic groups. In turn, this distinctive system, referred to as *curanderismo*, has a positive impact on both physical and mental health, and is bolstered by consistent family systems. By capturing the Hispanic health paradox in a holistic analysis of the existing explanations in current literature and specific ethnic characteristics, this project begins to conceptualize which factors have a greater contribution to the advantageous health outcomes of Mexican Americans relative to other influences. It also indicates the possible usefulness of sociocultural factors in explaining the paradox in the context of other Hispanic ethnic groups as well.

1. Introduction and Methods

According to recent statistics published by the United States Centers for Disease Control and Prevention in 2011, Hispanics in the United States tend to outlive non-Hispanic whites by almost three years. Specifically, the life expectancy at birth for Hispanic Americans is around 81 years, while non-Hispanic whites on average live to be around 78 years of age (11). These facts and figures do not represent an isolated phenomenon limited to the recent past; in fact, these distinctive trends in life expectancy and mortality have been contemplated by researchers since 1986, when Dr. Kyriakos Markides and his colleagues at the University of Texas Medical Branch first described this disparity in lifespan between the two groups. The consistent finding that most Hispanic ethnic groups live longer than whites has intrigued researchers predominately because of the reality that Hispanic Americans often have the lowest socioeconomic status, income, and education. In most other ethnic groups in the United States, "[l]ow socioeconomic status has been universally associated with worse population health and higher death rates" (Franzini, Ribble, and Keddie 496). As a result of the contradictory nature of Hispanic life expectancy outcomes, researchers have coined the phenomenon as the "Hispanic health paradox," also known as the Latino health advantage or the epidemiological paradox.

A myriad of explanations for the health paradox have been presented through the existing literature on the topic. Despite the fact that more than twenty years have passed since the initiation of research, the phenomenon has never been fully explained by any one of these hypotheses. One concept that has been collectively derived from these efforts is the research paradigm that must be employed in order to fully understand the paradox and its implications. In "Paradox as Paradigm--The Health Outcomes of Mexican Americans," Richard Scribner states, "The paradox of Hispanic health represents a *group-level* correlation between ethnicity and mortality that cannot be explained in terms of an individual-level model" (303). In other words, any factor that is correlated to the paradox must apply to a wider ethnic group of Hispanics, rather than to a narrow community. Based on this research design, the current literature on the topic can be organized into two broad categories. According to Dr. Ana Abriado-Lanza

et al. in the article "The Latino Mortality Paradox: A Test of the `Salmon Bias' and Healthy Migrant Hypotheses," the first category postulates that the lower mortality is not "genuine" but rather is caused by migratory factors. The second category centers on the premise that the lower mortality is "real" and is the result of more favorable health behaviors, risk and genetic factors, and greater family support among Latinos than among non-Latino whites (1543).

For the sake of clarity and to provide a workable framework for further discussion in this paper, a clear and applicable definition of the Hispanic health paradox should be restated and the study's population should be readily defined. The Hispanic health paradox is a data-based finding that indicates that, despite low socioeconomic status and decreased access to health care, Hispanic Americans overall tend to live longer than non-Hispanic whites. This project examines the paradox as it applies to the life expectancies of the Mexican American population. Accordingly, any reference to the phenomenon will use a full or abbreviated form of the phrase, "Mexican (American) health paradox." It is justifiable to use such a broad reference, as the focus of this paper encompasses both immigrants from Mexico and individuals of Mexican descent who were born in the United States, both of whom show similar trends in life expectancy and mortality records. Dr. Tillman Farley further justifies this relative lack of restriction in "Stress, Coping, and Health: A Comparison of Mexican Immigrants, Mexican-Americans, and Non-Hispanic Whites" by noting that it is *not* necessary to discriminate against foreign-born Mexican Americans and U.S.-born Mexican Americans because "[i]t appears that being a U.S born Mexican-American, due to the heightened stressors of acculturation and racism in U.S society, is equally stressful as being a recent immigrant to the United States." Farley also recognizes that "Mexican sociocultural values serve as integral aspects of *both* groups" (217).

The purpose of the current study is multifold. Firstly, it strives to provide a thorough and organized review of the current explanations for the health paradox. Simultaneously, these explanations are considered in the context of multiple demographic and cultural attributes of the Mexican American population in order to qualitatively evaluate the applicability of existing theories to the health outcomes of this specific ethnic group. In order to achieve these aims, academic databases such as PubMed and AcademicHost were used to conduct a systematic review of journal articles,

case studies, and other reports pertaining to the Hispanic epidemiological paradox. Similar sources, in addition to the official CDC site, were also used to collect and organize information concerning Mexican American demographic and cultural composition, practices, and customs. In total, twenty-nine credible sources were utilized to gather the variety of explanations and group-level characteristics. By doing so, the current research strives to provide a more inclusive explanation and reasoning for Mexican American health outcomes. In turn, the project also contributes to the methodology of future research on the Hispanic health paradox, as it suggests that the validity of certain explanations of the Hispanic health paradox might depend largely on the characteristics of the specific ethnic population that one chooses to consider. Thus, the underlying research question looks to not only pinpoint which factors contribute the most to the Mexican American health paradox, but also to identify a stronger research paradigm for researchers to examine the health paradox in the context of other Hispanic ethnic groups.

2. The Salmon Bias and Healthy Migrant Theories: Popular yet Limited

Within the group of explanations for the health paradox that focus on misrepresentation of census statistics, two main theories have been highly regarded by researchers over the past decade. The first is the healthy migrant effect, which holds that the migration of *healthy* Latinos from their respective countries of origin accounts for the life expectancy differences. As a result, the group of Mexican Americans who originally migrated from Mexico, as well as the generations following them, constitutes a notably healthy group of individuals, relatively free from prevalent health conditions. The second sub-theory is the "salmon bias" or the "moribund migrant effect" which, according to the article "The Latino Mortality Paradox: A Test of the 'Salmon Bias' and Healthy Migrant Hypotheses" by Abriado-Lanza et al., "proposes that many Latinos return to their country of birth after employment, retirement, or illness because of the desire to die in one's birthplace" (1543) Foreign deaths are not included in U.S mortality statistics, thus resulting in the documentation of an artificially low mortality rate (those individuals move prior to their death).

Though among the most popular of the initial hypotheses, both the salmon bias and the healthy migrant effect are insufficient as *exclusive* factors

contributing to the health advantage. A study conducted by the aforementioned Abriado-Lanza et al. demonstrated that even Puerto Ricans, whose deaths *are* recorded in U.S mortality statistics, exhibit a significant health advantage compared to non-Hispanic whites, suggesting an inadequacy to the widespread applicability of the theory. More specific to Mexican Americans, the presence of familiar and tightly knit community systems might stymie the desire to return to one's homeland. As noted by Abriado-Lanza et al., this effect is most likely reinforced by patterns of immigration from Mexico, as families that are part of an extended family unit tend to immigrate in consecutive fashion (1544). Consequently, the need to return home to die in one's birthplace is reduced when provided with such a vast amount of available familial support and care in the United States. Therefore, it is highly probable that there *has* been a significant body of Mexican Americans in the country on which census studies report. With regard to the healthy migrant effect, Anne Sanders contends in "A Latino Advantage in Oral Health-Related Quality of Life is Modified by Nativity Status" that "Studies have shown that Mexican migrants to the United States were not any healthier or better educated than those who did not migrate" (Sanders 205). In addition, even U.S-born Mexican Americans show higher life expectancies compared to non-Hispanic whites, which points to other factors playing a role in sustaining the health paradox. In fact, group *cultural* explanations are likely to take precedence over individual characteristics or behaviors, when analyzing at the causal relationships pertaining to the paradox.

3. Familism: A Cultural Boon for Mexican Americans

As the most common element of social structure in any society, a family unit holds great potential and power in shaping the views, actions, and behaviors of individual constituents. This transformational influence can extend far into the well-being of family members, traversing the physical, mental, spiritual, social, and emotional realms of health. According to "The Effects of Family Composition, Health, and Social Support Linkages on Mortality" written by Richard G Rogers, family living arrangements can influence mortality. This is largely due to the fact that "[t]he family rearranges itself to deal with ill health and disability among its members". In addition, familial units strive to promote health, prevent disease, and

encourage economic security (326). Dr. Toni Antonucci extends this notion by suggesting that "living with other family members can promote compliance with group norms, encourage health practices, and provide emotional reassurance or helpful appraisals of difficult situations" (205).

As with many Hispanic ethnic groups, Mexican American culture places a substantial degree of emphasis on family and familial values. A particular concept known as *familismo* represents the notable importance of family within this ethnic group. Also known as familism, this model refers to a collective loyalty to extended family that promotes ties, obligations, and interdependence among Mexican Americans (Sanders 206). In support of this notion, Dr. Cecilia Ayon, Dr. Flavio F. Marsiglia, and Monica Bermudez-Parsai, Professors of Social Work at Arizona State University, claim in "Latino Family Mental Health: Exploring the Role of Discrimination and Familismo" that "Latino families are often described as close knit with extended family networks that offer a great deal of support." Consequently, "[t]he strong ties between [Mexican American] family members can be associated with helping newly immigrated individuals adjust and confront social inequalities and prejudices in the United States" (744-745). This trend also applies to U.S- born Mexicans, as community studies indicate that, compared with their immigrant counterparts, U.S-born Mexicans have even more extensive social networks and interact more with intergenerational family members and friends in the United States (744). As a result, the protective effects of family on health can be found within this population as well. Evidence suggests that *familismo* is a protective factor for Latino families as it has been linked to positive health outcomes including "lower levels of substance and drug abuse, increase likelihood of seeking out mammogram exams, and decreased likelihood of child maltreatment" (745). In "A Latino Advantage in Oral Health-Related Quality of Life is Modified by Nativity Status," Anne Sanders further notes that the protective effects of family on Latino health, including oral health-related quality of life, diet, reciprocity, social ties and attachments, are well recognized (210). Accordingly, a logical theory is that the Mexican health advantage may essentially stem from the strong socio-centric values instilled at the familial level, primarily because these tenets support the development and continuation of sound, long-term health behaviors and habits.

Nevertheless, the depth and breadth of research on familial structure and health confound the use of the familial hypothesis as a singular ex-

planation for the health paradox. The limitations of such a viewpoint are readily observable through a cross-cultural analysis of familial strength in non-Hispanic white, Native American, and Cuban American societies. First, the prevalence of family values and potential protective effects similar to those of Mexican Americans were studied in these other cultures, as described in existing research. Even in non-Hispanic white families, the close, personal structure and organization of the family unit can also express itself positively in the health of both young and older adults. This idea is supported by the findings of Edward L. Schor, the senior Vice President for the Lucile Packard Foundation for Children's Health, et al. in the article "Family Health: Utilization and Effects of Family Membership." Schor etal. note that for non-Hispanic whites, "Membership in a family.. has a powerful influence on one's health care-seeking behavior; it accounts for nearly one third of the variance of individual utilization" (624). Furthermore, the white family can stabilize beneficial health-related behaviors, much like a family can in a Mexican American context. Similarly, both Native American and Cuban American families demonstrate a strong, resilient form of bonding. Among American Indian families, the extended family unit is of paramount importance as it is responsible for the safe development of children and adolescents. In fact, according to Randall C. Swaim and his colleagues in "American Indian Adolescent Drug use and Socialization Characteristics: A Cross-Cultural Comparison," the Native American family may take precedence over the peer group as the most powerful contributor to alcohol use or non-use among youth (54). Due to their Hispanic roots, Cuban Americans also place a significant degree of importance on *familismo*, sharing many components of familial structure and customs with Mexican Americans. As described by authors Monica McGoldrick, Joseph Giordano, and Nydia Garcia-Preto in Ethnicity and Family Therapy, "The role of the nuclear and extended family is central to Cubans; familismo is a cultural attitude and value that is the crucial basis of traditional family structure" (207).

After establishing the similarities in familial composition and authority between Mexican American families and those of the other three cultures, life expectancy and mortality trends of different ethnic groups were compared. The current literature suggests that familial strength has not been associated with similar health outcomes for all three ethnic groups (compared to Mexican Americans). A look at the life expectancy statistics

described in the introduction of this paper indicates that familial aid in protecting health has not resulted in longer lives for non-Hispanic whites, despite similarities in family membership and influence. With regard to Native Americans, Dr. Paul Spicer explains in "Poverty and Health Disparities for American Indian and Alaska Native Children" that:

The age-adjusted death rate for American Indian and Alaska Native adults exceeds that of the general population by almost 40%, with deaths due to diabetes, chronic liver disease and cirrhosis, and accidents occurring at least three times the national rate, and deaths due to tuberculosis, pneumonia and influenza, suicide, homicide, and heart disease also exceeding those of the general population . (128)

Lastly, Leo Morales et al. point out in "Socioeconomic, Cultural, and Behavioral Factors Affecting Hispanic Health Outcomes" that a similar trend exists for Cuban Americans, who have mortality rates that are greater than those of Mexicans and similar to those of whites (459).

If consistent familial strength between the groups has not resulted in consistent lifespans, then there must be other factors involved with the more positive health outcomes for Mexican Americans. Hence, though a vital and relentless aspect of Mexican culture, familismo cannot be used to singlehandedly explain the Mexican American health paradox in its entirety. From this conclusion, it appears that a primary explanation for the health paradox would most likely be linked to a beneficial factor that is largely unique to members of the Mexican American population.

4. Curanderismo: The Central Explanation

Just as a family unit exerts a significant degree of influence on the actions of family members, religion is a powerful entity within entire families, community systems, and ethnic groups. Though predominantly Roman Catholic, Mexican Americans maintain several of their indigenous roots through specific socio-religious practices and traditions. One such tradition that is based on Aztec, Mayan, and ancient Spanish influences is the folk medicine system of *curanderismo*, a cohesive set of traditional beliefs, prayers, and rituals that address the multiple dimensions of health (Smith et al. 360). According to Irene Ortiz and Eliseo Torres in their article "Curanderismo and the Treatment of Alcoholism: Findings from a Focus Group of Mexican Curanderos," "*curandero* treatments might include healing rituals, prayer or blessings, or physical treatments such as

massage or healing touch (Torres, 2005)" (81). However, despite its traditional background, *curanderismo* is not fully based on superstition or chants. In fact, according to Ortiz and Torres, *curanderos* most often collaborate with western medicine practitioners when assessing treatment options for their clients (82).

In turn, this curandero-directed collaboration between traditional medicine and modern medicine forms the primary basis that allows for the isolation of *curanderismo* as a dominant factor in molding the Mexican American health paradox. Mexican Americans who practice *curanderismo* (a significant portion of the Mexican American population in the United States) enjoy not only the scientific validity and clinical efficacy of "western" treatment plans, but also the recommendation of such prescriptions through a more meaningful pathway–a religiously and culturally-backed curandero. In fact, studies have indicated that the personal and emotional atmosphere in which curanderos deliver their treatment decisions is much stronger than that of modern physician interactions with Mexican Americans–a factor that points towards the existence of a cultural barrier for the ethnic group.

4.1 The Cultural Barrier:

To understand the reasons for and implications of this barrier, one must examine the distinct definition of sound health that is widely held within the Mexican American population. Kathleen Niska and Mariah Snyder note in "The Meaning of Family Health Among Mexican First–Time Mothers and Fathers," that the Mexican American "perception of optimal health '[expands] to include the physical, emotional, social interactional, and spiritual integration of their … family'" (qtd. in Lopez 24). Consequently, medical care providers unfamiliar with Mexican culture may not recognize the importance of family in making treatment decisions. Leo Morales et al. add to this notion in "Socioeconomic, Cultural, and Behavioral Factors Affecting Hispanic Health Outcomes" by suggesting that "Cross-cultural miscommunication may occur when a patient mistakenly perceives impersonal professional behavior for lack of interest or when a physician, unfamiliar with Hispanic patients, perceives Hispanics to be superstitious, present-oriented, or uninterested in preventive exams" (487). As a result of this disconnect between doctors and their Mexican American patients, Mexican Americans tend to delay use of common health

care and look towards alternative methods of treatment counseling and planning. As one of the most physically and culturally accessible options, curanderismo is naturally the avenue that most look towards for medical advice and guidance.

An analysis of existing literature suggests that *curanderismo* can be characterized as the ideal health-care solution for Mexican Americans using three broad yet interrelated perspectives: physiological, psychological, and emotional. On a biological basis, curanderos not only utilize herbs, plants, and other traditional supplements, but also the more "contemporary" medicines of the western generation for certain illnesses. Thus, even if a major aspect of folk medicine is to address superficially unique "cultural illnesses," which usually manifest themselves in common physical ailments, several of the methods used to attack those conditions are usually very similar to modern medical practice. According to Eliseo Torres and Timothy Sawyer in *Curandero, a Life in Mexican Folk Healing*, modern curanderos are going through an important transformation, since they are working closely with physicians and nurses and using modern, conventional medical techniques on a more and more frequent basis (157). Consequently, it appears that the diminished direct use of western medical resources has not significantly hindered Mexican American health primarily because the group receives similar treatments for relatively similar conditions, past the added cultural dimension.

4.2 Physiological Perspective:

As an extension to the physical benefits of the folk practice, one must recognize the possibility that the added cultural dimension–which consists of herbal, plant-based cures, and other homeopathic means–has measurable physiological benefits of its own. The herbal and natural treatments associated with *curanderismo* have been passed from healer to apprentice healer for centuries. Maritza Tafur, Terry Crowe, and Eliseo Torres explain in "A Review of Curanderismo and Healing Practices among Mexicans and Mexican Americans" that, "Simple spices, herbs, fruits and vegetables, such as tomatoes, papaya, onions, potatoes, garlic, cilantro, chocolate, rosemary, mint, cumin, oregano, cinnamon and chamomile, are connected to certain medicinal properties and are part of a nutritious diet" (85). Recent research has revealed the immense potential of *curanderismo* treatments in attacking alcoholism among Mexican American families. Ac-

cording to Ortiz and Torres, "passion flower or *pasiflor* has been shown to have anxiolytic and antihypertensive effects that would suggest utility in alcohol withdrawal… Valerian or *valeriana* has demonstrated sedative and anxiolytic effects which can also be utilized in withdrawal and alcohol abuse cases." Lastly, elderberry can enhance the immune system, thereby having a protective effect (88).

Still, much remains unknown regarding the possible clinical advantages of *curanderismo* herbs on other ailments that commonly affect the Mexican population in the United States, such as diabetes or arthritis. In addition, very little has been uncovered regarding the actual components of those herbs, which allow the desirable bodily effects to occur. Accordingly, further study into the variety of other herbs that constitute a folk practitioner's treatment arsenal would help identify additional effective folk medicines. If such culture-based treatments were found to have desirable physiological effects for a wide range of conditions, it would appear that the substantial body of Mexican Americans who utilize *curanderismo* reap the medical benefits of a unique, empirically-verified set of remedies, in addition to the well-established, operative medications of the twenty-first century. Undoubtedly, a higher number of effectual treatments, including an array of natural cures, can correlate to a higher average life expectancy for the Mexican American population.

4.3 Psychological Perspective:

Perhaps to an even greater extent than the biomedical aspect of *curanderismo*, the psychological dimension of the health system, particularly the psychosomatic elements of the curandero-patient relationship, is of special interest when discussing the related health advantages held by Mexican Americans. As mentioned previously, Mexican Americans often delay the use of contemporary health care services due to a perceived disengagement with today's physicians. This detachment points towards the lack of a significant doctor-patient relationship, which can lead to potential negative ramifications. In fact, Rhona M. Eveleigh and her colleagues note in "An Overview of 19 Instruments Assessing the Doctor-Patient Relationship" that the relationship between doctors and patients is an important factor in the effectiveness of any treatment. In psychotherapy, "the quality of the treatment relationship is found to shape patient outcomes more strongly than the specific techniques applied. In primary care, 'knowing

the patient is at least as important as knowing the disease,' and physicians with a warm and friendly style are more effective than physicians with a more formal style" (10). Dr. Susan Griffith extends this notion in "A Review of the Factors Associated with Patient Compliance and the Taking of Prescribed Medicines" by noting that patient satisfaction, treatment adherence, and treatment outcome have been found to be associated with the doctor-patient relationship (151).

As a result, one would judge that the Mexican American population has been at risk for heightened mortality due to the absence of patient satisfaction and physician treatment adherence. In essence, however, the role that is commonly held by a physician has been taken on by a curandero, accompanied by his broad array of treatments and, most importantly, his knowledge and meaningful association with Mexican American culture. This resilient connection between two individuals who share common religious and ethnic backgrounds promotes the very treatment compliance that is undermined by the weak relationship shared between physicians and members of the defined population. Specifically, Dr. Steffi Zacharias notes in "Mexican "Curanderismo" as Ethnopsychotherapy: A Qualitative Study on Treatment Practices, Effectiveness, and Mechanisms of Change" that "the spiritual aspects of the curanderos' treatments have functioned as powerful therapeutic resources" (396). Zacharias further describes the psychological effectiveness of spirituality-grounded *curanderismo* by saying:

> There exist different interpretations for the impacts of spiritual interventions on psychological processes. Koss (1993) has stated that spiritual intervention offers the therapist a direct means of raising a patient's hope of a cure, and provides great flexibility in the management of the therapeutic relationship–via the so-called 'triadic structure of communication,' the interaction between the spiritual power, the therapist, and the patient. Furthermore, spiritual or religious interventions offer to the patient the possibility to compensate states of loss of control and orientation by the contents of the religious belief system. (397)

In effect, *curanderismo* offers Mexican Americans a secure safety net that guards the population's average life expectancy. By providing specific medicines that are at times the same as western treatments and at times

unique to Mexican American culture, curanderos offer a diverse and physiologically-effective range of solutions to common ailments that is not fully available to other ethnic groups. This especially includes the non-Hispanic white population in the United States, which has consistently had the lowest percentage of adults aged 18 to 64 with no regular doctor, according to data published by the Commonwealth Fund. Because most whites utilize contemporary health-care services, the need for a secondary system is minimized, and the possible protective effects are thereby hidden. Most importantly, the manner in which curanderos present their clinical decisions is done in a way that offers both spiritual and psychological reassurance to their clients. This, in turn, promotes acceptance of and acquiescence to those treatment recommendations, which is missing in the Mexican American population's interaction with modern physicians. Such a thorough and consistent cultural link between client and practitioner is also missing in the regular doctor-patient relationships involving non-Hispanic whites, removing the protective effects related to spiritual and mental health.

4.4 Emotions-based Perspective:

Curanderismo not only appeals to the psychological needs of Mexican Americans as related to general religion and health care, but also to their emotional needs, as related to the importance of family. Indeed, familism certainly contributes to an increased dependence on *curanderismo* and, in turn, *curanderismo* reiterates family customs and values. This co-dependent relationship between the two factors is bolstered by the fact that curanderos recognize the definition of family that is vital to Mexican American culture. In fact, "[o]ne of the reasons for the continued existence of *curanderismo* is the curandero's use of natural support systems, such as the family," as noted by Robert T. Trotter and Juan Antonio Chavira in their book *Curanderismo: Mexican American Folk Healing* (164). Folk practitioners suggest many therapies that incorporate the entire family structure in order to provide a cohesive treatment plan to the suffering individual. Hence, it is important to highlight the fact that, though Mexican American familism cannot serve as the singular or dominating explanation for the health paradox, it undoubtedly holds major influence as a sub-variable that encourages both the beliefs and practices of *curanderismo.*

5. Sleep Health: A Notable Derivative of Curanderismo

Current research has noted that Mexican Americans have greater sleep efficiency than other cultures–a finding that has direct implications for sleep-related health and functioning. According to Uma Rao, Constance Hamman, and Russell Poland, in "Ethnic Differences Present in Electroencephalographic Sleep Patterns in Adolescents," "Sleep is a fundamental neurobehavioral state linked to the critical domains of health and execution, including attention, learning and memory, mood regulation, as well as metabolic, endocrine, immune and cardiovascular functions" (17). Short sleep duration has been linked to increased mortality risk, obesity, impaired glucose metabolism, and a weak neuroendocrine system. To further this point, Dr. Seicean and his colleagues address in "An Exploration of Differences in Sleep Characteristics between Mexico-born U.S Immigrants and other Americans to Address the Hispanic Paradox" the fact that "[s]leep quality is strongly related to mood and emotions in healthy adults and to psychiatric conditions including depression and anxiety" (1021). Rao, Hammen, and Polland essentially define "better sleep efficiency" for the Mexican American population as the following set of results. Mexican-Americans have a higher proportion of REM sleep than their counterparts, and Mexican-Americans have a longer REM *duration* than African Americans and non-Hispanic whites (21). A study conducted in "Health-Related Quality of Life among Minority Populations in the United States" by Chowdury, Balluz, and Strine also indicated that blacks, Hispanics, and Asians had a significantly lower chance of reporting *any* form of sleep insufficiency (483).

Possible effects of these disparities can be seen in rates of sleep-related disorders, relative to two groups: non-Hispanic whites and Mexican Americans. In the article "How Does Ethnicity Affect Sleep Disorders?" John Merriman states that whites have reported significantly more insomnia symptoms than did Mexican Americans (11). Reports of sleepiness have been about the same in both groups, and there is a statistically significant difference in RLS prevalence between the groups (18% among whites, 14% among Hispanics) (13). Additionally, compared to whites, Mexican male immigrants have a lower unadjusted prevalence of SHST, self-perceived sleep deprivation, poor sleep quality, and daily sleep-related functional impairments (14).

Still, some researchers argue that lower amounts of sleep hold no negative effect on physiological function, proposing that the longer sleep

duration for Mexican Americans lacks any significant benefit for longevity. In "Sleep Loss Results in an Elevation of Cortisol Levels the Next Evening," Dr. Rachel Leproult et al. note that research suggests that "[t]here is no evidence for prolonged or delayed effects of sleep loss on the hypothalamo-pituitary-adrenal (HPA) axis" (865). Still, researchers analyzing the effects of acute partial or total sleep deprivation on the levels of cortisol levels have found an elevation in cortisol (the stress hormone) in the evening following the night of sleep deprivation. Leproult explains this alternative view by noting that:

Even partial acute sleep loss delays the recovery of the HPA from early morning circadian stimulation and is thus likely to involve an alteration in negative glucocorticoid feedback regulation. Sleep loss could thus affect the resiliency of the stress response and may accelerate the development of metabolic and cognitive consequences of glucocorticoid excess. (869)

Thus, one can objectively state that Mexican Americans not only experience better sleep, but also the health protections and advantages that result from the nature of that sleep. For this reason, the heightened sleep efficiency can be correlated to the higher life expectancies of the ethnic group, compared to non-Hispanic whites.

Though a section of the existing literature on the health paradox has isolated Mexican American sleep efficiency as an independent and direct contributor to the epidemiological paradox, it is highly probable that the lack of sleep deficiency, in addition to the resultant health effects, is an extended product of *curanderismo*. As previously mentioned, *curanderismo* can elevate the physical and mental health of clients by stimulating biological, psychological, and emotional relief. This relief manifests itself chiefly through decreased stress levels. According to Anthony Fabricatore and his research team in "Stress, Religion, and Mental Health: Religious Coping in Mediating and Moderating Roles," "Religious coping has been conceptualized as a mediator, accounting for the relationship between religiousness and mental health in times of stress, and as a moderator, altering the relationship between stressors and mental health" (92). Furthermore, as noted by Margaret D. Hanson and Edith Chen in "Daily Stress, Cortisol, and Sleep: The Moderating Role of Childhood Psychosocial Environments," experimental studies in both humans and animals have documented that stressors experienced during the day result in disruptions in sleep architec-

ture, including longer *transitions* into REM sleep, at night (395). Therefore, the lower levels of stress experienced by Mexican Americans can lead to healthier sleep patterns (i.e. longer REM sleep time compared to the longer transition periods required while under significant stress), which can then manifest itself through the lifespan statistics of Mexicans in the United States.

Consequently, by highlighting the factor of sleep efficiency as a consequence of *curanderismo,* one can assert that the folk medicine system is both directly and indirectly a main contributor to the Mexican American health paradox. Not only do the curandero treatments and the emotional mode of delivery of these treatments foster the sound development of physical and mental health, but also the resulting health outcomes, when combined with a relatable spiritual undertone, can produce positive health effects of their own.

6. Conclusion

Although familism and *curanderismo*, the two central concepts that guide a holistic overview of the Mexican American health paradox, are grounded in the specific culture of the ethnic group, it is possible to examine parts of both cultural systems and to apply those principles to other ethnic groups. Based on the marked power of the Mexican American family to shape the particular behaviors and attitudes of its constituents for the better, it is likely that families from different backgrounds also have the potential to do so. A close study of the family dynamics in a familism-centered Mexican American family could be used to create family-based intervention programs for adolescents or young adults suffering from depression or substance and drug abuse. Furthermore, a holistic analysis of the health paradox reveals new insight into possible transformations of medical practice. If more herbs that are part of original curandero treatments are found to be physiologically effective, these natural cares can be implemented into modern physician treatment plans, so as to bring about possible changes in life expectancy for these other ethnic communities. Based on the psychological advantages that can be derived from curandero-patient interactions, modern physicians should work to foster the same level of relief and understanding that folk practitioners bestow unto their clients. Not only would this promote compliance with clinical recommendations, but

it would also encourage the regular use of effective western-based health resources among additional ethnic groups. Essentially, the physician must work to recognize and respect the cultural proclivities of any given ethnic group they serve before discussing a variety of treatment options. Such consideration forms the basis for a successful doctor-patient relationship that preserves a perfect blend of professional authority and sensitivity.

Overall, this study indicates for future researchers the importance of considering particular features of ethnic groups when trying to explain the paradox. As it stands, the Mexican American health paradox cannot be explained by a single theory. Rather, one must consider the multidimensional culture of this particular ethnic group, so as to encompass the variety of factors that might influence longevity. Of particular interest is the folk medicine system of *curanderismo*, which is intricately tied to other prominent aspects of Mexican culture, including the importance of family.

In turn, the physical and mental health effects of such a psychologically and biologically sound secondary health-care system can lead to additional, desired health outcomes, resulting in a significant disparity in life expectancy that continues to defy an exhaustive explanation.

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