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Herbal and Holistic Medicine in Latin America

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HOLISTIC AND HERBAL MEDICINE IN LATIN AMERICA

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By

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ABSTRACT

A variety of herbal and holistic remedies were used in pre-Columbian cultures, especially in Aztec and Incan cultures. Many different herbs were used to provide medical attention to patients directly, while other herbs were used to supplement shaman[1] medicine, which was particularly common in Inca culture. While there is little scientific basis for shamanism, as a viable healing option in modern culture, most herbal remedies had active chemical ingredients that could be or are used today to treat similar symptoms, and, in some cases, are being applied in different scenarios as well. The methods of usage, active chemicals, and symptoms treated are discussed for each herb, with special attention paid to those that can be applied today. The feasibility of herbal medicine is then discussed briefly to determine if it is possible to effectively apply it to modern American society as an alternative to mainstream chemical medicine.

Keywords: Medicine, Andean, Mexico, Holistic, Herbal

[1] Shaman: a priest or priestess who uses magic to cure the sick, divine the hidden, and control events, especially through an ecstasy state (Merriam-Webster)

Dedicated to my family

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CHAPTER 1

INTRODUCTION

Since the human race first came into existence, it has played host to billions of microbes. While most of these species are benign, some cause serious, sometimes fatal, infections. Therefore, the need to alleviate the associated symptoms, if not to remove the cause completely, was introduced. In most cases, humans looked to nature for therapies, and often found them. At times, more physical remedies like acupuncture and trepanning were utilized. For other conditions, there was little to be done, save pray that the patients suffering would be diminished while they slowly slipped out of life. The great civilizations of Latin America were, of course, no different in their pursuit for wellness, developing myriad remedies for the common illnesses and conditions afflicting them, usually with an astounding level of success.

In this paper, six herbal therapies will be examined closely on a chemical level to determine why the herbs work, and if the chemical components of these medicines compare to modern remedies for similar conditions. Shamanism will also be examined, with special attention given to the possibility of the presence of the placebo effect [2]in the remedies. This is an effort to answer three principle questions:

[2] Placebo effect: improvement in the condition of a patient that occurs in response to treatment but cannot be considered due to the specific treatment used (Merriam-Webster)

1. Were the herbs used by the Aztecs and Inca effective, and, if so, what chemicals or compounds were responsible?

2. What herbs were used in shaman treatment, and to what degree were they successful?

3. Is herbal or holistic medicine a viable option for health care in the United States, and in what capacity?

CHAPTER 2

A BRIEF HISTORY OF MEDICINE IN MEXICO AND PERU

Aztec culture is particularly interesting when discussing medical care because it did an excellent job of blending science, religion, and magic into practice. Certain conditions and diseases were recognized as natural in origin, while others were attributed to certain deities or to the work of sorcerers. (Ortiz de Montellano 215)

The first medicines used by the indigenous civilizations of America were, as best as historians can tell, herbal, although there is no written record of the use of medicine before 1522. The first herbal on Aztec medicine was written in Nahuatl, the language of the Aztecs, by Martin de la Cruz, and then translated into Latin by Juan Badiano. This text was then presented to King Charles I, thus guaranteeing its survival as a historical resource. The one real problem with this being the first glimpse of the medicines used in America comes as a result of its publication date. In 1522, Europeans had already been in contact with natives, in one way or another, for thirty years. This publication in itself was written under the supervision of Franciscan monks at Colegio de Santa Cruz de Tlatelolco. Therefore, the medicinal system we can observe in this work is at least partially influenced by European

practices. The purest source we have, the Badianus Codex, was both written and translated by natives, but was written by someone who had not only been educated by Europeans, but also had access to traditional European herbals, meaning that even this "pure" source cannot actually be considered as such. (Ortiz de Montellano, Empirical Aztec Medicine 215-216)

In the sixteenth century, the Renaissance was in full effect. Science was leaping forward on the backs of the Romans and Greeks, meaning that the Galenic tradition of medicine was the standard of practice. This system outlined a spectrum of wellness based on two criteria, temperature and moisture that created four distinctive regions. These regions were defined by either the four elements or the four seasons, which represented the four bodily humors: yellow bile, black bile, phlegm, and blood. These are usually illustrated on a wheel, like the one shown in Figure 2.1, which describes the relationship between the humors, their respective characteristics, and the other humors. Opposite humors on the wheel are complementary to one another, and counter-balance each other. Such a system was applied to medicine by indigenous groups, including the descendants of the Aztecs and Inca. However, it is, to date, unclear whether they had such ideas before European culture began to mingle with the native traditions, or if this system was entirely new. Regardless, this mixture of cultures ensured the introduction of Galenic principles, and New World cultures adopted a "Hot-Cold" mentality that persisted well into the twentieth century. It is somewhat ironic that the humoural system of medicine was as wildly popular as it was in America, as it was confined to

the privileged classes in Europe, and never held any appeal to the plebian European masses. (Foster)

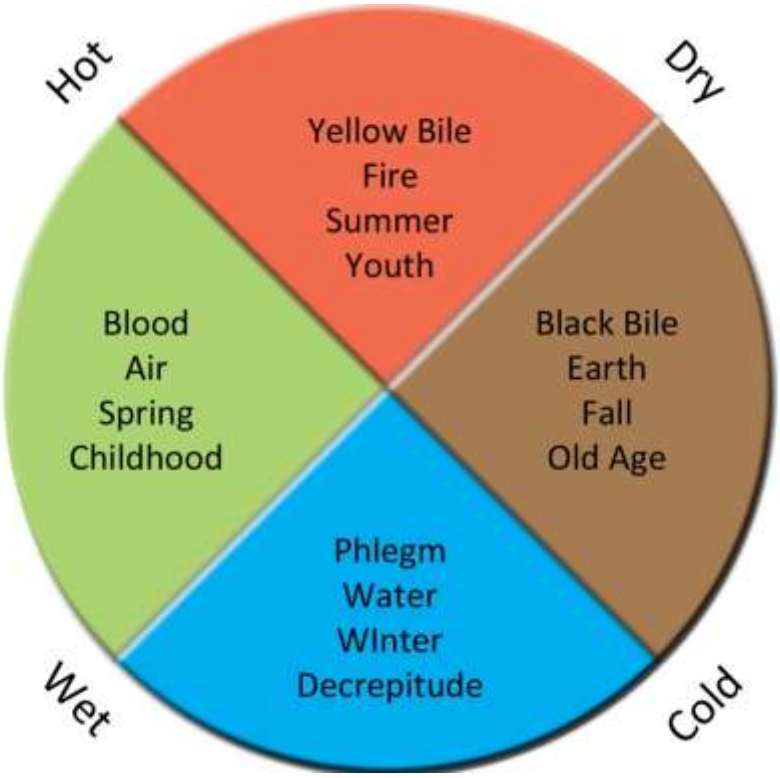

Figure 2.1: The Four Humors as Defined by Galenic Theory

The balance between the predominant states began to be applied to the medical practice, just as it had in Europe, and this ideology began to dictate the remedies used by healers in early American culture. Most herbal remedies that were actually functional were ascribed properties that fit the humoural approach to medicine. Some of these were directly influenced by European medicines, brought

to America by settlers, while others are assumed by modern historians to have already been in use, but were re-explained by the new scientific approach. This creates an interesting effect, making the medical history of America after conquest almost identical to that of Europe.

CHAPTER 3

EXAMPLES OF HERBAL REMEDIES

Although the Aztecs and the Inca were both intimately involved with nature, the methods of healing chosen by each civilization varied greatly. The most common ailments for the Aztecs were related to sleep, digestion, and parasites, so most of their remedies are focused on these conditions. (P D'A 567) The Aztecs tended to use more herbal remedies than the Inca, although the Inca would use herbs similar to those used by the Aztecs to relieve pain, heal wounds, and induce hallucinogenic states for the practice of shamanism, discussed further in the following chapter. Therefore, this chapter will focus mainly on the herbs used by the Aztecs.

The procedure for the collection of samples, unless otherwise noted, follows the proper procedure for herb collection as outlined in the appendix of Medicinal Resources of the Tropical Rainforest: Biodiversity and Its Importance to Human Health (Elisabetsky, Trajber and Ming), which is as follows:

1. Cut a twig or branch ranging from 30 to 40 cm in size.
2. Wrap sample in folded newspaper
3. Pile samples between two wood presses
4. Tie the presses together, and hang the samples to dry.
5. Test the samples for dryness by brushing them against your fingertips.

The samples presented are prepared as closely as possible to the original standards, as outlined on the resources of La Universidad Nacional Autónoma de México. The following is, of course, not an exhaustive list of remedies used by the Aztecs and the Inca, but serves as a good sample of the types of remedies used. For each herb, the identification, preparation, active chemical ingredient, and symptoms treated is discussed.

Wormwood

Although the recreational ingestion of wormwood in the form of absinthe is a uniquely European phenomenon, the use of wormwood in medical preparations is by no means exclusive. The Central American species of wormwood (*Artemisia mexicana*), shown in Figure 3.1, was used by the Aztecs both as a ritual herb and as a medication. To the Aztecs, the herb was called *iztauhyatl*, and was used more as a prop in rituals than an actual herb, wearing bundles of wormwood on their heads. Medicinally, iztauhyatl was used to treat "cold" conditions, which generally included digestive tract problems like

Figure 3.1: Artemisia Ludoviciana (Wormwood) Source: Southwest Environmental Information Network. <http://swbiodiversity.org/imglib/seinet/genfield/palexander/set001/Artemisia_lud-mex_22Sep07_6809.jpg>. JPG File.

diarrhea, stomachache, and colic. (Universidad Nacional Autónoma de México) Wormwood was also used to treat rheumatism and, in 1997, *Artemisia mexicana* has also been found to treat malaria. (Malagón, Vázquez and Delgado)

There are a number of chemically active agents in the Artemisia family of plants, the most notable among these being monoterpenoids like camphene, camphor, eucalyptol, and β-pinene, which relieve pain and inflammation. As a pharmacological class, most of these can effectively penetrate the skin, making them candidates for topical use, which is desirable because it is not as invasive as other dosing methods. (Adams 1045-1046)

Wormwood for topical use was prepared with a solution of alcohol, which could then be mixed with other compounds depending on the symptoms to be treated, often including an oil to suspend the actual medication. For cases requiring the ingestion of the herb, a tea was prepared. Even today, liniments made with *Artemisia californica*, a close relative of Mexican wormwood, are still prepared for the treatment of pain. (Adams 1046)

Marigold

The Aztec marigold, or *Tagetes erecta* (Figure 3.2) was used both to supplement other remedies, and as a medication in its own right. In addition to treating many of the same digestive ailments as wormwood, the essential oil of the marigold possesses antibiotic and antimicrobial properties, with notable effectiveness against *E. Coli*. This said, marigold was used sparingly, for more severe and persistent symptoms of digestive distress, meaning the Aztecs understood that

there was such thing as “too much of a good thing,” a lesson which we could apply to antibiotic use today.

In addition to being a source of antioxidants, the marigold contains a veritable cocktail of chemically active agents, ranging from fatty acids to steroids. The marigold was also administrable by several different methods, making it a desirable and flexible herbal medication. The leaves could be brewed into a tea, crushed and burned in remedial incense, or used directly as an essential oil. (Priyanka, Shalini and Navneet)

Figure 3.2: Tagetes erecta (Marigold) Source: Wikimedia Commons. <http://upload.wikimedia.org/wikipedia/commons/5/5e/Tagetes_erecta_03.JPG>. JPG File.

Tobacco

Much like wormwood, tobacco (*Nicotiana tabacum*) was used as an herbal ministration long before it was used as a recreational drug. Tobacco (Figure 3.3) was useful in the treatment of many skin ailments, including dermatitis and herpes to insect stings. Additionally, it was used to treat tetanus and bronchitis, and as a

sort of catch-all home remedy for anything ranging from childhood insomnia to fevers. (Universidad Nacional Autónoma de México, Tabaco)

Nicotine is the most notable chemical agent in tobacco, but the other chemicals in tobacco help give the extract of the leaf its anti-viral and anti-fungal properties. (Universidad Nacional Autónoma de México, Tabaco)

Figure 3.3: Nicotiana tabacum (Tobacco) Source: Tryon Life Community Farm. <http://tryonfarm.org/share/files/images/Tobacco%20Nicotiana%20tabacum.jpg>. JPG File.

It is interesting to note that, although the leaves are the active part of the plant, the method of administration was almost never smoking. Typically, tobacco was infused with other herbs and administered orally in either an alcohol solution or as a tea. In the case of epidermal conditions, tobacco was applied topically to the affected area. (Universidad Nacional Autónoma de México, Tabaco) The Maya of Mexico first began smoking tobacco between 600 and 900 AD, but this practice was limited to religious ritual. The recreational use of tobacco was a European phenomenon, and did not take hold in the general population until the 1800s. (Jacobs)

Ipecac

Although there are many plants that can produce similar effects, and even a Brazilian relative with almost identical properties, ipecac (*Psychotria acuminata*) is native to areas well within the reaches of both the Aztec and Inca civilizations, making it a likely candidate for use as a medicine. Ipecac (Figure 3.4) is useful as a purgative in large doses, as an emetic in moderate doses, and as an expectorant in small doses. In still smaller doses, ipecac has been used to stimulate the digestive system to promote regularity and increase appetite. The powder is also a powerful skin irritant. The active chemicals in ipecac are emetine, cephaeline, and psychotrine, but if the emetine is removed, ipecac can be used as a treatment for dysentery. (Grieve)

Figure 3.4: Psychotria acuminata (Ipecac) Source: Wikimedia Commons. <http://upload.wikimedia.org/wikipedia/commons/5/51/Psychotria_acuminata_1.jpg >. JPG File

The plant is useful only in relatively small doses. Large doses can cause serious and lethal problems. For this reason, ipecac is no longer recommended for

regular at-home use as it once was, and, if it is to be used, it should be used with caution. The root is the functional portion of the plant, and it is ground and put in suspension for oral administration. (Grieve)

Peanuts

Although we think of it as little more than a food source today, the common peanut, *Arachis hypogaea*, (Figure 3.5) was a widely used herb in Aztec culture. The leaf, the seed (nut) portion of the plant, and the oil were useful, and could relieve a wide range of symptoms. The seeds themselves could be used to treat internal inflammation. The leaves were brewed into a tea to alleviate some of the seizures associated with epilepsy, and the oil was used to combat intestinal parasites (Universidad Nacional Autónoma de México, Cacahuates). In addition to all of these, the peanut and its oil were used in the promotion of sexual activity and fertility, and were considered aphrodisiacs. (Elferink 28)

Figure 3.5: Arachis hypogaea (Peanut) Source: Online Utility. <http://www.online-utility.org/image/ImageCache?file=7/78/Arachis_hypogaea_1.jpg/800px-Arachis_hypogaea_1.jpg>. JPG File

Peanuts and their oil contain a variety of different chemical compounds that promote various biological processes, including protein synthesis and cholesterol control. Peanuts also slightly increase the production of estrogen, lending at least some credence to the belief that they were, in fact, aphrodisiacs. (Universidad Nacional Autónoma de México, Cacahuates)

Cocoa

Cocoa (*Theobroma cacao*), shown in Figure 3.6, was valued as another aphrodisiac by the Aztecs. It was also used in the treatment of dysentery, as a method of relief during childbirth, and as a recreational drink. In most every case, the chocolate was taken orally as a drink, and was usually mixed with other herbs to complement the chocolate for additional effects (Universidad Nacional Autónoma de México, Cacao). For preparation as an aphrodisiac, chocolate was first mixed with corn and other various herbs, and then administered normally. (Elferink 27)

Figure 3.6: Theobroma cacao (Cocoa) Source: Kew Royal Botanical Gardens. <http://www.kew.org/plants-fungi/Theobroma-cacao.htm>. JPG File

Theobromine is the main chemical component in chocolate, and is, in almost every way, exactly identical to caffeine. The only real difference between the two is a single functional group attached to a single nitrogen atom, as shown in Figure 3.7

below. In organic molecules, form determines the function, and, by extension, the effect, of a compound, which means that, because theobromine is structurally similar to caffeine, the effects on the body are similar as well. Theobromine stimulates the central nervous system, and can cause caffeine-like energy boosts. It is also effective as a cough suppressant, and has been shown to reduce asthma symptoms. That said, there is no research that currently supports the proposal that chocolate is an aphrodisiac in its own right. (Clegg)

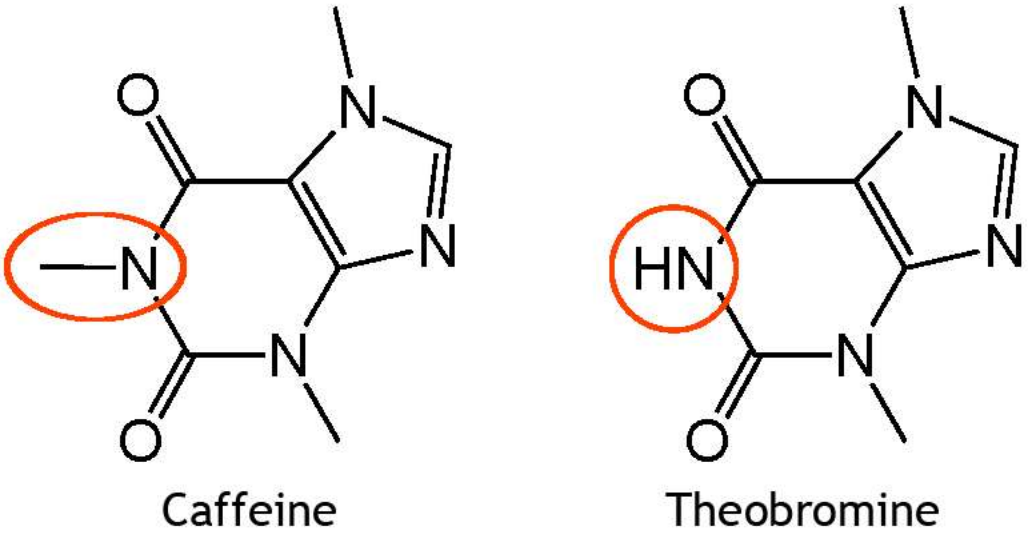

Figure 3.7: The Structural Differences Between Caffeine and Theobromine
Source: Bead Origami.< http://4.bp.blogspot.com/-1ukDe2tpCb8/UTRNB8170fI/AAAAAAAAF14/9pwwGMucQM0/s1600/Caffeine+and+Theobromine.jpg> . JPG File.

In summary, most of the herbal therapies used by the Aztec were effective in at least some capacity, even if it was not necessarily what the Aztecs believed the effect to be. It is interesting to note that all of these herbs were ascribed hot qualities per the

Galenic model, indicating that “cold” diseases, including digestive problems, fertility issues, and respiratory conditions, were common.

CHAPTER 4

SHAMANISM AND SPIRITUAL MEDICINE

In some cases, the limitations of indigenous herbal medicine made healing a challenge. The Inca relied more on the ritual ministrations of shamans for their healing, to a much larger degree than the Aztecs.

The use of hallucinogenic substances was relatively common in Incan society. The genus *Brugmansia*, referred to as mishas by natives, was a popular group of such herbs, and was used for a variety of ceremonies and rituals. The coca plant was also used, but not to a large extent, by the Inca. It was not until the conquest and the introduction of African traditions that coca became commonplace in ritual medicine, usually invoking Incan or quasi-Incan traditions to lend some credence to the conjurings undertaken (Garofalo). In addition to being hallucinogenic, most of these substances were also narcotic. (De Feo)

Psychoactive plants were used in five main ways. The first is perhaps the best known: such herbs were used to induce a "therapeutic-divinatory" state, in which the spirit was separated partially from the body to promote intimacy with a deity in order to seek advice or request intercession. Second, the herbs were used as phytotherapeutical remedies, with the leaves applied directly to affected body parts for a more localized therapy to improve wellbeing. Third, certain species were

juiced and used in initiation rituals to determine which shamans were worthy of practicing their art. Fourth, psychoactive medications were used in cases of illness, but only sparingly, as the harmful effects of these medications were apparent even to the Inca. Finally, this type of herb was used as a source of black magic, but this application almost always resulted in permanent, severe damage to the participant. Like many other herbal medicines of the era, mishas were classified as "hot", but were considerably more so than milder treatments. Because of this, the herbs were resigned to use by priests, or in instances of medical emergency. In both cases, strict preparatory observances were practiced. (De Feo)

Culturally speaking, these practices were incredibly important, and resulted in the creation of new hybrid cultures, especially after the mixture of African and indigenous practices. However, most of these herbs were too toxic to be used regularly, and some could not be taken internally at all. Even in diluted forms, it was often easy to overdose and simply kill the user, rather than healing or enlightening them. This presents an interesting set of circumstances for the vestiges of such medical practice, which still persist in rural areas.

First, it is important to understand that the term "shamanism" is an ascribed term, used to describe medical remedies that are outside of the scope of occidental medicine. For the sake of simplicity, the term will be used, but it is important to mention that many household remedies would fall into the technical definition of the term, despite the fact that none of the practitioners of such remedies would certainly not claim to be true shamans. There are three principle types of modern-

day shamanism to consider. First is spectacular shamanism, practices that are maintained solely for consumption by tourists that have no real purpose outside of monetary gain by their country. This is not intrinsically harmful to the practice of shamanism as a method of healing, and actually works to preserve some of the culture of the indigenous tribes in the area, especially in the Andes. Second, and most detrimental, is proprietary shamanism, in which the practitioner works for personal monetary gain. While not all proprietary shamans mean to do harm, there is a distinct capitalist motive to their work, which can prove to be problematic. Finally, and most importantly to the scope of this thesis, is community shamanism, which is most closely related to the shaman practices of pre-Columbian cultures. In this form of shamanism, the shaman is a respected member of the village, whom other villagers seek for aid in various matters, encompassing both cases in which modern medicine has failed and cases in which the patient prefers not to pursue modern medicine at all. In this system, it is typical for the healer to provide such services to complement another career, rather than taking the position on a full-time basis. Because of the similarity to traditional shamanism, the remainder of this chapter will focus on community shamanism. (Muyolema)

The prevalence of modern shamanism is varied depending on location, but the practice is generally more common in rural areas, separated at least in part from the influences of Western medicine. Other factors affecting the pervasiveness of shamanism include the access to Western medicine, the level of westernization of the area in question, the beliefs and opinions of the village, and the availability of

herbs for remedy formulation. Because of the variability of so many factors, the perception of shamans, or, as they prefer to be called, healers, is inconstant. In some areas, healers are respected and revered, while in other areas they are regarded with skepticism, if not outright suspicion. On a healer-to-healer basis, word-of-mouth recommendation forms the reputation of particular healers in much the same way as physicians and specialists in Western medicine. (Muyolema)

Generally, healers will not take on a case that they are unsure they will be able to cure. However, there are systems in place for those that do. Healers are a self-regulating body that follows a general code of ethics, although there is no "board" system, as with doctors. Additionally, if a healer is found to be at fault in the death of a patient, they are tried as murderers, and are not granted special treatment due to their occupation. Because of the care taken in the execution of the system, modern community shamanism functions as a good supplement to Western medicine, and can work to relieve the patient volume in the immediate area in ways that traditional shamanism could not. (Muyolema)

CHAPTER 5

HERBAL AND HOLISTIC MEDICINE TODAY

There is little to suggest that traditional misha-based shamanism could be applied effectively to mainstream medical practice today, but the same cannot be said for herbal medicine, or even the careful application of community shamanism. Every remedy discussed in Chapter 3 has some sort of scientific basis for effectiveness, even if the application may be slightly different than the traditional belief. That said, holistic and herbal medicine has not become particularly popular in the United States, despite the fact that it is often a more natural approach than most other therapies, and is wildly popular in Europe. While not all conditions can be effectively managed or cured with natural medicine, many illnesses could be prevented or treated with natural products or hybridized treatment systems that combine modern and traditional medicine.

Health care cost is one of the most commonly cited problems the nation is facing. According to Gallup polls taken in July, August, and September of 2013, health care was the fourth most important issue to Americans, falling behind the economy as a whole, unemployment, and frustration with the government. (Dugan) Although it is commonly blamed on the government and corporate organizations,

healthcare cost is not entirely a government-created problem. Unnecessary tests, unhealthy lifestyles, and population age are only some of the problems that increase costs, and most of the problems could be helped with the proper education. The careful application of holistic medicine by those trained to use it could reduce the load of patients on doctors, and decrease the amount of extraneous health care spending.

The main issue with herbal and holistic medicine arises from the lack of standards to control the industry, which is evidenced by vitamin supplements on pharmacy shelves now. Among health-related fields, non-mainstream medicine, including over-the-counter supplements, is remarkably under-regulated. Because there are few standards of care, the possibility for crackpot and snake oil remedies is greatly increased. While the FDA monitors natural remedies and supplements, it, understandably, spends more time overseeing mainstream therapies, which means more tends to fall through the cracks in the way of inspections. Funding of herbal remedy companies becomes an issue when the process of FDA approval is considered. The research required in gaining certification as an FDA-approved over-the-counter drug is lengthy and expensive, and most supplement companies choose to remain unapproved which, while making them less credible medically, cuts out the necessity for supplements to be standardized per the FDA's regulations regarding certified medications. By remaining uncertified, these supplements enter the market with considerable reductions in both quality and startup costs, and the pros, as far as the supplement companies are concerned, outweigh the cons.

Currently, there are no national standards or certifications involved in the practice of holistic medicine. Certain states require an official license to practice in a mainstream medical field in order to practice homeopathy or other forms of holistic medicine. However, herbal remedies are notably excluded from this limitation. Since the Food, Drug, and Cosmetic Act of 1994, it has become much easier to sell over-the-counter herbal remedies. This has led to inconsistencies in dosing and administration methods that can be significant. At the First Consumer Safety Symposium on Dietary Supplements and Herbal Remedies in 1998, a study of several different brands and administration methods of St. John's Wort, a common supplement used to treat mild depression, found dosing discrepancies, some even seventeen-fold, in the products. If standards were nationalized, as they are with other major healthcare fields, holistic care would be much more feasible in the United States. (Herbal Health)

Chemical interactions, both between herbal supplements and between supplements and pharmaceuticals, can have fatal consequences. Many of the most common herbal supplements can interact with each other, either completely negating the desired benefit or adding unexpected side effects, some serious. Still other supplements can completely alter prescription drug functionality. For example, patients on insulin should not take ginseng, as it alters blood glucose concentrations, which can effectively undo the work of the insulin, causing further health complications. For this reason, it is best to consult a pharmacist, licensed

herbalist, or doctor before self-prescribing herbal supplements. (Vickers and Zollman)

Another major factor affecting the feasibility of herbal medicine in America is the pervasiveness of incentive programs and kickbacks offered to prescribers by pharmaceutical companies. There is a remarkable amount of money in the pharmaceutical industry, and it is common practice for drug companies to promote their products by offering samples to doctors, who then prescribe these name-brand medications to patients. The patients are then at the mercy of the insurance companies and drug manufacturers concerning copays, which can often be extraordinarily expensive without coupons and discount programs. It is interesting to note that, in most European countries, it is illegal to promote pharmaceuticals through advertisements, and, because of this cutback on spending, health care costs can be cut drastically. This, more than the other factors, is likely the nail in the coffin for herbal medicine, at least until the health care industry is reformed.

According to a survey undertaken by the World Health Organization in 2000, the United States ranked thirty-seventh in the world in a rating of healthcare systems globally. Of the thirty-six nations that ranked higher, twenty-three of them were from Europe, and all of these have some form of universal health care, which, in itself, can help make a healthcare system more effective. (Blackstone and Taylor) The out-of-pocket cost to the patient is reduced significantly, if not altogether eliminated. With such high expenditures on the government's part, a closer watch is kept on medications and therapies, which solves the regulation issue presented by

supplements. Additionally, the kickback programs run by pharmaceutical companies are removed. Ultimately, a public health system resolves the two main issues presented concerning herbal and holistic care, which is why such medicine tends to be more popular in European countries. It is likely that, until the United States introduces a comprehensive public healthcare system, herbal medicine will continue to be considered an unreliable treatment system. The introduction of the Affordable Care Act, which includes provisions for preventive care makes a public health care system more of a reality, and is likely some of the first steps toward the application of a viable herbal health care system.

It is important to understand that holistic medicine is more than the use of herbs and acupuncture. A major component of this type of healthcare is the prevention of disease before it becomes a problem. This presents an issue in American society, as the nation on the whole tends to only deal with health issues when they become pressing. Americans, in general, tend to wait for a few days after symptoms begin to show, but, at that point, the disease will have progressed beyond the point that natural remedies can cure, which is frustrating for the patient if he or she does not fully grasp the limitations of herbal and holistic medicine. It is important to keep in mind that these medications, while effective acutely, can do little if not administered soon enough, requiring supplemental medication in the form of more common chemical cures. It would require a considerable attitude change as a whole to make holistic medicine effective in America, and it is likely that, if it is possible, it will be a gradual process. The widespread use of vitamins

seen today may well be the first step, but the road to a system similar to that in Europe will be a long one.

CHAPTER 6

CONCLUSION

Before the advent of modern healthcare methods, the approaches now considered "alternative" were mainstream and were generally accepted by the population. Over time, scientific progress provided more potent and effective remedies, and these rendered the traditional medical practices obsolete, despite the fact that most have pages of side effects, some of which are serious and lethal. Although some native remedies were ineffective, especially those based on psychoactive plants, herbal medicine on the whole was effective in many cases, and was perhaps abandoned too soon by Western society. Many European nations are beginning to use certain holistic medical practices again, but, at the present time, and with current medical institutions, widespread holistic care in the United States would not be feasible without a concerted effort to advance it.

It is generally agreed that a licensing system for the practice of herbal medicine, along with other alternative health options, is the best course of action. Such a measure would require those that practice non-traditional medicine to answer to a higher authority, similarly to the current Medical and Pharmaceutical

Boards. Additionally, it would likely be required that herbalists have a rudimentary understanding of pharmacology, and can accurately predict and prevent drug-to-drug interaction from their patients' therapies. Germany already has such a system in place, and it has proven effective. (De Smet)

However, the issue of quality control remains, even with such licensing procedures. Therefore, it would also be necessary that the FDA, or some other government body, monitor the production and purification of herbal components for prescription and administration. Furthermore, dosing would need to be standardized and checked for consistency, as is done with conventional medications. In force, this would mean undoing the damage caused by the Food, Drug, and Cosmetic Act of 1994 with respect to herbal remedies. The simplest solution to all of the problems presented by herbal medicine would be the introduction of a public healthcare system, which is already a subject of heated debate, and may not be implementable for many years.

It is critical to recognize the importance of plant-based medicine in modern life, even if it is not direct as it once was. Daniel Fabricant and Norman Farnsworth outline a number of medications currently used that are of plant origin in their article, "The Value of Plants Used in Traditional Medicine for Drug Discovery" (70-71), which includes notable medications like the heart drug digoxin, the antimalarial quinine, and pseudoephedrine, the active ingredient in most behind-the-counter decongestants. These chemicals, now essential to the lives of many, were all originally found in plants, and many of the plants on the list are directly related to

remedies that native in both Mesoamerican and other indigenous cultures used. Without the use of such plants by native groups, scientific progress could well have been delayed.

Therefore, the native civilizations of the Americas had a lasting impact on our culture, an impact that has lasted more than five centuries. So, while herbal medicine may not necessarily be practical given the mindset of Americans, it is notable that, to some extent, our lives are still connected to and ruled by the herbal remedies of the past.

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