



# Blending Traditional and Western Medicine: Medicinal plant use among patients at Clinica Anticona in El Porvenir, Peru

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## Research

### Abstract

Medicinal plants have been used in Peru for millennia for a variety of uses, but, over the last century, modern technology has deterred the increased growth of this valuable knowledge. The present study attempts to look at a clinic in El Porvenir, on the north coast of Peru to discover what kind of medicines are preferred and the factors determining choices made. Previous studies have shown that medicinal plants still play an important role in treatment. However, the results of our study demonstrate that pharmaceutical medicine plays a larger role when compared to the use of medicinal plants. Thus, while many patients feel pharmaceutical medicine is faster and more effective, there are still a large number of plants that are commonly used by patients. As a result, there is evidence that more research in this area should be done in order to learn what factors determine medical choices and what factors might lead to an increase the use of medicinal plants.

### Introduction

For millennia, Peru has been a place where a wide range of plant species have flourished, due to a diverse ecology that supports plants utilized for a variety of purposes. Evidence of ancient use is provided by archaeological work on indigenous cultures of Peru (Donnan 1995, Donnan & Mackey 1978, Donnan & McClelland 1999, Glass-Coffin *et al.* 2004, Hastorf 1998, 1999). Long before the advent of Western medicine and computer technology, extensive use of medicinal plants was an Andean tradition, one which still continues today. Even though there are many doctors, hospitals, and pharmacies all over Peru, other health alternatives exist based on indigenous knowledge (IK) that has been passed down from generation to generation by traditional healers, **curanderos**, and herbalists throughout Peru. The documentation of this knowledge reaches back to colonial times (Sharon & Bussmann 2006a), and has been revived in studies since the 1930s

(Larco-Herrera 1940, Lira 1985, Soukup 1987, Towle 1967, Valdizan & Maldonado 1922). Although folk knowledge and medicinal plants are still used, it has become more and more difficult for this way of knowing to compete with the Western medical system that has been increasing exponentially throughout the 20th and now into the 21st century.

Traditional knowledge of healers and venders is being maintained by fewer people as time passes. This means that there are fewer people using plants for medical purposes. It is our conviction that more effort should be made to assure that this knowledge is kept alive, especially for the benefit of the Peruvian people. While it may not be entirely true that politicians have always worked for the best interests of the Peruvian people, there certainly are individuals who have worked to help keep traditional knowledge alive and to bring it to the attention of the scientific community. Foremost among such endeavors in Peru is the pioneering work of Dr. Fernando Cabezas (1990, 2000).

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**Ethnobotany Research & Applications 5:185-199 (2007)**

Northern Peru is believed to be the center of the Central Andean Health Axis (Camino 1992), and traditional medicinal practices in this region are still an important component of everyday life (Bussmann 2006, Bussmann & Sharon 2006, De Feo 1992, Joralemon & Sharon 1993, Polia 1988; Sharon 1978, 1980, 1994, 2000, Sharon & Bussmann 2006b). The bioactivity of a variety of medicinal species has been verified by Western Science (Neto *et al.* 2002, Villegas *et al.* 1997).

In order to bolster the movement to keep traditional and indigenous knowledge alive, efforts should be made to discover how often this knowledge is actually used by the Peruvian public. Previous studies along these lines include an epidemiological survey performed in 1981 by Michael Heumann and Carole Lynne Clarke (Clarke & Heumann 1981) in El Porvenir, a shantytown on the outskirts of Trujillo and in 1985 by Bonnie Glass-Coffin (Glass-Coffin 1985) who looked at the influence of class on decision-making by **trujillano** clients interviewed at a pharmacy and others interviewed after consulting an herbalist. In recent years, even the Peruvian social security administration recognized the importance of traditional treatments (EsSalud 2000).

The present study is an updated, although smaller, version of the previous studies which attempts to discover how many people are using medicinal plants and traditional knowledge today. It was done by looking at medicinal plant use and comparing it to pharmaceutical medicine usage. An interview questionnaire was developed to learn what opinions people have regarding the two types of medical treatments. The study was carried out at Clinica Anticona with the permission of Dr. Noé Anticona, who runs his own medical clinic in El Porvenir, the same community studied by Heumann and Clark (1981)(Figure 1). The interview questionnaire sought to shed light on how much people use each system, reasons for usage, a comparison of both, and information on why one might be used more than the other. Since the use of Western medicine is increasing in this society, the main hypothesis tested was that, although medicinal plant usage is high in this population, pharmaceutical medicine is even higher because of the scientific research validating bio-medicine.

## Materials and Methods

Interviews were held daily at Clinica Anticona with patients waiting for their appointments with Dr. Anticona. People would arrive at the clinic sometime before the doctor in hopes of assuring priority. The doctor had two shifts, one between 9 a.m. and 2 p.m. and the other between 5 p.m. and 10 p.m., which were the prime times to interview people. Interviewees were chosen at random while waiting for their appointments either by introduction by the receptionist or the researcher. They were chosen according to their availability, while waiting to be seen by the doctor,

or after they had finished their appointments. Some were also chosen as they entered the laboratory to receive or pick up test results. The first step was to explain the purpose of the study and the Prior Informed Consent Form (Appendix 1), which was signed by those who agreed to participate. The interviews were conducted by using the questionnaire (Appendix 2) as a guide for conversation, making sure all of the questions were answered. The interviews became shorter as time went on, but most lasted somewhere between 5-10 minutes. Printouts were made of the Questionnaire and the Informed Consent Form and were used for each interview. The interviews were conducted until 100 were completed.

The most logical scientific names for the species mentioned by the informants were established by comparing the vernacular names given to plant material collected in the medicinal plant markets in Trujillo. In most cases a vernacular name was found to refer only to a single plant species. In a few cases (e.g. **Chanca Piedra**), more than one species was referred to by the same vernacular name, and all scientific names are given in Table 1 respectively. In cases where a possible scientific identification was not clear (e.g. **Comija**), no scientific name is given in Table 1.

## Results

The first study used for reference performed in 1981 by Heumann & Clarke consisted of a household health interview and examination survey, which took place in a squatter settlement called El Porvenir, located on the outskirts of Trujillo, a city on Peru's northern coast. The purpose of the study was to produce information that could then be used to help the Peruvian Government in plans for improving health-care services in similar communities throughout Peru. The data were also used in order to document some health-care beliefs and practices and to illustrate the range of local knowledge along with the possible combined application of "Traditional" versus "Western" Medicine. The project was carried out for three months and included nearly 2,000 people. While most of the study was conducted with families, a lot of the information dealt with children, especially since almost half of the population in El Porvenir was under 15 years of age.

Considering how much information was obtained, there were many findings, but there were a few that especially pertain to the present study. Regarding health-care beliefs and practices, there were many health caretakers who demonstrated a wide range of knowledge ranging from what could be described as "magico-religious" or "Traditional" to "Biomedical" or "Western." Different factors leading to the decision regarding what kind of treatment one received, included the availability of health practitioners, the severity of illness, and the anticipated cost of the treatment. About half of the responses reflected

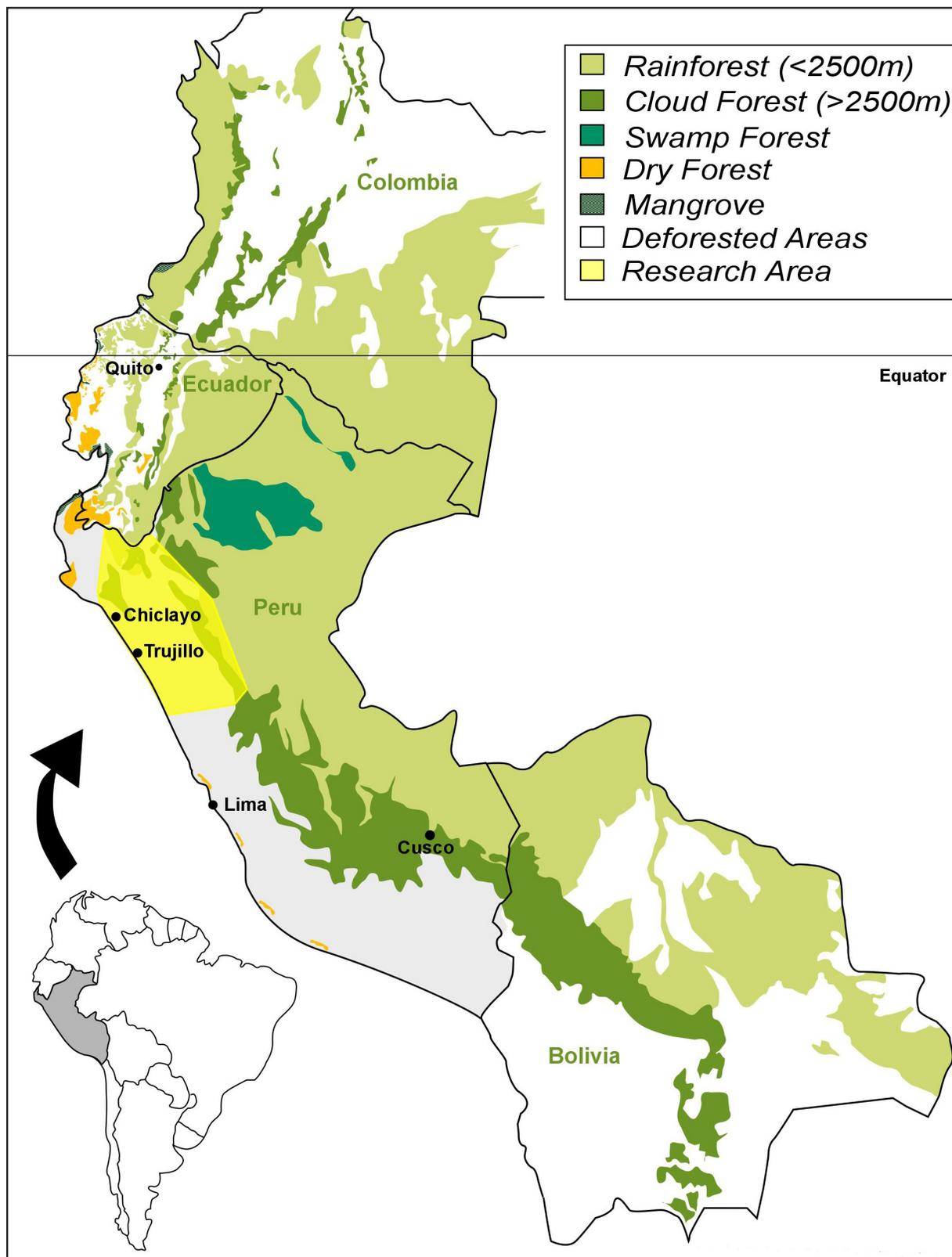


Figure 1. General research area and specific research site in El Porvenir settlement on the outskirts of Trujillo, Peru.

**Table 1.** Medicinal plants reported as used by people visiting Clínica Anticona in El Porvenir settlement on the outskirts of Trujillo, Peru. (1. No voucher specimens of plants were collected based upon the interviews so scientific taxa are identified as probable rather than confirmed. 2. Scientific taxa uncertain. 3. Recently introduced plants.)

Vernacular plant name (probable scientific taxa) <sup>1</sup>	Number of respondents using plant
<b>Manzanilla</b> ( <i>Matricaria frigidum</i> (H.B.K.) Kunth)	29
<b>Matico</b> ( <i>Piper aduncum</i> L.)	28
<b>Cola de caballo</b> ( <i>Equisetum bogotense</i> (H.B.K.) Kunth)	20
<b>Eucalipto</b> ( <i>Eucalyptus globulus</i> Labill.) <sup>3</sup>	16
<b>Llantén</b> ( <i>Plantago major</i> L.) <sup>3</sup>	16
<b>Linaza</b> ( <i>Linum sativum</i> L., <i>L. usitatissimum</i> L.) <sup>3</sup>	11
<b>Sabila</b> ( <i>Aloe vera</i> (L.) Burm f.) <sup>3</sup>	11
<b>Hierba luisa</b> ( <i>Cymbopogon citratus</i> (DC.) Stapf.) <sup>3</sup>	10
<b>Anis criollo, Anis</b> ( <i>Foeniculum vulgare</i> P. Miller) <sup>3</sup>	9
<b>Boldo</b> ( <i>Peumus boldus</i> Molina)	9
<b>Cebada</b> ( <i>Hordeum vulgare</i> L.) <sup>3</sup>	9
<b>Chanca piedra</b> ( <i>Phyllanthus niruri</i> L., <i>P. stipulatus</i> (Raf.) Webster, <i>P. urinaria</i> L.)	8
<b>Flor blanca</b> ( <i>Buddleja utilis</i> Kraenzl.)	7
<b>Uña de gato</b> ( <i>Uncaria tomentosa</i> (Willdenow ex Roemer & Schultes) DC.)	7
<b>Ortiga</b> ( <i>Urtica magellanica</i> A. Jussieu ex Poir., <i>U. urens</i> L.)	6
<b>Toronjil</b> ( <i>Melissa officinalis</i> L.) <sup>3</sup>	5
<b>Valeriana</b> ( <i>Geum peruvianum</i> Focke)	5
<b>Pie de perro</b> ( <i>Desmodium molliculum</i> (H.B.K.) DC.)	4
<b>Poleo</b> ( <i>Mentha x piperita</i> L.) <sup>3</sup>	4
<b>Chicoria, Achicoria</b> ( <i>Picrosia longifolia</i> D. Don)	4
<b>Hierba buena, Menta</b> ( <i>Mentha spicata</i> L.) <sup>3</sup>	4
<b>Paico</b> ( <i>Chenopodium ambrosioides</i> L.)	3
<b>Panizara</b> ( <i>Satureja pulchella</i> (H.B.K.) Briquet)	3
<b>Ajenco</b> ( <i>Artemisia absinthium</i> L.) <sup>3</sup>	2
<b>Ajo</b> ( <i>Allium sativum</i> L.) <sup>3</sup>	2
<b>Apio</b> ( <i>Apium graveolens</i> L.) <sup>3</sup>	2
<b>Cebolla</b> ( <i>Allium odorum</i> L.) <sup>3</sup>	2
<b>Coca</b> ( <i>Erythroxylon coca</i> Lam.)	2
<b>Flor de arena</b> ( <i>Tiquilia paronychoides</i> (Phil.) Rich.)	2
<b>Hierba Santa</b> ( <i>Cestrum auriculatum</i> L'Herit)	2
<b>Molle</b> ( <i>Schinus molle</i> L.)	2
<b>Papa blanca</b> ( <i>Solanum tuberosum</i> L.)	2
<b>Romero</b> ( <i>Rosmarinus officinalis</i> L.) <sup>3</sup>	2
<b>Ruda</b> ( <i>Ruta graveolens</i> L.) <sup>3</sup>	2
<b>Salvia real, Salvia</b> ( <i>Lepechinia meyenii</i> (Walpers) Epling)	2
<b>Vira vira</b> ( <i>Oritrophium peruvianum</i> (Lam.) Cuatrec., <i>Senecio canescens</i> (H.B.K.) Cuatrecasas)	2
<b>Achote</b> ( <i>Bixa orellana</i> L.)	1
<b>Albahaca</b> ( <i>Ocimum basilicum</i> L.) <sup>3</sup>	1

Vernacular plant name (probable scientific taxa) <sup>1</sup>	Number of respondents using plant
<b>Alfalfa</b> ( <i>Medicago sativa</i> L.) <sup>3</sup>	1
<b>Boraja</b> ( <i>Borrago officinalis</i> L.) <sup>3</sup>	1
<b>Canchalagua</b> ( <i>Polygala paniculata</i> L.)	1
<b>Cerraja</b> ( <i>Sonchus oleraceus</i> L.) <sup>3</sup>	1
<b>Chuno de papa</b> ( <i>Solanum tuberosum</i> L.)	1
<b>Claveles</b> ( <i>Dianthus caryophyllus</i> L.)	1
<b>Comija</b> <sup>2</sup>	1
<b>Compure</b> <sup>2</sup>	1
<b>Congona</b> ( <i>Peperomia inaequalifolia</i> R. & P.)	1
<b>Cotiche</b> <sup>2</sup>	1
<b>Culantrillo</b> ( <i>Adiantum concinnum</i> Wild. ex H.B.K.)	1
<b>El agua de papa</b> ( <i>Solanum tuberosum</i> L.)	1
<b>Flor de overo</b> ( <i>Cordia lutea</i> Lam.)	1
<b>Higo</b> ( <i>Ficus carica</i> L.) <sup>3</sup>	1
<b>Hoja de guanabana</b> ( <i>Annona muricata</i> L.)	1
<b>Malva</b> ( <i>Malva parviflora</i> L.) <sup>3</sup>	1
<b>Malva blanca</b> ( <i>Malva sylvestris</i> L.) <sup>3</sup>	1
<b>Membrillo</b> ( <i>Cydonia oblonga</i> Miller) <sup>3</sup>	1
<b>Muña</b> ( <i>Minthostachys mollis</i> Griesebach)	1
<b>Oregano</b> ( <i>Origanum vulgare</i> L.) <sup>3</sup>	1
<b>Ortiga negra</b> ( <i>Urtica magellanica</i> A. Jussieu ex Poiret)	1
<b>Pajaro bobo</b> ( <i>Tesaria integrifolia</i> R. & P.)	1
<b>Palta</b> ( <i>Persea americana</i> Mill.)	1
<b>Panca sabla</b> <sup>2</sup>	1
<b>Panizara</b> ( <i>Satureja pulchella</i> (H.B.K.) Briquet)	1
<b>Papa simatona, Papa semitona</b> ( <i>Dioscorea tambillensis</i> Kunth)	1
<b>Perejil</b> ( <i>Petroselinum crispum</i> (Miller) A.W. Hill) <sup>3</sup>	1
<b>Brochamelia</b> ( <i>Clerodendron</i> sp.)	1
<b>Riñosan</b> <sup>2</sup>	1
<b>San Juan</b> ( <i>Pseudogynoxis cordifolia</i> (Cass.) Cabr.)	1
<b>Santa Maria</b> <sup>2</sup>	1
<b>Tara</b> ( <i>Caesalpinia spinosa</i> (Molina) Kuntze)	1
<b>Tilo</b> ( <i>Tilia platyphyllos</i> Scop.) <sup>3</sup>	1
<b>Unquia real</b> ( <i>Eugenia obtusifolia</i> Cambes.)	1

scientific knowledge about illness and about one third related to “Traditional” Medicine. In many cases, traditional cures were used to treat psychosocial conditions like **susto** (fright) or **mal de ojo** (evil eye). One of the most important findings of Clarke & Heumann 1981), tested in the present study, was, that 40% of all health caretakers reported using a combination of Traditional and Western Medicine for treatment of illness, i.e., accepting the more recent forms of biomedicine while also retaining traditional forms of treatment.

The other study providing a precedent for the current project was conducted in 1985 (Glass-Coffin 1985). The study assessed the influence of class (defined by education level and residence) on decision-making by clients interviewed at a pharmacy and others interviewed after consulting an herbalist. Trujillo was chosen because of the two different co-existing medical traditions; “Traditional” and “Western” medicine to be found there. The aims of the research were three-fold:

1. identify and examine the correlations between health-seeking behavior and class;
2. identify the factors influencing health-seeking behavior;
3. and finally to compare and contrast surveys, case histories, and participant-observation as indicators of the decisions made.

This study is important because there still have not been additional studies in this area focusing on the middle class for which there is little information in the literature on Latin America. Another issue in current studies is that most assume that Traditional Medicine decreases in importance as levels in education, income, and cultural integration increase. This is not necessarily accurate, and the present study seeks to shine some light on this issue.

The most important finding of Glass-Coffin (1985) was that class or socioeconomic status or accessibility to “modern” medical services did not seem to influence health-care decision-making among the predominantly middle class samples taken. There actually were other factors that contributed more to the decisions made, including illness type, patient age, and gender. It also seemed that the continued use of Traditional Medicine occurred because it satisfied different needs that Western Medicine could not meet. The importance of cultural and spiritual well-being and integration exerted a large influence in decision-making, regardless of class level and socioeconomic status.

In the present study there was an overwhelming majority of women who participated, i.e 72%. The ages were somewhat spread out, 95% being 21 years and older. The largest age group was between 21-35 at 46%, followed by those between 36-50 at 33% and lastly by those 51 years or older at 16%. Almost half of the interviewees were married while about a quarter were single or cohabitating with a partner. Among the sample, there were residents from

over 30 different areas in and around Trujillo. The largest group of people came from El Porvenir, as expected, since the clinic is located in El Porvenir. The next notable group came from Trujillo, which was also expected, given that it is the largest and closest city in the area.

When looking at levels of education, there was quite a mixture in the sample, with 98% having at least some kind of formal education. Almost half of the population had gone to high school and about a quarter had had some kind of elementary or university education. The next three questions had to do with three traditional folk conditions in Peru, **susto** (fright), **chucaque** (shame), and **mal daño** (sorcery). It was surprising how many people said they did know of and believe in these conditions, considering that this information was obtained through an interview with a person they previously did not know. Eighty-four percent said they knew and believed in **susto** and **chucaque** while only 58% said yes to **mal daño**. It seems as though the former two conditions are more widely believed in while people are more skeptical about or perhaps fearful of **mal daño**. Even though the lowest response was for **mal daño** it is still interesting to see that more than half said yes to this condition.

Looking at the next questions, a small change had to be made in the scale of what was previously 1-5 to what is now 1-3. “**Nunca**” (never) and “**casi nunca**” (almost never) along with “**frecuentemente**” (frequently) and “**muuy frecuentemente**” (very frequently) were pooled into two categories because it was hard to distinguish between the two in order to get a good answer. Sixty percent of the population said that they used medicinal plants “**moderadamente**” (moderately) while about 20% scored at one of the two extremes. What was interesting about the next part of the Questionnaire was the diverse array of plants that were named as being commonly used. Near 80 different plants were named throughout the different interviews. In most cases, regardless of whether plants or pharmaceutical medicine were being used more often, at least one plant was being or had been used previously. A complete list of all plants mentioned is given in Table 1, while the uses of the 15 most important plants are given in detail in Table 2.

**Matico** and **manzanilla** are tied for the first position with each being mentioned 28 times in all of the interviews. In addition to these there are many that were mentioned two times and many more that are just mentioned once. The list of those that are mentioned just once is a diverse one, including plants like **brochamelia**, **cebolla**, and **pajaro bobo**.

The same question, this time with regard to pharmaceutical usage, elicited very similar responses with regard to frequency of use. About 65% of the population said they used pharmaceuticals, 25% used them frequently and, 10% almost never. Slightly more respondents used them

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**Table 2.** The 15 most important medicinal plants and their uses reported by people visiting Clinica Anticona in El Porvenir settlement on the outskirts of Trujillo, Peru. (1. No voucher specimens of plants were collected based upon the interviews so scientific taxa are identified as probable rather than confirmed.)

Vernacular plant name (probable scientific taxa) <sup>1</sup>	Use
1. <b>Manzanilla</b> ( <i>Matricaria frigidum</i> (H.B.K.) Kunth)	Pain of love, Nerves, Insomnia, Inflammation of wounds, Colic, Stomach ache, Bronchitis
	Inflammation, Colic, Inflammation of the vagina, Injuries, Wounds (open), Wounds (closed)
2. <b>Matico</b> ( <i>Piper aduncum</i> L.)	Cold, Fungus, Cough, Wounds, Bronchitis, Chills, Tuberculosis, Stopping a hemorrhage
	Wounds reluctant to heal, Immune system, Infection, Inflammation, Bronchitis, Colic (women), Wounds
3. <b>Cola de caballo</b> ( <i>Equisetum bogotense</i> (H.B.K.) Kunth)	Arthritis, Kidneys, Hemorrhages, Menstrual inflammation, Internal and external inflammation, Prostate, Kidney stones
	Wounds (cleansing)
4. <b>Eucalipto</b> ( <i>Eucalyptus globulus</i> Labill.)	Bronchitis, Respiration, Cold, Cough, Sinusitis, Asthma
	Cold, Rheumatism, Bone pain, Congestion, Burn fat
5. <b>Llantén</b> ( <i>Plantago major</i> L.)	Inflammation of wounds, Wounds (cleansing)
	Liver, Inflammation of the kidneys, Wounds, Bladder
	Cough, Bronchitis
6. <b>Linaza</b> ( <i>Linum sativum</i> L., <i>L. usitatissimum</i> L.)	Inflammation of the kidneys, Liver inflammation, Inflammation of the prostate, Gall bladder stones, Kidneystones
7. <b>Sabila</b> ( <i>Aloe vera</i> (L.) Burm f.)	Inflammation (external), Vaginal inflammation, Vaginal ulcers, Vaginal cancer, Hair growth, Skin embellishment, Cataracts, Eyes, Wounds, Burns
	Weight loss, Gastritis, Inflammation, Diabetes, Cough, Bronchitis, Kidneys, Ulcers, Cholesterol, Cancer, Asthma, Bile
	Good Luck, Happiness
8. <b>Hierba luisa</b> ( <i>Cymbopogon citratus</i> (DC.) Stapf.)	Cold, Cough, Nerves, Flu, Varicose veins, Stomach pain, Blood circulation, Cancer
9. <b>Anis criollo, Anis</b> ( <i>Foeniculum vulgare</i> P. Miller)	Gases, Stomach Pain, Colic
10. <b>Boldo</b> ( <i>Peumus boldus</i> Molina)	Inflammation of the liver, Kidney inflammation
11. <b>Cebada</b> ( <i>Hordeum vulgare</i> L.)	Inflammation of the kidneys, Inflammation (general)
12. <b>Chanca piedra</b> ( <i>Phyllanthus niruri</i> L., <i>P. stipulatus</i> (Raf.) Webster, <i>P. urinaria</i> L.)	Liver Inflammation, Clean blood from toxins, Inflammation, Bladderstones, Liver, Kidneys, Blood, Inflammation of the gall bladder
13. <b>Flor blanca</b> ( <i>Buddleja utilis</i> Kraenzl.)	Menstruation, Inflammation of the womb, Ovarian cysts, Inflammation of uterus, Inflammation
14. <b>Uña de gato</b> ( <i>Uncaria tomentosa</i> (Willdenow ex Roemer & Schultes) DC.)	Bronchitis, Kidneys, Asthma, AIDS, Allergies, Rheumatic infections, Cancer, Contraceptive, Ulcers, Prostate, Bladder, Arthritis, Bones, Blood circulation, Hemorrhages (internal), Wounds (internal), Kidney Inflammation
15. <b>Ortiga</b> ( <i>Urtica magellanica</i> A. Jussieu ex Poiret, <i>U. urens</i> L.)	<b>Mal Aire</b> (bad air), Prostate, <b>Susto</b> (fright), Vaginal cleansing, Business, Casting away bad luck, <b>Susto en niños</b> (fright in children)

moderately and more frequently than medicinal plants. Forty different medical indications for the use of pharmaceutical products were given (Table 3). The most common indication given was to relieve cough and cold-related is-

**Table 3.** Indications for the use of pharmaceutical medicines reported by people visiting Clinica Anticona in El Porvenir settlement on the outskirts of Trujillo, Peru.

Indication	Number of respondents
Cough/Cold related	44
Digestive	34
Headache/pain	28
Kidneys	18
Infections	14
Pain	11
Bones	11
Respiratory (bronchios)	10
Stress related	8
Gall Bladder	8
Ovaries	7
Injuries	7
Allergies	7
Throat	6
Diabetes	6
Teeth (pain)	5
Inflammation	5
Cholesterol	4
Liver	3
Pressure	2
Pregnancy	2
Operations/Surgeries	2
Legs	2
Knees	2
Fungus	2
Children	2
Asthma	2
Tendons	1
Sleep	1
Patitis	1
Menopause	1
Emergencies	1
Depression	1
Convulsions	1
Cellulites	1
Arthritis	1

such as **gripe** (flu), **toz** (cough), and **resfrío** (cold). A variety of other illnesses were just mentioned by one or two respondents.

The next question respondents were asked was whether medicinal plants or pharmaceuticals were used more often. Results show that over 50% said that they used pharmaceutical products more often while 35% said they used medicinal plants more often. About 15% said they used both in equal amounts. People seemed to agree that pharmaceuticals were more effective, were used because they were doctor-prescribed, and/or that use of medications was backed by scientific research. There were 11 other reasons given, but none of them were as significant as the three mentioned above (Table 4). Some of the other reasons included having a chronic sickness and a lack of information on medicinal plants. The reasons why medicinal plants were used more often were fairly different when comparing them to those for pharmaceutical medicines (Table 5). People had diverse responses, not agreeing as much as in the case of use of medications. Since there were fewer responses regarding higher medicinal plant usage when compared to pharmaceuticals, there also seemed to be a generally lower number of responses having to do with reasons given for the use of medicinal plants. That is why responses showed lower figures than those registered for pharmaceutical use. People who used medicinal plants more frequently did so because they are natural, pose no risk or harm, and are considered to be better alternatives to modern medicine.

## Discussion

The main finding of our study emerged from responses to the last question. Of the 100 people surveyed, only 16

**Table 4.** Reasons for the use of pharmaceutical products reported by people visiting Clinica Anticona in El Porvenir settlement on the outskirts of Trujillo, Peru.

Reason for use	Number of respondents
More effective	36 (46%)
Natural	16 (24%)
Doctor prescribed	16 (21%)
Research / Scientific verification	5 ( 6%)
Plants don't have an effect	4 ( 5%)
Chronic sickness	3 ( 4%)
No Harm	3 ( 4%)
Trusting	3 ( 4%)
Not enough information on plants	3 ( 4%)
Easier access	2 ( 3%)
Not traditionally used	2 ( 3%)
Not trusting of plants	1 ( 2%)

**Table 5.** Reasons for use of medicinal plants reported by people visiting Clinica Anticona in El Porvenir settlement on the outskirts of Trujillo, Peru.

Reason for use	Number of respondents
Natural	16 (24%)
No Risk/Harm	13 (19%)
Better	13 (19%)
Tradition/family	5 ( 7%)
Effective	3 ( 4%)
Works slowly, but surely	3
Trust	3
<b>"Al tiempo"</b>	2
Cheaper	1
Comfortable	1
Works for everything	1
Strong	1
Alternatives don't work	1
Medicine not needed	1
Plants used first	1
Doctor prescribed	1
Medicine is quick for the moment	1

people preferred pharmaceutical products in comparison to medicinal plants. The remaining information gathered provided more insight into the reasons. Interestingly, many more women than men ended up in the sample. There are several possible explanations for this. First of all, interviews were performed before and after almuerzo or lunch break. Because of the timing, it could be said that the reason there were more women was because the men were at work. Many women who were at the clinic accompanied someone else, whether it was a mother, child, or some other family member. Thus it seems that women were often there to accompany someone else, which would account for their higher numbers among respondents. Although a generalization, it could also be said that women hold a "caretaker" position as part of their family role. Women, and especially mothers, would usually be in charge of making sure that all family members are cared for, especially if they do not work and stay at home during the day.

When looking at age groupings, the category with the most people is the one between 21-35 years of age. One cannot be too sure about why this is the case, but during the interviews, it looked as though most of the woman accompanying someone else were in this age group. Since the Questionnaire did not ask whether the person was a patient that day or not, this is speculation.

Something that struck the researchers, not directly related to plant use, was the number of people in the "convivi-

ente" - cohabitation, category. **Conviviente** or someone who resides with a spouse was not originally part of the Questionnaire. It did not come up until a respondent answered "conviviente" to the marital status question. In a traditionally Catholic society, it is frowned upon and discouraged to live with someone or have a child out of wedlock. It could be that certain circumstances have led people to delay marriage into the future. A possible explanation is that, since marriage is very costly, and thus is often delayed.

Regarding education, what was interesting was that the same number of people had only a primary education as those who had a college education. According to the sample, there is a small disparity in education level. Because the sample was relatively small, it cannot be said how well this might reflect the actual situation. Things could change after looking at a larger sample.

The next questions in the questionnaire were regarding three traditional folk conditions, **susto**, **chucaque**, and **mal daño**. These conditions could be described as being psychosomatic or related to the nervous system, in other words, the mind and body relationship. In English, **susto**, means "fright" which can be caused by anything that frightens someone, resulting in an imbalance in the body. This condition can vary in degree of severity, but can be cured by a *limpia* or cleansing ceremony. **Chucaque** is a condition in which someone has been affected by an incredible embarrassment and shame, which causes headaches. A **curandero** (healer) is used to correct it by doing a chiropractic maneuver in which a part of ones hair is pulled from the head. **Mal daño** means harm and is the result of a hex or spell which leads to sickness and/or bad luck. This condition can also vary in severity, but it requires more work to be healed than **susto**. A **limpia** and even a **mesa**, a stronger cleansing ceremony by a **curandero** are needed to rid oneself of **mal daño**. The questions relating to these syndromes were important to start off the conversation and were a way of introducing traditional folk knowledge into the interview. Knowledge of these conditions and how to heal them tends to correlate with the use of medicinal plants.

An important outcome of this study was to be able to get a list of plants that people commonly use. Although many plants were identified, only the ones that were named most often seem to be of major significance. They are used to treat many conditions ranging from coughs and colds to inflammation of the liver and kidneys.

Along with the types of plants used, the reasons for pharmaceutical usage are also important. It seems as though the most frequent use was for alleviating coughs and colds, which seems understandable because this is probably the case in many parts of the world.

What seems interesting is that there are more serious conditions affecting the people for which they have to take medicine. For example, many people are taking drugs for digestive and kidney issues, which are not everyday problems, at least this does not appear to be the case in the United States. Also, many of the people who had these problems seemed to be very young, considering the severity of the condition. It appears that younger people are affected by problems that occur later in life in the United States.

When looking at the reasons why people chose medicinal plants or pharmaceuticals for greater consumption, it seemed as though the major reasons were fairly obvious. Many people preferred using plants more often because they are natural and safe. Pharmaceutical products have too many synthetic chemicals and foreign substances that can affect the body. Using plants that have been in use for centuries seems to be a safer and healthier alternative. Many people said that pharmaceuticals were used for particular illnesses, but often had side effects that result in negative impacts elsewhere in the body. Respondents agreed however, that pharmaceutical products were more effective than medicinal plants. Even though they still used plants, they would not completely depend on them, knowing that there is a limit to their use. A lot of agreement was registered for use of doctor's prescriptions. Many people have faith in their doctor, and if he recommends using a certain medicine, they will use it. This faith is based on the confidence people have in science and medicine with a great deal of research available, which has gained the public's trust. Because of this, people feel safer relying on modern medicine. Along with the research, people know that medicine has noticeable effects that can be more easily obtained than those from plants. Plant remedies take longer and are more subtle in their effects. These are reasons why pharmaceuticals are used more often. Although the number was minimal, there were respondents who did say that they used the two kinds of medicine in the same amounts. What was interesting was that people said that they used both together. For example, often people said that they would drink a cup of herbal tea while taking pills. Although people felt that each type of medicine has a role, most agreed that pharmaceuticals provide the best route taken for fighting certain sicknesses.

## Conclusion

As earlier studies demonstrated, medicinal plants are still used in Peru, a finding which is also supported by this study. The main difference in this updated survey is that, while the sample is small, the results are somewhat more fine-tuned. Medicinal plant usage is still prevalent, but also somewhat lower than when compared to the use of pharmaceuticals. It is important to know this because it indicates that efforts should be made to maintain traditional medicine and to prevent it from being lost due to

the prevalence of scientific medicine in the 21st century. If anything, ways should be found to make plants more integrated into everyday medicine and doctors should encourage increased usage for their patients.

Some modifications could improve follow-up investigations. Besides increasing the sample size, more work should be done to determine a better way to randomize the way people are chosen for interviews. The scales for determining frequency of usage could be changed since it was hard to determine use-frequency, given that a majority of the people chose moderate use. While the environment of the clinic is good, it is expected that people will already use pharmaceuticals. Using an additional location where increased medicinal plant usage is already expected would balance the results. Because of the decreasing amount of medicinal plant usage, it is important to continue studies like these that could help determine what factors have caused this reduction and what factors could be changed in order to improve the situation. While today's medicine has saved many lives and is used all around the world, it is important to maintain knowledge that has been used for centuries, especially since it has unrealized potential to be a part of our daily lives.

## Acknowledgements

Thanks to the National Institutes of Health (NIH) and the Minority Health International Research Training (MHIRT): (Fund: 54112B MHIRT Program, Grant: G0000613) for funding our research project. Thanks especially go to Dr. Noé Anticona for allowing this project to occur at Clínica Anticona in El Porvenir, along with other special individuals like Lic. Doris Diaz, the three nurses at the receptionist desk, and the patients of Clínica Anticona, because without them, this study would not have been possible.

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**Appendix 1. Informed Consent Form**

**Mi nombre es Alexis López y soy un estudiante universitario de la Universidad de California, Berkeley. Estoy realizando una encuesta para un proyecto de investigación del uso de hierbas medicinales y medicamentos de farmacia. Si desea participar, le haré algunas preguntas que duraría aproximadamente 20 minutos. El beneficio para usted es un estudio que daría más información sobre como cambiar los servicios que usted recibe en una clínica como esta.**

**En esta entrevista no coleccionaré otra información que puede perjudicarlo, sino solo la necesaria para el proyecto que estoy realizando. Toda la información será guardada confidencialmente.**

**Su participación es completamente voluntaria y usted puede negar o retraerse a cualquier punto durante el estudio sin pena o consecuencia.**

**Si usted tiene alguna pregunta sobre sus derechos como un sujeto humano puede contactarse a: Teléfono: 044-461272 (Hostal Huanchaco) o e-mail: alexislf@gmail.com.**

**Si esta de acuerdo a participar con la encuesta por favor firmar abajo este consentimiento, siendo requisito para validar las respuestas de la encuesta que permitirán realizar el proyecto que estoy realizando.**

**Firma: \_\_\_\_\_, Fecha: \_\_\_\_\_**

## Appendix 2. Cuestionario - Questionnaire

Fecha: \_\_\_\_\_

**Información Personal:**

Sexo: Hombre \_\_\_\_\_ Mujer \_\_\_\_\_ Edad: \_\_\_\_\_

**Estado de matrimonio (circula uno):**

Soltero

Divorciado/Separado

Casado

**Nivel de educación (Escoja el nivel estudiado más recientemente y cuantos años en ese nivel):**

Primaria \_\_\_\_\_ Secundaria \_\_\_\_\_ Universidad \_\_\_\_\_

**Lugar de domicilio:**

¿En que urbanización, distrito o lugar esta su domicilio? (la dirección no es necesitada):

\_\_\_\_\_

**Para Empezar:**

¿Sabe usted sobre el susto? \_\_\_\_\_ \*\*\*

¿Sabe usted sobre el chucaque? \_\_\_\_\_ \*\*\*

¿Sabe usted sobre el mal daño? \_\_\_\_\_ \*\*\*

**Uso de hierbas medicinales:**

¿Con que frecuencia usa hierbas medicinales? (marque uno):

1		2		3	
Nunca	Casi nunca	Moderadamente	Frecuentemente	Muy frecuentemente	

**Si sí, lista las 5 hierbas medicinales más usadas y razones por uso:**

1. Tipo: \_\_\_\_\_ Razón: \_\_\_\_\_

2. Tipo: \_\_\_\_\_ Razón: \_\_\_\_\_

3. Tipo: \_\_\_\_\_ Razón: \_\_\_\_\_

4. Tipo: \_\_\_\_\_ Razón: \_\_\_\_\_

5. Tipo: \_\_\_\_\_ Razón: \_\_\_\_\_

**Uso de medicinas de farmacia:**

¿Con que frecuencia usa medicinas de farmacia? (marque uno):

1		2	3	
Nunca	Casi nunca	Moderadamente	Frecuentemente	Muy frecuentemente

Si sí, lista 5 razones por que mas usa medicinas de farmacia:

1. Razón: \_\_\_\_\_

2. Razón: \_\_\_\_\_

3. Razón: \_\_\_\_\_

4. Razón: \_\_\_\_\_

5. Razón: \_\_\_\_\_

**Comparación:**

¿Que usa más, hierbas medicinales or medicinas de farmacia (escoja uno):

Hierbas medicinales \_\_\_\_\_ Medicina de farmacia \_\_\_\_\_

¿Porque?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

