Medicinal Plant Use in the United States and Costa Rica

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Introduction:

As medicinal plant use becomes more popular in the United States, it is important to understand which plants are commonly being used and how patients feel about medicinal plants as a part of their overall health and well-being. A general lack of research into medicinal plants, and their use in both the United States and Costa Rica, prompts further investigation.[4] The purpose of this study is to have a better understanding about:

- the rate of medicinal plant use in these countries
- where information about, and these plants themselves, are obtained
- common diseases/ailments being treated with these plants
- beliefs about communication with healthcare professionals

Methods:

Surveys were distributed in the U.S. and Costa Rica, by paper and electronically.

Survey questions consisted of:

- demographic information
- sources of information
- diseases/ailments treated with medicinal plants
- where medicinal plants are obtained
- examples of medicinal plants used
- patient communication with healthcare providers

Limitations:

- Smaller sample size in Costa Rica
- Type of survey that was distributed
- Some of the surveys were not fully answered
- Access to participants due to the Covid-19 pandemic
- Majority of participants from both countries were female and had similar levels of education
- Lack of prior research on the topic; further research needs to be conducted in this area
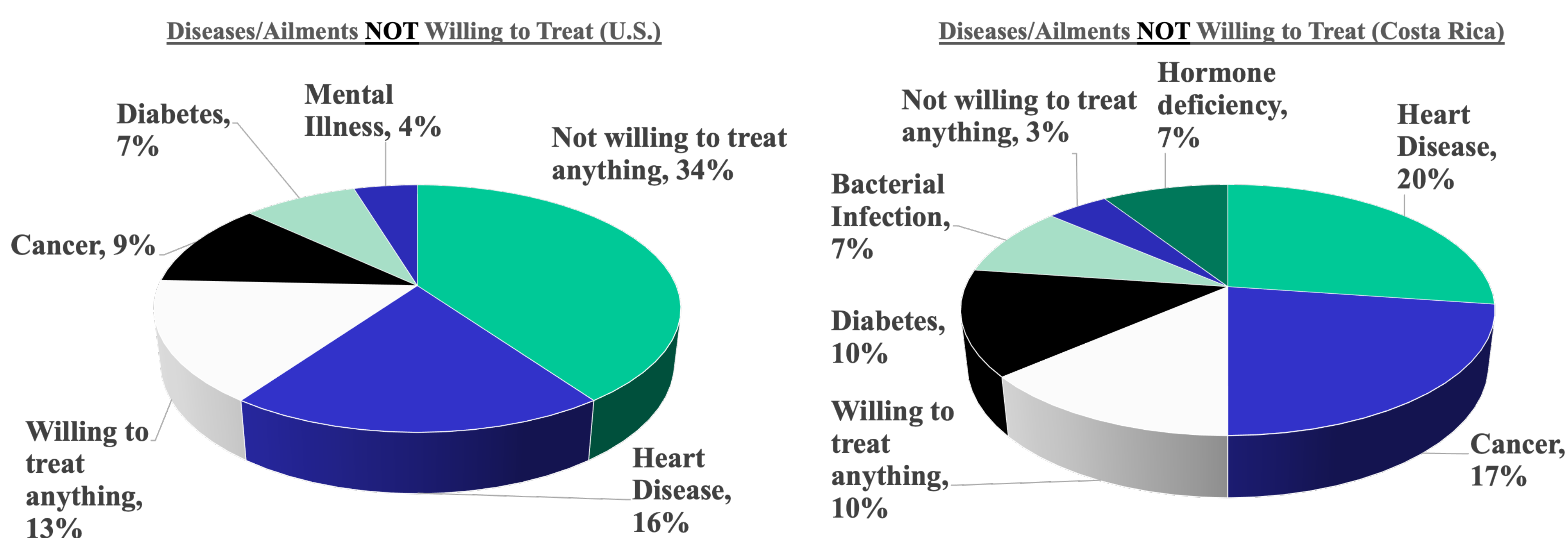- Fluency in Spanish
- Self-reported data

References:

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2. "A Guide to Common Medicinal Herbs." A Guide to Common Medicinal Herbs - Health Encyclopedia - University of Rochester Medical Center, www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=1&contentid=1169.
3. "Eucalyptus: MedlinePlus Supplements." MedlinePlus, U.S. National Library of Medicine, medlineplus.gov/druginfo/natural/700.html#Safety.
4. "How Long Have Humans Used Botanicals?" Taking Charge of Your Health & Wellbeing, www.takingcharge.csh.umn.edu/how-long-have-humans-used-botanicals.
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6. "Medicinal Plants: Juanilama." Puraveda, 16 Dec. 2019, www.puraveda.org/post/medicinal-plants-juanilama#:~:text=Juanilama%20%28Lippia%20Alba%29%20or%20Oaxaca%20Lemon%20Verbena%20as,has%20green%20leaves%20that%20are%20serrate%20and%20opposite.
7. "NCCIH." National Center for Complementary and Integrative Health, U.S. Department of Health and Human Services, www.nccih.nih.gov/.
8. PFAF, Plants For A Future, pfaf.org/User/Default.aspx.

Results:

- 191 surveys were completed in the U.S., and 21 in Costa Rica
- 47.6% of U.S. participants had used/recommended a medicinal plant, and in Costa Rica, most participants had (85.7%)
- Both U.S. and Costa Rica participants acquired knowledge about medicinal plants from family/friends, the internet, and healthcare professionals
- In the U.S., the most common diseases/ailments treated with medicinal plant were pain/inflammation, skin conditions, and anxiety
  - In Costa Rica, gastrointestinal ailments, skin conditions, cold/flu/cough, and pain/inflammation
- In the U.S., the most common sources to obtain medicinal plants were a market, the internet, and their personal garden
  - In Costa Rica, the most common sources were a market, their personal garden, a pharmacy, and family/friends
- Participants in both the U.S. and Costa Rica reported 31 different medicinal plants that they use or recommend. The most common were:
  - U.S. participants most frequently mentioned aloe, marijuana, CBD oil, and turmeric
  - Costa Rica respondents most frequently mentioned mint, juanilama, aloe, manzanilla, and eucalyptus
- In the U.S., 159 (83.2%) believed that their physician should know about their medicinal plant use, and 145 (75.9%) believed that their pharmacist should know.
- In Costa Rica, 14 (66.7%) believed their physician should know, and 15 (71.4%) believed their pharmacist should know.
  - The most frequently mentioned reasons for communication with healthcare providers was interactions/contraindications and side effects.
  - Reasons for not communicating with healthcare providers were that they believed medicinal plants were natural so it was not needed, and that their physician would not approve of it.

Demographics

	U.S. Participants				Costa Rica Participants			
Age:		Gender:			Age:		Gender:	
18-30	27.2% (52)	Male	21.5% (41)		18-30	57.1% (12)	Male	33.3% (7)
31-50	28.8% (55)	Female	78.5% (150)		31-50	23.8% (5)	Female	66.7% (14)
51-75	40.3% (77)	Other	0% (0)		51-75	19.0% (4)	Other	0% (0)
76 and Over	3.7% (7)				76 and Over	0% (0)		
Level of Education:		Country of Origin:			Level of Education:		Country of Origin:	
High School/GED	21.5% (41)	United States	74.3% (142)		Secondary School	19.0% (4)	Costa Rica	90.5% (19)
Associates	24.1% (46)	Germany	0.5% (1)		Bachelors	57.1% (12)	Mexico	4.8% (1)
Bachelors	26.2% (50)	No response	25.1% (48)		Post-Graduate	23.8% (5)	Dominican Republic	4.8% (1)
Post-Graduate	20.4% (39)							
Other	4.7% (9)							
No response	3.1% (6)							

Diseases/Ailments **NOT** Willing to Treat (U.S.)
- Diabetes, 7%
- Mental Illness, 4%
- Not willing to treat anything, 34%
- Cancer, 9%
- Willing to treat anything, 13%
- Heart Disease, 16%

Diseases/Ailments **NOT** Willing to Treat (Costa Rica)
- Not willing to treat anything, 3%
- Hormone deficiency, 7%
- Heart Disease, 20%
- Bacterial Infection, 7%
- Diabetes, 10%
- Willing to treat anything, 10%
- Cancer, 17%

*Graph percentages indicate the percentage out of total responses, pie chart sections indicate the percentage out of the shown responses here

Common products listed:	Scientific name:	Common uses:	Potential side effects:
Aloe	Aloe vera	acne, rash, stomatitis, burns, diabetes	burning, itching, eczema, abdominal pain
Marijuana, CBD oil	Cannabis spp.	pain, anxiety, CINV, insomnia	mental illness, cannabis use disorder, vomiting
Turmeric	Curcuma spp.	digestive disorders, respiratory infections, depression, arthritis	upset stomach, nausea, diarrhea
Lavender	Lavandula angustifolia	anxiety, depression, digestive symptoms	allergic skin reactions
Elderberry	Sambucus nigra	cold and flu	nausea, vomiting, diarrhea
Echinacea	Echinacea spp.	immune system support, diabetes, inflammation	stomach pain, nausea, rash
Chamomile	Matricaria recutita	insomnia, anxiety, digestive symptoms, stomatitis	nausea, dizziness, and allergic reactions
Garlic	Allium sativum	cholesterol, high blood pressure	body odor, heartburn, upset stomach
Ginger	Zingiber officinale	nausea, menstrual cramps, arthritis	abdominal pain, heartburn, mouth irritation
Valerian Root	Valeriana officinalis	insomnia, depression, menopause symptoms, headaches	headache, drowsiness, dry mouth, vivid dreams
Mint	Mentha spp.	fever, headache, digestive disorders, respiratory infections	heartburn, allergic reaction
Juanilama	Lippia alba	bruising, stomach ache, cholesterol, headache, cough	further research required
Manzanilla	Chrysanthemum indicum	high blood pressure, headache, Parkinson's disease	allergies, hypotension, skin irritation
Eucalyptus	Eucalyptus spp.	asthma, headache, gingivitis	nausea, vomiting, diarrhea
Lemongrass	Cymbopogon citratus	antifungal, abdominal cramping, arthritis	drowsiness, skin irritation, excess urination
Rosemary	Rosmarinus officinalis	depression, fatigue, colds, headache	vomiting, kidney irritation, sun sensitivity
Bitterwood	Quassia amara	appetite, cold, liver disease	mucositis, vision changes, nausea
Sarsaparilla	Aralia nudicaulis	asthma, cough, stomach ache, psoriasis, arthritis	allergic reaction
Cacao	Theobroma cacao	chest pain, high blood pressure, dry skin	insomnia, nausea, stomach pain, acne

Information about medicinal plants from references 1, 2, 3, 5, 6, 7, 8

Conclusion:

- In comparison to Costa Rica, U.S. participants used medicinal plants at lesser rates and were more hesitant towards using them. U.S. residents could benefit from a more robust knowledge of medicinal plants, in order to better understand their healing properties. As medicinal plant use becomes more popular in the U.S., more research will need to be conducted to gain a better understanding of the efficacy and safety of these plants.
- We found that patients believe they should consult their physician and pharmacist about their medicinal plant use, highlighting the fact that healthcare professionals need to be knowledgeable about the uses and side effects of medicinal plants, as well as misconceptions that patients may have about their use.
- This research draws attention to common diseases/ailments that patients treat with medicinal plants, as well as some of the most common medicinal plants that are being used. In general, understanding medicinal plants will result in better health outcomes and expand treatment options.