Natural Options Wellness Clinic

Business Plan

Integrating Tradition with Evidence: An Exploration of Naturopathic Medicine through Shadowing, Research, and Business Plan Development

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Executive Summary

Product

Natural Options Wellness Clinic offers holistic intake exams followed by individualized care plans. Our services include minor surgery, massage therapy, botanical medicine, physical medicine, hydrotherapy, lab work analysis and nutritional counseling. We also host weekly public events including forest bathing excursions, group meditations, and educational lectures led by myself and local wellness experts. Our product line features natural remedies, including teas, supplements, body wash, hair products, tinctures, and extracts.

Customer Segments

The target audience for Natural Options Wellness Clinic is individuals seeking natural and holistic approaches to healthcare, wellness enthusiasts interested in preventative care, and those looking for alternative treatments for chronic conditions. More specifically, this practice will attract middle-aged and senior individuals from middle to upper-class backgrounds who are managing chronic illnesses. We serve clients of all ages who prioritize overall well-being, including families seeking integrative family medicine, individuals interested in lifestyle and nutritional counseling, and those looking for complementary therapies such as massage, and botanical medicine. Additionally, we cater to community members who wish to engage in wellness-focused events, such as group meditations and educational workshops.

Future of the Company

Many alternative treatments require separate licensing and further education limiting the current services available. In response to this, Natural Options Wellness Clinic will expand in the future to offer acupuncture, cupping, yoga and IV therapy. This will be done through either the acquisition of licensure or the expansion of employees to include specialists in these areas. Natural Options Wellness Clinic will also expand to offer our products to a larger population by allowing for online purchasing.

Purpose of This Plan

The purpose of this plan and its presentation is to use the resources available to me now to be able to set myself up for the future following Naturopathic Graduate School.

Company Description

Value Proposition

For patients who feel overlooked by conventional healthcare and seek a holistic, safe alternative to symptom-focused treatment yet struggle due to a lack of awareness or education about their options, we offer free consultations, personalized treatment plans, as well as educational tools, workshops, and resources. Our approach helps patients understand their treatment choices, equips them with affordable self-care solutions, and promotes long-term wellness by combining evidence-based natural therapies with a strong emphasis on patient education.

Key Activities

To effectively manage client interactions, developing an organized system to store client information and streamline scheduling is essential, along with implementing waivers that ensure informed consent and provide legal protection for the company. Clinical operations will include conducting comprehensive patient intake assessments to develop personalized personalized treatment plans that address clients' unique wellness goals, with follow-up care provided to monitor progress and make necessary adjustments. Building a community centered on wellness is a priority, achieved through offering group classes and events that encourage shared health goals and support. In addition to services, revenue generation will be supported by the sale of wellness products, including supplements, teas, and herbal remedies, which complement the services provided and help clients achieve their health objectives. Through this combination of services and product sales, the practice aims to enhance client wellness while establishing a sustainable revenue model.

Key Partnerships

Natural Options Wellness Clinic will work closely with a team of advisors to support business growth and operational integrity. A financial business coach will provide strategic guidance on business expansion, financial planning, and overall strategy, while an accountant will manage tax responsibilities and ensure regulatory compliance. Daily financial transactions and record-keeping will be handled by a bookkeeper, ensuring

accuracy and reliability in financial management, and a lawyer will provide essential legal advice, assisting with contracts, waivers, and compliance with regulations.

Collaborative partnerships are a cornerstone of the clinic's approach, with lab facilities providing wholesale lab work services to streamline orders and efficiently receive results. Additionally, partnerships with local businesses will enable joint promotions, educational exchanges, and mutual referrals, expanding client reach and promoting complementary products and services. Participation in community events will further boost visibility and attract new clients. For personal and professional growth, the clinic will be involved in networking groups for women in business, building connections, sharing insights, and fostering development opportunities within the business community.

Goals

The primary goals of Natural Options Wellness Clinic are to promote community wellness by offering accessible, holistic healthcare options and to build trust in naturopathic medicine by educating clients on its scientific validity. The practice aims to raise awareness about what naturopathic medicine entails, helping individuals understand the benefits and alternatives it provides for their health. Through community engagement, educational initiatives, and personalized care, the business seeks to empower clients to make informed decisions about their well-being, ultimately fostering a healthier, more knowledgeable community.

Market Analysis

Industry

Natural Options Wellness Clinic will operate within the complementary and alternative medicine (CAM) industry, which encompasses a variety of practices and treatments. The industry can be broadly segmented into several categories, including Traditional Alternative Medicine/Botanicals (e.g. Ayurveda, Naturopathic Medicine, and Traditional Chinese Medicine), Mind Healing (e.g. Hypnotherapy and Meditation), Body Healing (e.g. Acupuncture, Yoga, and Chiropractic Care), External Energy (e.g. Reiki and Chakra Healing), and Aromatherapy (including Sound Healing). Among these, botanical and herbal supplements represent the largest market segment, with a 34.02% market share in 2023, and mind healing therapies are anticipated to see the fastest growth between 2024-2030 (Grand View Research, 2024). Based on information reported by naturopathic practitioner patients in a questionnaire treatments commonly used are supplements, essential oils, and exercise.

In 2023, the global CAM market was valued at $144.68 billion. In the United States, 40% of adults and 12% of children use CAM, reflecting the widespread acceptance of these treatments. The market is expected to grow at an annual rate of 25.3% from 2024 to 2030, driven by increasing awareness, rising rates of chronic disease, and an aging population. Emerging products like herbal supplements and essential oils continue to gain popularity, and companies are integrating CAM with conventional medicine to address these needs (Grand View Research, 2024).

Growth factors in the industry include increased disposable incomes, government initiatives promoting CAM, and the use of digital platforms to provide services and products. Consumer behavior trends show a preference for holistic health, natural treatments, and preventative care, driven by concerns about chronic conditions, mental health, and overall wellbeing (Grand View Research, 2024). From feedback gathered through a client questionnaire, consumers appreciate naturopathic care for its natural approach, holistic focus, and emphasis on treating the root cause of health issues.

Key players in the CAM industry include:

Unity Woods Yoga Centre

Founded in 1979 by John Schumacher, Unity Woods is a leader in promoting Iyengar Yoga, which emphasizes alignment and integration of the body, breath, and mind. The center

adapted to changing times by offering online classes during the COVID-19 pandemic, continuing to educate and engage with clients through workshops and levels-based classes (Unity Woods Yoga, n.d.).

Nordic Nutraceuticals

Established in 2017 by naturopathic practitioner Kurt Weinberg Nielsen, this Finland-based company produces premium supplements aimed at improving public health. Known for their high bioavailability and absence of unnecessary additives, their products are registered with reputable organizations like The Vegetarian Society and The Vegan Society (Nordic neutraceuticals, n.d.).

Pure Encapsulations, LLC

This company specializes in scientifically backed supplements, free from common allergens and additives. They support global wellness through non-profit initiatives, provide educational resources through webinars and blogs, and cater to both healthcare professionals and general consumers through their comprehensive online platform (Pure encapsulations, n.d.).

Despite its rapid growth, the CAM industry faces challenges such as limited insurance coverage as well as a lack of specific regulations and licenses. Currently, most services and products are required to be registered with country-specific regulatory agencies however in cases such as Ayurvedic medicine, no license is required to sell medicine. There are also no strict requirements for product quality/efficacy (Grand View Research). Additionally, herbal supplements in the United States are not regulated by the FDA in the same way as conventional medicines in that they are not allowed to make specific health claims. The 1994 Dietary Supplement Health and Education Act allows general claims to be made, such as ‘improves memory’, but requires a disclaimer be included that they are not intended to diagnose, treat, cure, or prevent disease which can dissuade interested consumers from purchasing these products. Further problems arise when trying to obtain FDA approval as it is expensive and requires extensive research that has yet to be achieved for naturopathic medicine. Additionally, the inability to patent most herbal medicines limits financial incentives for full integration into conventional medicine (Fontaine, 2015). According to my questionnaire, public skepticism due to perceived gaps in research as well as a lack of awareness of CAM practices proves to be a large barrier in the acceptance of CAM in the United States. However, opportunities like medical tourism, technological

integration, and expansion into mental health services present avenues for further growth (Grand View Research). According to the responses to my questionnaire, consumer interest could be enhanced by better insurance coverage, positive recommendations, and increased public awareness of the scientific benefits of naturopathic treatments.

Company Advantages

Natural Options Wellness Clinic has several advantages that position it well within the complementary and alternative medicine (CAM) industry. One of its key strengths is the diverse range of holistic treatments it offers. Instead of specializing in one area, this company will be able to provide multiple treatments such as acupuncture, massage therapy, botanical medicine, nutritional counseling, and mind-body practices. This variety appeals to a broad customer base by addressing multiple health needs under one roof. Additionally, the clinic emphasizes education on the scientific basis of naturopathic medicine, building trust and credibility among clients who may be unfamiliar with or skeptical of naturopathic medicine. Education addresses the problem of lack of knowledge preventing people from seeking out naturopathic medicine as found in the responses to my questionnaire. This educational focus sets the clinic apart s a reliable source for evidencebased care.

Through active community engagement, such as hosting events, workshops, and wellness programs, the clinic builds relationships and fosters awareness, establishing itself as a trusted local wellness hub. Moreover, Natural Options Wellness Clinic has adapted to digital trends by maintaining a strong online presence, with social media platforms, a userfriendly website, and digital tools for scheduling and consultations. This adaptability helps reach a wider audience and aligns with industry trends toward using technology to promote services and engage clients.

The clinic's focus on natural, preventative care resonates with growing consumer preferences for holistic health solutions. By offering services that prioritize preventing health issues rather than just treating symptoms, the clinic attracts clients who value longterm wellness. Strategic partnerships with local wellness companies, labs, and community organizations enhance its service capabilities and referral network, introducing clients to new services, products, and educational opportunities.

Finally, the clinic benefits from being positioned within a growing market, driven by increased awareness of holistic health, rising rates of chronic disease, and a growing elderly population. This predicted market growth indicates sustained demand, giving Natural Options Wellness Clinic a strong foundation for future expansion. These

advantages enable the clinic to differentiate itself from competitors, effectively respond to industry trends, and build a loyal client base.

Regulations

Natural Options Wellness Clinic will adhere to the regulatory requirements for naturopathic medicine as set forth by state and national organizations. Naturopathic practitioners must graduate from accredited 4-year residue trial naturopathic medical programs, pass a postdoctoral board examination (NPLEX), and fulfill state-specific continuing education requirements to obtain and maintain licensure. The American Association of Naturopathic Physicians (AANP) lists the states where licensing or registration laws are in effect, including Colorado, where this clinic could potentially be based. Each state has its own licensing body, and in Colorado, this is managed by the Division of Professions and Division of Professions and Occupations' Office of Naturopathic Doctor Registration (American Association of Naturopathic Physicians).

In Colorado, naturopathic practitioners must comply with the guidelines outlines in Title 12, Article 250 of the Colorado Naturopathic Doctor Practice Act in order to practice family medicine. These regulations specify what practitioners are permitted to do and what is beyond their scope. The practice must also follow additional pediatric care requirements, which include completing 5 hours of annual education or practicum training in pediatrics to treat children under two years of age. Practitioners must also establish a written collaborative agreement with a licensed pediatrician or family physician to standardize care for pediatric patients and facilitate consultations and referrals (Colorado Department of Regulatory Agencies Division of Professions and Occupations, n.d.a).

Selling herbal medicine is regulated differently across states, and in Colorado, businesses must comply with regulations established by the Department of Regulatory Agencies (DORA) and the Department of Revenue (DOR). The state's natural medicine services are governed by SB23-290: Natural Medicine Regulation and Legalization, signed into law in May 2023. This law oversees the licensing of facilitators and businesses involved in natural medicine (Colorado Department of Regulatory Agencies Division of Professions and Occupations, n.d.b).

On a national level, under the 1994 Dietary Supplements Health and Education Act, herbal remedies can be marketed with general health claims but must include a disclaimer stating they are not intended to diagnose, treat, cure, or prevent any disease. This act allows for marketing with general wellness claims, but specific therapeutic claims are prohibited. While FDA approval for herbal products is possible, the high cost and the

inability to patent most herbs limit the financial incentives for integrating these products into conventional medicine (Fontaine, 2015).

Products & Services

Description of Services

Natural Options Wellness Clinic offers a variety of services and products designed to support clients' holistic health and wellness. The Free Consultation allows clients to discuss their health concerns and explore naturopathic options without financial commitment, helping them feel comfortable and informed before starting treatment. Minor Surgery provides safe, minimally invasive procedures with faster recovery times, while Lab Work Analysis enables accurate diagnoses and personalized treatment plans based on lab results, giving clients a clear view of their health and how to address any issues. Nutritional Counseling offers tailored dietary advice to enhance health, boost energy, and manage conditions, empowering clients to make nutritious choices that fit their lifestyle. Massage Therapy relieves stress, reduces muscle tension, and improves circulation, promoting relaxation, pain relief, and overall well-being. Botanical Medicine uses natural, plant-based remedies to support healing with fewer side effects than conventional medications. Physical Medicine prescribes rehabilitation exercises to improve mobility, reduce pain, and enhance physical function, leading to increased strength, flexibility, and injury recovery. Hydrotherapy utilizes water-based treatments to manage pain, reduce inflammation, and promote healing in a soothing, natural way.

Description of Products

Natural Options Wellness Clinic provides products that support client wellness goals. Herbal Teas are crafted to address various health needs, such as digestion, relaxation, and immune function, offering clients a calming, natural method to enhance their health independently. Supplements deliver essential vitamins, minerals, and herbal extracts, targeting overall health and specific health concerns. The body wash is made with natural ingredients, providing gentle skin cleansing without harsh chemicals, while hair products strengthen and nourish hair, offering a natural approach to healthy, shiny hair. Tinctures are concentrated herbal extracts designed for easy, effective use, providing clients with convenient, targeted remedies, while extracts offer potent plant-based healing benefits, delivering concentrated doses of active ingredients for enhanced efficacy.

Description of Events

Natural Options Wellness Clinic hosts a range of events to support client wellness and foster a sense of community. Group meditations offer guided sessions aimed at reducing stress, enhancing mental clarity, and promoting relaxation. Participants benefit from a supportive environment that encourages mindfulness and a sense of inner peace. Educational lectures provide insights on various health topics, empowering clients to make informed decisions about their wellness by deepening their understanding of holistic health and practical ways to integrate it into their lives. Forest bathing excursions invite participants to connect with nature, surrounded by phytochemicals that help to reduce stress, boost mood, and improve overall well-being. These excursions offer clients a natural, refreshing way to reconnect with themselves and the surrounding environment that requires little physical activity.

Description of Educational Resources

Natural Options Wellness Clinic provides a variety of informational resources to support clients on their wellness journey. Information brochures offer detailed explanations on specific health topics, treatments, and services, giving clients clear, easy-to-understand guidance. Flyers provide quick, digestible information about new offerings and wellness strategies. Pamphlets deliver in-depth educational content on various naturopathic practices and their benefits, helping clients make informed decisions about their care. Social media platforms like TikTok, YouTube, and Instagram engage clients with educational videos, tips, and interactive content, making wellness information accessible and engaging anytime, anywhere.

Research and Development

Natural Options Wellness Clinic is committed to ongoing research and development to enhance its services and reach. Plans include obtaining necessary licensees or hiring specialists to expand offerings with acupuncture, cupping, yoga, and IV therapy, further establishing the clinic as a comprehensive destination for holistic wellness. To stay at the forefront of alternative therapies, the clinic will research and attend conventions, ensuring that any new services are effective and align. With the clinic's evidence-based naturopathic focus. Additionally, the clinic will research e-commerce best practices, develop a user-friendly online store, and optimize logistics and shipping to provide efficient and reliable service, allowing the clinic to connect with clients beyond its local area.

Strategy & Implementation

Growth Strategy

Natural Options Wellness Clinic has a comprehensive growth strategy focused on expanding client reach, enhancing visibility, and building community relationships. Free consultations will allow potential clients to explore naturopathic medicine without financial commitment, fostering informed about the clinics upcoming events, and specials, increasing visibility and community connection. Active social media platforms will share research insights, treatment options, and seasonal promotions, engaging potential clients and reinforcing the scientific basis of naturopathic care. Educational pamphlets and flyers will promote services and educate the community, while seasonal promotions and bundled product packages will make wellness products more accessible. Membership options will offer discounted prices on regular treatments, and gift cards for massage and hydrotherapy treatments will encourage gifting wellness. Community events will help raise awareness and build meaningful connections, supported by partnerships with local businesses to promote each other's offerings. Participation in conventions and networking groups will expand the clinic's resources and expertise. Additionally, hiring specialists and obtaining licenses to offer new services like acupuncture and IV therapy will broaden the clinic's scope and appeal to a wider audience, establishing Natural Options Wellness Clinic as a holistic wellness destination.

Customer Relationships

Natural Options Wellness Clinic prioritizes strong customer relationships through a multifaceted approach to retention, support, and feedback. Customer retention will be fostered through events and networking, creating a community centered on health and wellness. Social media platforms will keep clients informed about upcoming events, services, and products, while memberships will encourage regular visits, providing consistent wellness support. Customer support will be readily accessible, with clinic contact information available on the website and social media accounts. Clients will have access to dedicated personal assistance outside of appointments for any questions or concerns, enhancing their experience. Informational resources empower clients to make informed product choices, enabling them to shop confidently and independently. Customer feedback will be actively encouraged through an in-office suggestion box, allowing clients to share ideas and insights, as well as follow-up emails with satisfaction

surveys after appointments, ensuring the clinic continuously improves and meets client expectations.

Channels

Natural Options Wellness Clinic connects with clients through various channels designed to enhance their experience at every stage. Awareness is built through social media, community events, and networking, promoting services, products, and educational resources to reach a broad audience. Evaluation opportunities include free consultations, informational resources, and educational events, allowing clients to make well-informed decisions about their wellness options. Purchase is convenient, with products and services available directly in-store or online via the clinic's website, and scheduling is streamlined for easy booking of treatments. Delivery of services occurs in-person at the clinic, while products can be purchased in-store or ordered online for home delivery. After sales support includes dedicated personal assistance, follow-up surveys for feedback, and accessible customer services through phone, email, or social media to ensure client satisfaction and ongoing support.

Financial Plans & Projections

Cost Structure

Natural Options Wellness Clinic's cost structure consists of both fixed and variable expenses essential to maintaining operations and growth. Fixed costs include the purchase and upkeep of necessary equipment, such as massage tables, computers, client chairs, hydrotherapy hot towels, and any additional tools not provided by graduate school kits. Other fixed expenses encompass rent, utilities, licenses, liability insurance, as well as marketing and website maintenance to ensure consistent outreach and client management. Variable costs cover supplies and inventory purchases like dried herbs, tinctures, extracts, containers, and labels to support product offerings. Personnel expenses including my own salary are included. Additionally, variable costs include materials for organizing events and workshops, as well as professional development expenses such as convention fees and subscriptions to research journals, supporting continuous learning and industry advancement.

Revenue Streams

Natural Options Wellness Clinic generates revenue through multiple streams that support its holistic approach. Treatments provide a steady income from various wellness services offered at the clinic. In-store product purchases contribute additional revenue, allowing clients to buy supplements, teas, and other health products to support their wellness journey. Event entrance fees add another revenue source, as clients attend educational lectures, group meditations, and other wellness-focused events hosted by the clinic. Together, these streams ensure a sustainable and diversified income model for the clinic.

Profitability Analysis

To meet the monthly operating costs of $12,000, Natural Options Wellness Clinic needs to generate revenue through a combination of product sales, services, memberships, and event fees. The clinic's operating costs include fixed expenses such as rent and utilities ($5,500), licenses and liability insurance ($150), and marketing and website maintenance ($100), alongside variable costs such as supplies and

inventory ($1,900), event materials ($200), professional development ($150), and the owner's personal salary ($4,000).

To cover these costs, the clinic must sell approximately 68 products at $50 each, provide 60 services at $100 each, sell 20 memberships at $100 each, or host events for 30 attendees at $20 per person. By diversifying revenue streams, the clinic can balance these targets to maintain financial sustainability while offering a range of holistic wellness services.

What I Learned

Through this thesis on developing a naturopathic medicine business plan, I gained invaluable insights about both the process of building a practice and my own skills and aspirations. Shadowing a naturopathic practitioner was particularly eye-opening, as it gave me a firsthand look at what their day-to-day responsibilities entail. It was both fun and inspiring to observe how they approach patient care and integrate naturopathic principles into their treatments. One of the most surprising aspects of this experience was realizing how little many people know about naturopathic medicine and what it can offer. This underscored the importance of education and outreach in building trust and awareness for the field. I also learned that it's wise not to open a practice immediately after school to gain more experience and financial stability.

Beyond shadowing, I gained a strong foundation in how to develop a business plan, including conducting market research, identifying target clients, and crafting strategies to differentiate a practice. The Venture Validator program taught me the importance of engaging with people to get their opinions and insights when designing a product or service. This feedback-driven approach has been instrumental in shaping my business plan and will be a key strategy I use in the future. After graduate school, I plan to implement the business plan I've developed, applying the lessons learned to establish a successful practice. Additionally, I'll leverage my knowledge of business development to create and market my own products. This experience has not only prepared me for future challenges but has also solidified my confidence in the potential of naturopathic medicine to make a meaningful impact in my community.

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Appendix

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Questionnaire Questions

Client Questionnaire

Answer the following questions to the best of your ability. If you do not feel comfortable answering a question you may leave it blank. Your responses will be kept confidential and used solely for research purposes.

What is your age?

What is your marital status?

What is your level of education?

What is your occupation?

What is your monthly income?

1. How often do you visit a healthcare provider?

    Regularly (at least once every 1-3 months)

    Occasionally (every 6 months to a year)

    Rarely (less than once a year)

2. How often do you visit a naturopathic practitioner?

    Regularly (at least once every 1-3 months)

    Occasionally (every 6 months to a year)

    Rarely (less than once a year)

3. What health concerns or problems led you to seek out naturopathic care?

    Your answer

4. What types of treatments do you currently use? (e.g. supplements, chiropractor...)

    Your answer

5. How did you find out about this practice?

    Your answer

6. How do you typically choose healthcare providers? (Select all that apply)

Referrals from primary care or specialists

Online reviews

Insurance Network

Location/convenience

Cost

Reputation or credentials of the practitioner

Other:

7. What factors influenced your decision to choose this naturopathic practitioner over others? (e.g. location, services offered, recommendations, reputation...)

   Your answer

8. How important is accessibility in your decision to stay with a practitioner?

   Very important

   Somewhat important

   Neutral

   Somewhat unimportant

   Not important at all

9. How important is follow-up care in your decision to stay with a practitioner?

   Very important

   Somewhat important

   Neutral

   Somewhat unimportant

   Not important at all

10. How important is convenience in your decision to stay with a practitioner? Very important

    Somewhat important

    Neutral

Somewhat unimportant

Not important at all

11. Have you worked with other naturopathic or conventional practitioners? If so, what makes this practice stand out?

Your answer

12. What would improve your experience with this practice?

Your answer

13. What concerns, if any, do you have about naturopathic medicine?

Your answer

14. What value do you feel naturopathic care offers that conventional healthcare does not?

Your answer

15. What do you perceive as the biggest barriers to using naturopathic medicine? (Select all that apply)

Cost

Lack of insurance

Accessibility

Lack of knowledge/understanding

Skepticism about effectiveness Preference for

conventional medicine

Other:

Non-Client Questionnaire

Answer the following questions to the best of your ability. If you do not feel comfortable answering a question you may leave it blank. Your responses will be kept confidential and used solely for research purposes.

What is your age?

What is your marital status?

What is your level of education?

What is your occupation?

What is your monthly income?

1. How often do you visit a healthcare provider?

   Regularly (at least once every 1-3 months)

   Occasionally (every 6 months to a year)

   Rarely (less than once a year)

2. How do you typically choose healthcare providers? (Select all that apply)

   Referrals from primary care or specialists

   Online reviews

   Insurance network

   Location/convenience

   Cost

   Reputation or credentials of the practitioner

   Other:

3. How important is accessibility in your decision to stay with a practitioner?

   Very important

   Somewhat important

   Neutral

   Somewhat unimportant

   Not important at all

4. How important is follow-up care in your decision to stay with a practitioner?

   Very important

   Somewhat important

Neutral

Somewhat unimportant

Not important at all

5. How important is convenience in your decision to stay with a practitioner? Very important

Somewhat important

Neutral

Somewhat unimportant

Not important at all

6. Are you familiar with naturopathic medicine?

Yes

Somewhat

No

7. Have you considered seeing a naturopathic practitioner?

Yes

No

8. If yes, what factors have prevented you from seeking naturopathic care?

Your answer

9. If no, what factors have prevented you from considering naturopathic care?

Your answer

10. What would make you see a naturopathic practitioner in the future? (Select all that apply)

Positive recommendations from friends or family

Better insurance coverage

A specific health issue that conventional medicine isn't addressing

More information about how it could benefit my health Research

that scientifically validates naturopathic medicine Other:

11. If you experienced a health issue that conventional medicine couldn't address, how likely would you be to seek naturopathic care?

Very likely

Somewhat likely

Neutral

Somewhat unlikely

Very unlikely

12. How much do you trust alternative medicine approaches like naturopathy compared to conventional medicine?

Completely trust

Trust alternative medicine somewhat, but prefer conventional care

Neutral

Somewhat distrust alternative medicine

Completely distrust alternative medicine

13. What concerns, if any, do you have about naturopathic medicine?

Your answer

14. What value do you feel naturopathic care offers that conventional healthcare does not?

Your answer

15. What do you perceive as the biggest barriers to using naturopathic medicine? (Select all that apply)

Cost

Lack of insurance coverage

Accessibility

Lack of knowledge/understanding

Skepticism about effectiveness

Preference for conventional medicine

Other:

Questionnaire Data

Client Questionnaire

Demographics	Age	Marital Status	Education	Occupation	Monthly Income
Response 1	57	Single	Bachelor	Entrepreneur	$5,000
Response 2	38	Single	Associates in Science	Carpentry	$95,000
Response 3	45	Married	Bachelor	Sales Manager	$8,000

How often do you visit a healthcare provider?

Question 1	Rarely (less than once a year)	Occasionally (every 6 months to a year)	Regularly (at least once every 1-3 months)
Response 1	0	1	0
Response 2	1	0	0
Response 3	0	1	0
Total:	**1**	**2**	0

How often do you visit a naturopathic practitioner?

Question 2	Rarely (less than once a year)	Occasionally (every 6 months to a year)	Regularly (at least once every 1-3 months)
Response 1	1	0	0
Response 2	1	0	0
Response 3	0	1	0
Total:	**2**	**1**	**0**

What health concerns or problems led you to seek out naturopathic care?

Question 3	N/A	Depression	Hormone Imbalance
Response 1	1	0	0
Response 2	0	1	0
Response 3	0	0	1
Total:	**1**	**1**	**1**

What types of treatment do you currently use?

Question 4	Supplements	Essential Oils	Exercise
Response 1	1	1	0
Response 2	0	0	1
Response 3	1	0	0
Total:	**2**	**1**	**1**

How did you find out about this practice?

Question 5	Research	Acquaintance/Family
Response 1	1	0
Response 2	0	1
Response 3	0	1
Total:	**1**	**2**

How do you typically choose healthcare providers?

Question 6	Referrals from primary care or specialists	Online reviews	Insurance network	Location/ convenience	Cost	Reputation or credentials of the practitioner	Other
Response 1	1	0	1	0	0	0	n/a
Response 2	0	0	1	0	0	0	n/a
Response 3	0	0	1	1	1	1	n/a
Total	**1**	**0**	**3**	**1**	**1**	**1**	

What factors influenced your decision to choose this naturopathic practitioner over others?

Question 7	N/A	Reputation	Location
Response 1	1	0	0
Response 2	0	1	1
Response 3	0	1	0

Total:	**1**	**2**	**1**

How important is accessibility in your decision to stay with a practitioner?

Question 8	Not important	Somewhat unimportant	Neutral	Somewhat important	Very important
Response 1	0	0	0	0	1
Response 2	0	0	0	0	1
Response 3	0	0	0	0	1
Total:	**0**	**0**	**0**	**0**	**3**

How important is follow-up care in your decision to stay with a practitioner?

Question 9	Not important	Somewhat unimportant	Neutral	Somewhat important	Very important
Response 1	0	0	0	0	1
Response 2	0	0	0	0	1
Response 3	0	0	0	0	1
Total:	**0**	**0**	**0**	**0**	**3**

How important is convenience in your decision to stay with a practitioner?

Question 10	Not important	Somewhat unimportant	Neutral	Somewhat important	Very important
Response 1	0	0	0	0	1
Response 2	0	0	0	0	1
Response 3	0	0	0	0	1
Total:	**0**	**0**	**0**	**0**	**3**

Have you worked with other naturopathic or conventional practitioner? If so, what makes with practice stand out?

Question 11	NO	YES - Holistic	YES - Accessible

Response 1	0	1	0
Response 2	1	0	0
Response 3	0	0	1
Total:	**1**	**1**	**1**

What would improve your experience with this practice?

Question 12	N/A	Effective treatment	Location
Response 1	1	0	0
Response 2	0	1	0
Response 3	0	0	1
Total:	**1**	**1**	**1**

What concerns, if any, do you have about naturopathic medicine?

Question 13	N/A	Lack of insurance coverage
Response 1	0	1
Response 2	1	0
Response 3	1	0
Total:	**2**	**1**

What value do you feel naturopathic care offers that conventional medicine does not?

Question 14	Focus on prevention	Natural remedies	Holistic	Better for health
Response 1	1	1	0	0
Response 2	0	1	1	0
Response 3	0	1	0	1
Total:	**1**	**3**	**1**	**1**

What do you perceive as the biggest barriers to using naturopathic medicine?

Question 15	Cost	Lack of Insurance Coverage	Accessibility	Lack of knowledge	Skepticism about effectiveness	Preference for conventional medicine	Other
Response 1	0	1	0	0	0	0	n/a
Response 2	1	1	1	0	0	0	n/a
Response 3	1	1	0	1	1	0	n/a
Total:	**2**	**3**	**1**	**1**	**1**	**0**	

Non - Client Questionnaire

Demographics	Age	Marital Status	Education	Occupation	Monthly Income
Response 1	21	Single	In undergrad	Retail worker	$700
Response 2	22	Single	Some college, trade school	Massage Therapist	$1,200
Response 3	23	Single	In undergrad	Sale specialist	$1,000
Response 4	25	Single	Masters	Receptionist	$1,300
Response 5	24	Single	Bachelor	Visual merchandiser	$3,760
Response 6	20	Single	In Undergrad	Dental assistant, data collection	$500
Response 7	28	Single	Bachelor	Music venue employee	$400
Response 8	21	Single	In Undergrad	Ramskeller supervisor	$700
Response 9	18	Single	In Undergrad	n/a	$5,000
Response 10	18	Single	In Undergrad	n/a	$0
Response 11	18	Single	In Undergrad	n/a	$0
Response 12	35	Single	High School	Bar manager	$3,600
Response 13	32	Single	Bachelor	Nursery Technician	$2,400
Response 14	74	Married	High School	Retired	$0
Response 15	72	Married	High School	Exec assistant	$0

How often do you visit a healthcare provider?

Question 1	Rarely (less than once a year)	Occasionally (every 6 months to a year)	Regularly (at least once every 1-3 months)
Response 1	1	0	0
Response 2	0	1	0
Response 3	0	1	0
Response 4	1	0	0
Response 5	0	1	0
Response 6	0	0	1
Response 7	0	0	1
Response 8	0	1	0
Response 9	0	1	0
Response 10	0	1	0
Response 11	0	1	0
Response 12	1	0	0
Response 13	1	0	0
Response 14	1	0	0
Response 15	0	1	0
Total:	**5**	**8**	**2**

How do you typically choose healthcare providers?

Question 2	Referrals from primary care or specialists	Online reviews	Insurance Network	Location/ convenience	Cost	Reputation or credentials of the practitioner	Other
Response 1	0	0	0	0	0	0	Family
Response 2	0	0	1	0	1	1	n/a
Response 3	1	1	1	1	0	1	n/a
Response 4	0	0	1	1	1	0	n/a
Response 5	0	1	1	1	0	0	n/a
Response 6	1	0	0	0	1	1	n/a

Response 7	1	1	1	0	0	0	n/a
Response 8	0	1	1	1	0	0	n/a
Response 9	1	0	0	1	0	0	n/a
Response 10	0	0	0	0	0	0	Parents Preference
Response 11	0	0	1	0	0	0	n/a
Response 12	1	1	0	0	1	1	n/a
Response 13	0	1	1	0	0	0	n/a
Response 14	1	0	1	1	0	0	n/a
Response 15	1	0	0	0	0	0	n/a
Total:	**7**	**6**	**9**	**6**	**4**	**5**	**2**

How important is accessibility in your decision to stay with a practitioner?

Question 3	Not important at all	Somewhat unimportant	Neutral	Somewhat important	Very important
Response 1	0	0	0	0	1
Response 2	0	0	0	0	1
Response 3	0	0	0	1	0
Response 4	0	0	1	0	0
Response 5	0	0	1	0	0
Response 6	0	0	1	0	0
Response 7	0	0	0	0	1
Response 8	1	0	0	0	0
Response 9	0	0	0	1	0
Response 10	0	0	1	0	0
Response 11	0	1	0	0	0
Response 12	0	0	1	0	0
Response 13	0	1	0	0	0
Response 14	0	0	1	0	0
Response 15	0	0	0	1	0
Total:	**1**	**2**	**6**	**3**	**3**

How important is follow-up care in your decision to stay with a practitioner?

Question 4	Not important at all	Somewhat unimportant	Neutral	Somewhat important	Very important
Response 1	0	0	0	0	1
Response 2	0	0	1	0	0
Response 3	0	0	0	1	0
Response 4	0	0	1	0	0
Response 5	0	0	0	1	0
Response 6	0	0	0	0	1
Response 7	0	0	0	0	1
Response 8	1	0	0	0	0
Response 9	0	0	0	1	0
Response 10	0	0	0	1	0
Response 11	0	0	0	1	0
Response 12	0	0	1	0	0
Response 13	0	1	0	0	0
Response 14	0	1	0	0	0
Response 15	0	0	0	1	0
Total:	**1**	**2**	**3**	**6**	**3**

How important is convenience in your decision to stay with a practitioner?

Question 5	Not important at all	Somewhat unimportant	Neutral	Somewhat important	Very important
Response 1	0	0	0	0	1
Response 2	0	0	0	1	0
Response 3	0	0	0	1	0
Response 4	0	0	1	0	0
Response 5	0	0	0	1	0
Response 6	0	0	0	1	0

Response 7	0	0	0	1	0
Response 8	0	0	0	0	1
Response 9	0	0	0	0	1
Response 10	0	0	0	1	0
Response 11	0	0	1	0	0
Response 12	0	0	1	0	0
Response 13	0	1	0	0	0
Response 14	0	1	0	0	0
Response 15	0	0	0	1	0
Total:	**0**	**2**	**3**	**7**	**3**

Are you familiar with naturopathic medicine?

Question 6	No	Somewhat	Yes
Response 1	1	0	0
Response 2	0	0	1
Response 3	0	0	1
Response 4	1	0	0
Response 5	1	0	0
Response 6	0	1	0
Response 7	0	1	0
Response 8	0	1	0
Response 9	1	0	0
Response 10	1	0	0
Response 11	1	0	0
Response 12	0	0	1
Response 13	0	1	0
Response 14	0	1	0
Response 15	0	0	1
Total:	**6**	**5**	**4**

Have you ever considered seeing a naturopathic practitioner?

Question 7	No	Yes
Response 1	1	0
Response 2	0	1
Response 3	1	0
Response 4	1	0
Response 5	1	0
Response 6	0	1
Response 7	1	0
Response 8	1	0
Response 9	1	0
Response 10	0	0
Response 11	1	0
Response 12	0	1
Response 13	1	0
Response 14	0	1
Response 15	0	1
Total:	**9**	**5**

If yes, what factors prevented you from seeking naturopathic care?

Question 8	N/A	Lack of insurance	Lack of knowledge	Cost	Availability	Inability to choose
Response 1	1	0	0	0	0	0
Response 2	0	1	0	0	0	0
Response 3	1	0	0	0	0	0
Response 4	1	0	0	0	0	0
Response 5	1	0	0	0	0	0
Response 6	0	0	1	0	0	0
Response 7	1	0	0	0	0	0
Response 8	1	0	0	0	0	0
Response 9	1	0	0	0	0	0
Response 10	0	0	0	0	0	0
Response 11	1	0	0	0	0	0
Response 12	0	0	0	1	0	0
Response 13	1	0	0	0	0	0
Response 14	0	0	0	0	1	0

Response 15	0	0	0	0	0	1
Total:	**9**	**1**	**1**	**1**	**1**	**1**

If no, what factors have prevented you from considering naturopathic care?

Question 9	N/A	Unaware of its existence	Can't fix the problem	Don't see a doctor in general	Unaware this is complementary	Not enough research	Can solve problem myself
Response 1	0	1	0	0	0	0	0
Response 2	1	0	0	0	0	0	0
Response 3	0	0	1	0	0	0	0
Response 4	0	0	0	1	0	0	0
Response 5	0	1	0	0	0	0	0
Response 6	1	0	0	0	0	0	0
Response 7	0	0	0	0	1	0	0
Response 8	0	0	0	0	0	1	0
Response 9							
Response 10	0	0	0	0	0	0	0
Response 11	0	1	0	0	0	0	0
Response 12	1	0	0	0	0	0	0
Response 13	0	1	0	0	0	0	1
Response 14	1	0	0	0	0	0	0
Response 15	1	0	0	0	0	0	0
Total:	**5**	**4**	**1**	**1**	**1**	**1**	**1**

What would make you see a naturopathic practitioner in the future?

Question 10	Positive recommendations from friends or family	Better insurance coverage	A specific health issue that conventional medicine isn't addressing	More information about how it could benefit my health	Research that scientifically validates naturopathic medicine	Other
Response 1	1	1	1	1	1	Benefits over conventional
Response 2	0	1	0	0	0	n/a
Response 3	1	0	1	0	1	n/a
Response 4	1	1	1	1	1	n/a
Response 5	1	1	1	1	0	n/a

Response 6	1	1	1	1	1	n/a
Response 7	1	1	1	0	0	n/a
Response 8	0	1	1	0	1	n/a
Response 9	0	0	1	0	1	n/a
Response 10	1	1	0	1	1	n/a
Response 11	1	1	1	1	1	n/a
Response 12	1	1	0	0	0	n/a
Response 13	0	0	0	1	0	n/a
Response 14	1	0	1	0	0	n/a
Response 15	0	0	1	0	0	n/a
Total:	**10**	**10**	**11**	**7**	**8**	

If you experience a health issue that conventional medicine couldn't address, how likely would you be to seek naturopathic care?

Question 11	Very unlikely	Somewhat unlikely	Neutral	Somewhat likely	Very likely
Response 1	0	0	0	0	1
Response 2	0	0	0	0	1
Response 3	0	0	0	0	1
Response 4	0	0	0	0	1
Response 5	0	0	0	1	0
Response 6	0	0	0	1	0
Response 7	0	0	0	1	0
Response 8	0	0	0	1	0
Response 9	0	0	1	0	0
Response 10	1	0	0	0	0
Response 11	0	0	1	0	0

Response 12	0	0	0	0	1
Response 13	0	0	0	1	0
Response 14	0	0	0	0	1
Response 15	0	0	0	0	1
Total:	**1**	**0**	**2**	**5**	**7**

How much do you trust alternative medicine approaches like naturopathy compared to conventional medicine?

Question 12	Completely distrust alternative medicine	Somewhat distrust alternative medicine	Neutral	Trust alternative medicine somewhat, but prefer conventional medicine	Completely trust alternative medicine
Response 1	0	0	0	0	1
Response 2	0	0	0	0	1
Response 3	0	1	0	0	0
Response 4	0	0	1	0	0
Response 5	0	0	0	1	0
Response 6	0	0	0	1	0
Response 7	0	0	0	1	0
Response 8	0	1	0	0	0
Response 9	0	0	1	0	0
Response 10	0	1	0	0	0
Response 11	0	0	0	1	0
Response 12	0	0	0	0	1
Response 13	0	1	0	0	0
Response 14	0	1	0	0	0
Response 15	0	0	1	0	0
Total:	**0**	**5**	**3**	**4**	**3**

What concerns, if any, do you have about naturopathic medicine?

Question 13	N/A	Validation of effects	Insurance	Less effective than conventional	Harmful	Practitioner validity	Not taken seriously by the medical community
Response 1	0	1	0	0	0	0	0

Response 2	1	0	0	0	0	0	0
Response 3	0	1	0	0	0	0	0
Response 4	0	1	0	0	0	0	0
Response 5	1	0	0	0	0	0	0
Response 6	0	0	1	0	0	0	0
Response 7	1	0	0	0	0	0	0
Response 8	0	0	0	1	0	0	0
Response 9	1	0	0	0	0	0	0
Response 10	1	0	0	0	0	0	0
Response 11	0	0	0	0	1	0	0
Response 12	0	0	0	0	0	1	0
Response 13	0	0	0	0	0	0	1
Response 14	1	0	0	0	0	0	0
Response 15	1	0	0	0	0	0	0
Total:	**7**	**3**	**1**	**1**	**1**	**1**	**1**

What value do you feel naturopathic care offers that conventional healthcare does not?

Question 14	N/A	Less harmful	Natural	Less expensive	Pain Management	Holistic
Response 1	0	1	0	1	0	0
Response 2	0	0	0	0	1	0
Response 3	0	0	0	0	0	1
Response 4	0	1	0	0	0	0
Response 5	0	0	0	0	0	0
Response 6	0	0	0	0	0	0
Response 7	0	0	0	0	0	0
Response 8	0	0	0	0	0	0
Response 9	0	0	0	0	0	0

Response 10	1	0	0	0	0	0
Response 11	0	0	1	0	0	0
Response 12	0	0	0	0	0	1
Response 13	1	0	0	0	0	0
Response 14	0	0	0	0	0	0
Response 15	0	0	0	0	0	0
Total:	**2**	**2**	**1**	**1**	**1**	**2**

Question 14	Easier to get treatment	Individual focus	Addresses the cause	Mental health	Hope
Response 1	0	0	0	0	0
Response 2	0	0	0	0	0
Response 3	0	0	0	0	0
Response 4	0	0	0	0	0
Response 5	1	0	0	0	0
Response 6	0	1	0	0	0
Response 7	0	0	1	0	0
Response 8	0	0	0	1	0
Response 9	0	0	0	0	1
Response 10	0	0	0	0	0
Response 11	0	0	0	0	0
Response 12	0	0	0	0	0
Response 13	0	0	0	0	0
Response 14	0	0	1	0	0

Response 15	0	0	1	0	0
Total:	**1**	**1**	**3**	**1**	**1**

What do you perceive as the biggest barriers to using naturopathic medicine?

Question 15	Cost	Lack of insurance	Accessibility	Lack of knowledge	Skepticism about effectiveness	Preference for conventional medicine	Other
Response 1	1	1	1	1	0	0	n/a
Response 2	1	1	0	0	0	0	n/a
Response 3	0	1	0	1	1	0	n/a
Response 4	0	0	1	1	0	1	n/a
Response 5	0	0	0	1	0	0	n/a
Response 6	0	1	0	1	1	0	n/a
Response 7	0	0	0	1	1	1	n/a
Response 8	0	1	0	0	1	1	n/a
Response 9	0	0	0	1	0	1	n/a
Response 10	0	0	0	1	0	0	n/a
Response 11	0	0	0	1	0	0	n/a
Response 12	1	1	0	0	0	0	n/a
Response 13	0	0	0	0	0	0	n/a
Response 14	0	1	1	0	0	0	n/a
Response 15	0	1	0	0	0	0	n/a
Total:	**3**	**8**	**3**	**9**	**4**	**4**	

Data Summary

The purpose of this survey was to collect potentially important market information. Some of these questions were designed to determine how people select healthcare practitioners as well as what they value in a practice. The rest of the questions were aimed at assessing current views of naturopathic medicine and what prevents people from working with a naturopath. Two questionnaires were provided, one for current clients of naturopathic practitioners and one for people who have never seen a naturopathic practitioner before with some overlap in questions. This questionnaire was made on google forms with its QR code posted on a flyer attached below. The questionnaire was distributed by posting on social media, sending to friends and family and having them promote it, and posting a physical copy of the flyer in a shop in Old Town.

The client questionnaire had three respondents, which limited the ability to determine market trends but provided valuable insights into client mindsets and common treatments. According to responses from current patients, commonly used treatments include supplements, essential oils, and prescribed exercise. This information helped clarify the types of services and treatments that are important to emphasize within my practice. Additionally, questions 8, 9, 13, and 15 highlighted areas where my practice could fill gaps in client awareness about available options, showing that accessibility and education are key areas to address.

For non-clients, questions 8 and 9 revealed why they have not sought naturopathic care, which helped pinpoint a primary issue that my practice could address to differentiate itself: the need for greater awareness and understanding of naturopathic services. Question 13 on the client questionnaire, which asked about concerns regarding naturopathic medicine, indicated two-thirds of clients has no concerns, while remaining client cited a lack of insurance coverage, rather than doubts about efficacy, as a concern. In contrast, non-client responses to this same question revealed that only 47% of respondents had no concerns, with the majority expressing apprehensions related to efficacy and safety. This difference is further reflected in non-clients' responses to questions 12, where a significant portion (33%) indicated they "somewhat distrust naturopathic medicine." These findings underscore the necessity of addressing trust and perceived efficacy when engaging potential new clients.

A crucial question for both clients and non-clients, question 15, asked about the main barriers to using naturopathic medicine. Responses indicated that the most significant barriers were lack of knowledge and insufficient insurance coverage. By analyzing this feedback, I identified the need to focus on educating potential clients about the role and benefits of naturopathic medicine, particularly by emphasizing evidence-backed

approaches and insurance considerations. To address this, I plan to incorporate educational events and socials media outreach into my business strategy to enhance public understanding of naturopathic practices.

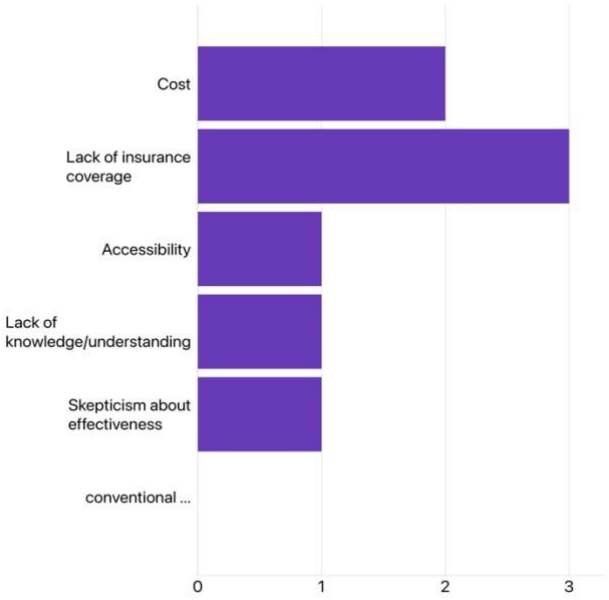
Question 14, included in both questionnaires, asked respondents to define what value naturopathic care offers over conventional healthcare. Client responses emphasized the appeal of natural medicine, preventative healthcare, and a holistic approach, while non-clients mentioned factors such as safety, addressing root causes, a focus on the individual, and a holistic treatment philosophy. This feedback clarified my target audience as patients who feel underserved by conventional healthcare and are interested in a comprehensive, cause-focused approach to health. It also indicated that my practice should highlight its commitment to individualized, holistic, and natural treatment methods.

In terms of outreach, question 10 on the non-client questionnaire identified key motivators that could influence future interest in naturopathic care. Top responses included positive recommendations from friends or family (67%), improves insurance coverage (67%), and specific health issues not effectively addressed by conventional medicine (73%). Additional responses indicated a desire for more information on how naturopathy could benefit health and more scientific validation for naturopathic methods. These findings guided my decision to offer free consultations, educational workshops, and resources as part of my practice. By raising awareness of existing research and providing accessible, informative content, I aim to meet these needs effectively.

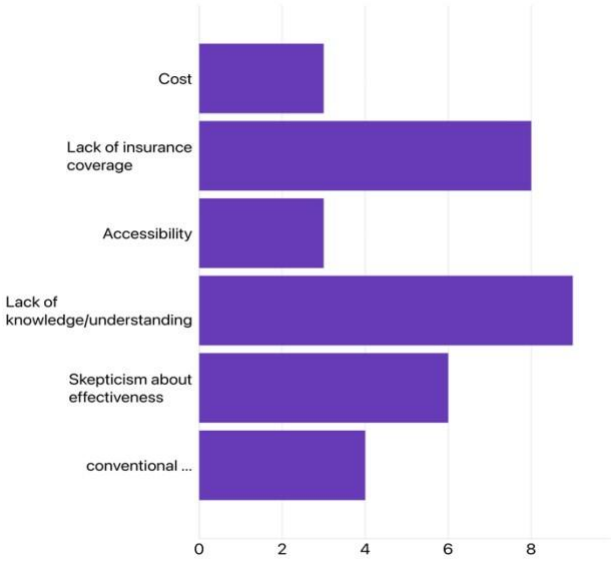
In summary, the insights gathered from these questionnaires have provided a nuanced understanding of the current market for naturopathic services. They underscore the importance of patient education, accessibility, and trust-building to foster interest in and commitment to naturopathic care. This information has been instrumental in developing targeted services and outreach strategies for my business plan, ensuring that my practice addresses both client and non-client needs in a way that sets it apart and effectively meets demand.

Q15: What do you perceive as the biggest barriers to using naturopathic medicine?

Client Questionnaire



Non-Client Questionnaire

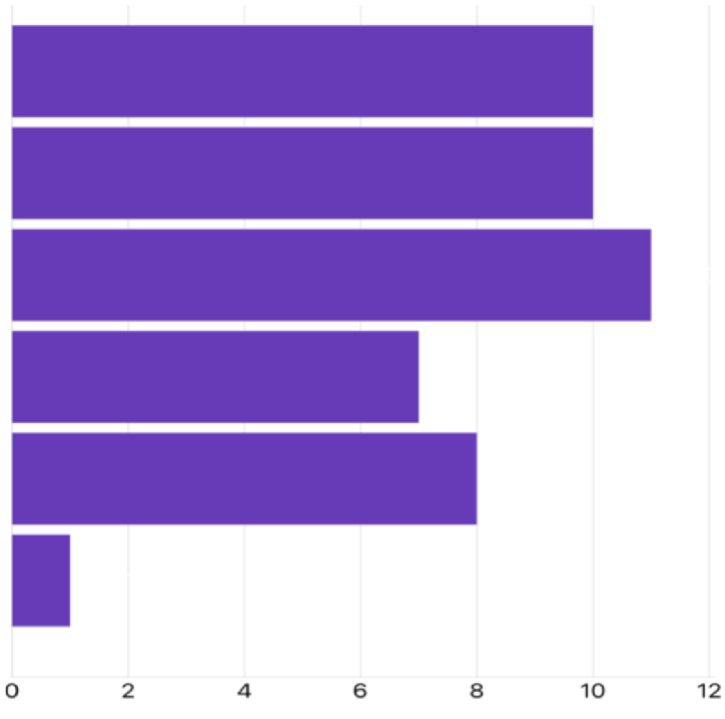


Q10: What would make you see a naturopathic practitioner in the future? Non-Client Questionnaire

Recommendations from friends or family:

Better insurance coverage/costs:

Issue that conventional medicine doesn't cover:



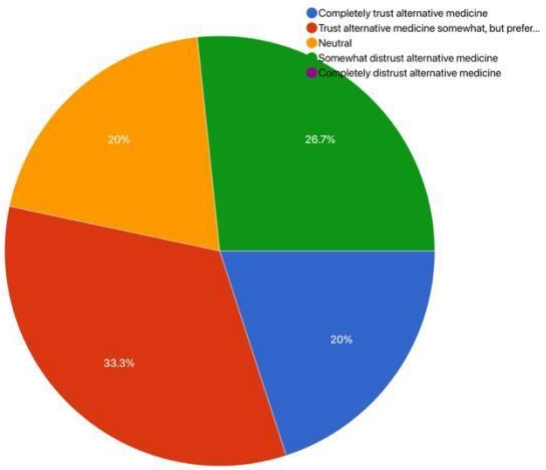
More information about benefits:

Scientific validation:

Better than conventional medicine:

How much do you trust alternative medicine approaches like naturopathy compared to conventional medicine?

(Non-Client Questionnaire)



Questionnaire Distribution Method: Flyer

Business Plan Formation

The Lean Startup's Business Model Canvas, as provided by Colorado State University's Venture Validator program, influenced my strategic approach. It provided me with the tools to include Key Partners, Key Activities, Value Propositions, Customer Relationships, Customer Segments, Channels, Cost Structure, and Revenue Streams.

I learned the benefits and core concepts of the lean startup plan from Bortolini et al.'s "Lean Startup: a comprehensive historical review." The article, based on an extensive historical literature review, connects Lean Startup concepts to alternative methods for validating business models. Its review spans 963 exploratory readings, integrating insights from 12 scholarly journals and professional magazines. The primary goal of Lean Startup, as outlined, is to discover a viable, repeatable, and scalable business model that not only creates value for customers but also captures that value effectively for the business (Bortolini et al., 2018).

This approach emphasizes designing a business model that can adapt through structures experimentation, learning, and refinement. This process is driven by testing hypotheses about customer needs and business strategies. By focusing on "effectuation" and the Learning School of strategy-making, the Lean Startup method aims to minimize the common risks and high failure rates startups face, such as launching products that fail to meet market needs or losing potential stakeholders due to resource constraints. This structure, scientific approach to developing a business helps to ensure that Natural Options Wellness Clinic remains responsive to client needs, refining its services, and evolving with market trends (Bortolini et al., 2018).

Felin et al.'s "Lean Startup and the business model: Experimentation revisited" presented the challenges of the Lean Startup approach, highlighting why I chose not to rely on it exclusively for my business plan. While Lean Startup offers a structured, scientific methods for testing hypotheses and iterating based on customer feedback, it has notable limitations. One key issue is that the Lean approach is ideally suited to refining existing processes rather than fostering radical innovations. This focus on small-scale adjustments can restrict a startup's potential to create truly novel solutions (Felin et al., 2020).

Additionally, the emphasis on rapid experimentation and customer validation can sometimes lead to "false positives" (pursing ineffective ideas) or "false negatives" due to misinterpreted feedback. The approach also discourages extensive planning and theorizing, which can be crucial for setting a long-term vision. Felin et al. Emphasize that learning is only as effective as a business' ability to filter and interpret information accurately. Without a clear mechanism, feedback can be misleading. The Business Model Canvas (BMC), a core Lean Startup tool for sketching hypothesis, also presents challenges.

Rather than broadly exploring potential market opportunities, BMC relies on testing initial assumptions, which can narrow the startup's focus prematurely. It is argued that a business model should be viewed as an aspirational goal, not a starting hypothesis. These challenges underscored the importance of combining Lean principles with traditions business models to ensure a robust foundation for long-term growth, avoiding the risks associated with excessive reliance on iterative adjustments alone (Felin et al., 2020).

As a result of the information from these articles, I decided to compare elements from the traditional business plan with the lean startup plan provided by the Small Business Administration as well as the business plan outline provided by the National Federation of Independent Business (Small Business Administration, 2009, National Federation of Independent Business, 2024). I then added the elements of the Business Model Canvas and removed redundant segments.

Further decisions in marketing strategy, revenue streams, and cost structure were determined by advice I received from a local naturopathic practitioner and chiropractor. After shadowing Dr. Jo Nell Cool of the Cool Clinic for two days, I learned a lot of valuable information that influenced this business plan. The first invaluable piece of advice she offered was that majority of her clients see her as a chiropractor rather than a naturopath. This told me that I should offer more services than naturopathy alone, thus massage therapy was included. She explained that in order to save money on equipment, she mainly relies on the kit given to her at graduate school as well as second-hand tables and furniture. She also suggested marketing strategies such as memberships and working with local businesses. She Goes High is a networking group for introverted female business owners that she is a part of and emphasized how much it had helped her in starting her practice.

Naturopathic Methods Research Summary

The following information helped me in determining the services I would be willing to provide. It also proves as an example of the research I will conduct and provide to potential clients through educational events, workshops, and resources.

Acupuncture

What is acupuncture?

Acupuncture is a traditional practice that involves stimulating 'acupoints' on the body using techniques such as needle insertion, manual pressure, suction, heat, or electrical stimulation to manipulate the flow of energy, or 'Qi' (Fontaine, 2015a). As part of Traditional Chinese Medicine (TCM), acupuncture views health holistically, recognizing the interconnectedness of the mind, body, emotions, and spirit. TCM emphasizes balancing opposing forces, known as yin and yang, and believes that disease results when these forces are out of balance. Central to TCM is the idea that nature provides everything needed to restore health, with a strong emphasis on prevention rather than merely treating symptoms. Treatments aim to facilitate the body's natural ability to heal itself, rather than directly curing the illness (Fontaine, 2015a).

According to TCM, acupuncture restores health by balancing energy flow through the body. This energy, called 'Qi,' travels along vertical pathways known as 'meridian lines,' with 12 lines present on each side of the body (Chen et al., 2017). Each meridian corresponds to an internal organ, and energy flows through these lines, reaching specific points known as 'hsueh' or acupoints (Fontaine, 2015b). When qi flow is obstructed or imbalanced along these meridians, it can lead to disease symptoms. The purposed of acupuncture is to stimulate these acupoints, regulating energy flow and restoring balance (Fontaine, 2015b).

The effects experienced during acupuncture are referred to as 'De-qi.' Meng-Wei Guo and colleagues define de-qi as the sensations felt by both the participant and acupuncturist during needle stimulation (Guo et al., 2013). Although acupuncture is widely associated with needle insertion, the needles can be manipulated by rotation, twirling, or a weak electrical current to achieve de-qi (Fontaine, 2015a). Other stimulation methods include cupping, which uses suction cups to break up toxins at acupoints, and moxibustion, where burning plants near acupoints stimulates the meridians (Fontaine, 2015a). Meridians often converge in the hands, feet, and ears, which is why these areas are frequently targeted. Auricular acupuncture focuses on the ears to balance hormones and energy, while acupressure involves applying pressure to acupoints. Reflexology, a form of acupressure, targets the feet, hands, and ears (Fontaine, 2015b).

Acupuncture originated in China and became part of TCM before spreading to Korea in 300 A.D., then to Japan, and later to Europe in the 17th century (Fontaine, 2015c). It wasn't until President Nixon's visit to China in the 1970s that acupuncture gained traction in North America (Fontaine, 2015c). Today, acupuncture is widely practiced in the U.S., with approximately 12,052 acupuncturists businesses in 2023 (IBIS World, 2024). Acupuncture is regulated through certifications provided by the National Certification Commission for Acupuncture and Oriental Medicine or the American Academy of Medical Acupuncture. In contrast, no certification is required for acupressure, making it an affordable home remedy. However, reflexologists can obtain optional certification through the American Reflexology Certification Board (Fontaine, 2015c). In 1997, the National Institutes of Health (NIH) conducted a series of randomized controlled trials to assess acupuncture's efficacy. Their findings supported acupuncture as an effective alternative treatment for conditions like addiction, stroke rehabilitation, headaches, menstrual cramps, tennis elbow, fibromyalgia, myofascial pain, osteoarthritis, low back pain, carpal tunnel syndrome, and asthma (Fontaine, 2015d).

Evidence of impact

In 1997 the National institute conducted a panel in which randomized clinical controlled trials were presented to prove the efficacy of acupuncture. It was determined from the evidence provided that acupuncture could be used in conventional medicine. The studies proved acupuncture was an effective treatment for nausea and vomiting in pregnancy, motion sickness, chemotherapy symptoms, and postoperative dental pain. It was also concluded acupuncture is effective as complementary to treatment programs for addiction, stroke rehabilitation, headache, menstrual cramps, tennis elbow, fibromyalgia, myofascial pain, osteoarthritis, low back pain, carpal tunnel, and asthma. However, due to the inadequate quality of the research, evidence for reduced cancer pain in adults was insufficient. Similarly, the evidence for acupuncture relieving depression symptoms was insufficient (Fontaine, 2015c).

I reviewed 5 other studies summarized below:

In 2008 Adeline Ge et al. conducted a literature review to determine the safety and efficacy of pediatric acupuncture. It analyzed 31 journal articles, including 23 randomized controlled clinical trials and 9 meta-analysis/systematic reviews. The review indicated that acupuncture in children is generally safe, with an incidence of 1.55 adverse events per 100 treatments. Common adverse events included sedation, needle pain, and neuropathy.

Effectiveness was most evident in postoperative and chemotherapy-induced nausea and vomiting, where acupuncture, especially at the P6 acupoint, significantly reduced symptoms compared to control groups. Electroacupuncture showed promising results within 24 hours post-chemotherapy, with a reduction in vomiting incidence from 31% in control to 22% in acupuncture-treated groups. Despite these findings, the impact on other conditions like asthma, neurological disorders, and pain was less conclusive due to small sample sizes and inconsistent methodologies (Ge, 2008).

Limitations: Small sample sizes and variability in control conditions affected the ability to detect significant effects. Many studies lacked standardization in treatment protocols, and blinding was challenging, potentially introducing bias. Additionally, more research is needed in areas like asthma, gastrointestinal disorders, and addiction to better understand acupuncture's role in pediatric care.

In 2016 Rickard Ahlberg et al. conducted a randomized controlled trial to determine the effects of Auricular acupuncture on anxiety, sleep, substance use, and the need for addiction treatment services. The results indicated acupuncture leads to a reduction in anxiety and insomnia but no effect on substance abuse. The findings suggest that the effects observed were non-specific, potentially attributable to factors such as regression to the mean. Other studies noted similar outcomes, indicating that acupuncture was not more effective than relaxation for these conditions (Ahlberg, 2016).

Limitations: Questions that were not completed by all participants on the forms used for measurement purposes were estimated via imputation methods. This can lead to inaccurate results as it assumes the direction of responses and fills in accordingly. The sample size was also small as they had to finish their data collection before they reached the calculated minimum number of participants. Their participant groups may not be an accurate representation of the larger population. Furthermore, the absence of a notable difference between groups and the potential for non-specific effects highlight the need for further research to determine whether acupuncture offers unique benefits beyond relaxation in treating substance use and related issues.

In 2006, Howard H. Moffet, lead a systematic review of clinical trials to explore the physiological rationales behind acupuncture's effects. Of the 79 trials examined, 67% of them included a rationale for how acupuncture might work. The most common explanations were that acupuncture stimulates the release of endogenous opioids like beta-endorphins, enkephalins, and serotonin. It was proposed that these neurochemical

responses occur independently of the acupoints, or methods of stimulation used (Moffet, 2006).

Limitations: This study addresses the lack of a uniform and efficient method of placebo stimulation. This is primarily due to the need for needle penetration or mechanical stimulation in sham acupuncture. Both have been proven to exhibit effects similar to true acupuncture. The use of acupuncture at non-acupoints can also stimulate responses as acupuncture effects have been theorized to be non-specific and independent of acupoints. Majority of the studies that proposed a rationale for acupuncture's effects did not test their theory. Rather, they tested for overall effects and then hypothesized why they occurred without experimentation.

In 2013, Meng-Wei Guo et al. conducted a study to characterize the De-qi phenomenon in acupuncture and explore its underlying mechanisms. The study highlighted that De-qi sensations are associated with different nerve fibers, such as A β/γ fibers for numbness and A delta fibers for distension and heaviness. Specificity of acupoints was found to be crucial, as acupoint manipulation (e.g., needle rotation and depth) produced distinct physiological responses that did not occur at non-acupoints. Additionally, fMRI studies revealed that De-qi led to changes in brain regions like the somatosensory cortex, cerebellum, and thalamus, suggesting a link between acupuncture and central nervous system activity (Guo, 2013).

Limitations: Most studies were conducted on healthy participants, which may limit the generalizability of the findings to patients with specific conditions. Moreover, while the study explored various factors influencing De-qi (such as needle depth and psychological factors), more research is needed to fully understand the clinical implications of De-qi and its role in therapeutic efficacy.

In 2023, Cun-zhi Liu explored the placebo effect in acupuncture and its psychological mechanisms. This study found that patient expectation played a large role in the effects they experienced. Patients who believed they received active acupuncture reported lower pain intensity and unpleasantness, even when give a placebo. A few trials found that sham acupuncture had greater effects than other placebo controls on selfreported pain and symptom severity. This may be due to the "non-specific" effects acupuncture is hypothesized to exhibit. Additionally, the depth and location of sham needle insertion influenced the placebo effect, with penetrating sham acupuncture showing greater efficacy than non-penetrating sham. These findings suggest that the

placebo effect in acupuncture might be partially driven by physiological responses (Liu, 2023).

Limitations: The use of sham acupuncture complicated the distinction between placebo and physiological effects. Further research is needed to clarify these effects and improve the methods used in acupuncture placebo studies.

What mechanisms might be behind these effects?

Acupuncture is thought to have many non-specific effects that have not been sufficiently researched to establish a definite mechanism. A literature review analyzed the rationales provided by various acupuncture studies found that the most common explanation for the mechanism behind acupuncture's effects is the stimulation of neurochemical release (Moffet, 2006). It has been determined that neurochemical changes occur in the brain stem, thalamus, hypothalamus, and pituitary to stimulate the release of pain-relieving neurochemicals such as beta-endorphins, enkephalins, and serotonin (Ge, 2008). Despite the manipulation of specific acupoints for specific diseases, research has suggested that these neurochemical responses occur independently of the placement of the needle, suggesting a broad effect across different treatments (Moffet, 2006). This also disproves the TCM theory that the manipulation of energy at certain meridian lines will affect the associated organs. However not all studies agree with this theory. A literature review by Meng-Wei Guo et al. found that certain studies on acupuncture's effect on the central nervous system may be based on the function of acupoints (Guo, 2013). One specific study analyzed De-qi intensity and blood flow velocity (BFV) changes at the LI4 acupoint and a non-acupoint. Despite many believing that De-qi is a measurement of the effects of acupuncture, there was no change in reported sensation between LI4 and the non-acupoint. However, BFV decreased dramatically in the LI4 acupuncture while the non-acupoint group saw no change (Guo, 2013). It is possible that the non-specific effects of acupuncture, as proven by sham acupuncture, may be a result of physical stimulation rather than the flow of meridian lines. It is also possible that certain effects of acupuncture may be associated with specific points of the body, separate from the effects from physical stimulation.

Another potential mechanism involves the regulation of the autonomic nervous system. Of the 53 studies included in Moffet's review, only 6 (11%) suggested the autonomic nervous system plays a role in the analgesic effects of acupuncture (Moffet, 2006). Acupuncture has been shown to reduce norepinephrine levels suggesting a reduction in sympathetic nervous system activity, leading to relaxation and pain relief (Cao, 1983). Studies have also shown an increase in nitric oxide levels, as regulated by the

autonomic nervous system, leading to blood vessel relaxation and increased blood flow at the puncture site (Ge, 2008). This study compared acupuncture to sham acupuncture and found that an increase in nitric oxide levels did not occur in the sham group supporting the idea of acupoints holding specific effects. Nitric oxide release has also been associated with warming of the skin which could contribute to the De-qi sensations many report experiencing (Kellogg Jr., 1999). Some studies have proven a difference in effects depending on the method of stimulation through the use of fMRI. One study showed differences in fMRI signals between electro acupuncture and manual acupuncture (Guo, 2013).

Psychological factors also play a role in potential mechanisms behind acupuncture's effects. Research has shown that factors such as patient-practitioner relationships, practitioner demeanor, and patient expectations can have an effect on the outcome of treatment. Liu's study on the placebo effect in acupuncture determined that the patient's belief, attitude, preference for acupuncture, and prior experiences are the primary psychological factors that determine the effects of acupuncture (Liu, 2023).

What are the benefits of acupuncture compared to conventional medicine?

Compared to many standard medical treatments, such as steroids for asthma or nerve stimulation surgeries for seizures, acupuncture has significantly lower incidence of adverse effects. The overall incidence of adverse events in acupuncture is about 1.55 per 100 treatments. The National Institutes of Health notes that the rate of side effects for acupuncture is much lower than that associated with many drugs or medical procedures for similar conditions, making it a safer alternative for certain patients (Ge, 2008). Additionally, acupuncture emphasizes prevention and facilitating the body's natural healing abilities rather than solely treating symptoms, which aligns with holistic health approaches. Techniques such as acupressure can be self-administered at home, offering a non-invasive and affordable complementary treatment (Fontaine, 2015a).

What gaps are there in the research?

Despite the substantial body of research supporting the benefits of acupuncture, there are still significant gaps in our understanding of its mechanisms and long-term effects that need to be addressed to fully understand its benefits and integrate it effectively into healthcare practices.

1. Sample Size and Population Diversity

   Some studies have been conducted with homogenous groups, such as exclusively healthy individuals, limiting the generalizability of the findings to broader populations (Guo, 2013).

   Further research should involve larger, more diverse populations to ensure that the findings can be applied across different health statuses.

2. Placebo Control and Sham Acupuncture

   The lack of a standardized and effective placebo control proves to be a challenge in acupuncture research. Sham acupuncture may involve nonacupoints or non-penetrative techniques however both involve contact with the body. These have been proven to produce similar effects to true acupuncture which complicates the distinction between placebo and therapeutic responses.

   More rigorous placebo controls are needed to improve study designs as well as a standardized method for sham acupuncture in order to better isolate acupuncture's true effects.

3. Standardization of Treatment Protocols

   The variability in treatment protocols, such as needle depth, rotation, and stimulation methods, makes it challenging to compare results across studies.

   Protocols should be standardized to enhance the reliability of acupuncture research.

4. Validation of Mechanisms

   Many studies focus on the overall effects of acupuncture then, based on their results, hypothesize about the underlying mechanisms. These mechanisms are never directly tested through experimentation and therefore the proposed mechanisms are never scientifically validated.

   Further research is needed on the mechanisms behind the effects of acupuncture in order to make it a more credible medicinal practice.

5. Objective vs. Subjective Measures
   The use of self-reported measures in acupuncture introduces potential bias as patient expectations can significantly influence reported outcomes. Other than inaccurate data, a lack of objective measurements may play a role in preventing researchers from determining the true underlying mechanisms behind acupuncture.

   Future research should incorporate more objective measurements, such as bio markers or imaging techniques, to provide a more accurate understanding of acupuncture's physiological effects.

6. Long-Term Efficacy and Sustainability
   Most studies focused on short-term outcomes, leaving the long-term effects and the sustainability of acupuncture's benefits unclear.

   Longitudinal studies are needed to determine whether repeated acupuncture sessions offer cumulative advantages and whether the effects persist over time, especially for chronic conditions frequently treated with acupuncture such as pain.

Herbalism

What is Herbalism?

Herbalism, also known as “botanical medicine” or “phytotherapy,” is the use of plant-based remedies to treat health conditions and improve well-being. It includes using various parts of plants such as leaves, roots, seeds, and flowers fro their medicinal properties (Fontaine, 2015f). Herbal remedies date back thousands of years across cultures, with many modern over-the-counter drugs being derived from plants. For example, aspirin comes from willow bark, morphine from the opioid poppy, and atropine from deadly nightshade (Fontaine, 2015f). Herbalism remains integral to both alternative and complementary medicine systems, with the National Center for Complementary and Alternative Medicine reporting that $ 14.8 billion per year is spent on herbal remedies and dietary supplements in the United States alone. (Fontaine, 2015f).

The origins of herbalism can be traced back thousands of years across all cultures. Early pharmaceutical practices in the United States began with the Shakers, who collaborated with Native Americans to produce herbal remedies (Fontaine, 2015e). In Traditional Chinese Medicine (TCM), herbalism dates back 3,000 years, beginning with the Fire Emperor, Shen Nong (Fontaine, 2015e). TCM precedes Western medicine and has a long history of addressing health through the balance of natural energies (Fontaine, 2015e). Central to TCM is the philosophy of maintaining balance and harmony in all aspects of life, particularly through the concept of Qi, or energy flow (Fontaine, 2015e). Disruptions in the flow of Qi lead to illness. Other key concepts include Yin and Yang, which represent opposing forces that must remain in balance to ensure health (Fontaine, 2015e). TCM also incorporates the Five Phases (fire, earth, water, wood, and metal), which represent different energies and bodily functions (Fontaine, 2015e). Herbs play an essential role, used in various forms such as teas, supplements, and pastes, with mixtures typically chosen to work synergistically rather than as isolated compounds (Fontaine, 2015e). Today, TCM continues to utilize herbal mixtures to treat various ailments, including those caused by viral, bacterial, and fungal infections. Its scientific foundations has allowed for herbalism to become popular in the West for its holistic approach and preventative focus, aiming to correct imbalances before they cause disease (Fontaine, 2015e).

Herbal medicine faces challenges in regulatory integration, especially in the U.S. Since the FDA does not regulate herbal products in the same way as conventional medicines, herbal remedies are not allowed to make specific claims (Fontaine, 2015f). The 1994 Dietary Supplement Health and Education Act required herbal medicines to be marketed with general claims, such as “improves memory,” but with a disclaimer that they are not intended to diagnose, treat, cure, or prevent disease (Fontaine, 2015f). Obtaining FDA approval is expensive, and the inability to patent most herbs limits financial incentives for full integration into conventional medicine (Fontaine, 2015f). Despite these setbacks,

extensive research on herbalism is continuing to be conducted today. Modern herbal research is conducted by organizations like Germany's Commission E, the National Center for Complementary and Alternative Medicine, and the American Herbal Pharmacopeia, which was established in 1995 to educate the pubic about the safety and uses of herbal remedies (Fontaine, 2015f).

Research into the benefits of herbal medicines is expansive and therefore difficult to summarize in its entirety. As such I have chosen a few of the most common Traditional Chinese Medicine herbs to analyze; Ginseng, Green Tea, Ginkgo, and Garlic.

Herbalism remains a broad and culturally significant field of medicine, continuing to be used in complementary practices and regulated differently depending on the region. While scientific research supports some aspects of herbal treatments, barriers such as cost, regulation, and the inability to patent herbs prevent full integration into conventional healthcare systems.

Evidence of impact

I reviewed 4 studies summarized below:

In 2018 Noël M. Arring et al. conducted a systematic review to assess the safety and efficacy of ginseng as a treatment for fatigue, particularly in individuals with chronic illness. The review analyzed 10 studies, including double-blinded, placebo-controlled trials and open label trials. The findings indicated that ginseng has a low risk of adverse effects and provides modest evidence for reducing fatigue. Among the studies, four focused on American Ginseng (P. qinquefolius). While all studies reported improvements in fatigue, only one, which used a combination of herbs including ginseng, showed significantly greater improvements than the placebo group. For Asian Ginseng (P. ginseng), six studies were included, with varying methodologies. Five of the studies demonstrated significant improvements in fatigue compared to control groups (Arring et al., 2018).

Limitations: This review included heterogenous studies, preventing it from being considered a meaningful meta-analysis. The population was primarily adult, with a lack of diversity, and missing data handling methods were unclear, raising concerns about attrition bias. Further research with larger, more diverse samples is needed to improve generalizability.

In 2020, Guangzhi Chen et al. conducted a meta-analysis to evaluate the effects of green tea supplementation on blood pressure (BP). The analysis included 24 randomized, controlled trials investigating the impact of green tea on systolic (SBP) and diastolic blood

pressure (DBP). The overall findings indicated that green tea consumption significantly reduced both SBP and DBP, with more pronounced effects observed in individuals with high-normal BP, hypertension, or cardiovascular disease risk factors. Notably, the caffeine present in green tea was found to have no effects on BP (Chen et al., 2020).

Limitations: While the findings are promising, larger and longer-tern trials are necessary to further substantiate green tea's effects on BP and its mechanisms (Chen et al., 2020).

In 2022, Mahboobe Hosseinikia et al. conducted a systematic review and metaanalysis to evaluate the effects of Ginko bilboba leaf extract (GBLE) on inflammatory markers. The review analyzed 17 randomized controlled trials conducted between 2005 and 2020, focusing on the impact of GBLE on serum C-reactive protein (CRP), interleukin-6 (IL-6), and tumor necrosis factor-alpha (TNF-alpha). The findings indicated that doses of less than 500 mg/day of GBLE had a beneficial effect on reducing serum CRP levels compared to placebo. Additional improvements were seen in IL-6 and TNF-alpha levels, with doses at or below 120 mg/day leading to significant reduction in both markers. These results suggest that Ginkgo biloba can effectively reduce serum inflammatory markers and may be useful for inflammation control (Hosseinikia et al., 2022).

Limitations: This review noted that Chinese databases were not accessible, and many studies had small sample sizes, limiting the generalizability of the findings. Larger, more diverse trials are need to confirm these effects.

In 2021, Ramu Adela et al. conducted a systematic review and meta-analysis to evaluate the effects of garlic extract on lipid metabolism and inflammation markers I patients with coronary artery disease (CAD). The analysis included 12 randomized controlled trials that examined the impact of garlic on lipoproteins, inflammatory markers, blood pressure, and coronary artery calcium (CAC) scores. This review did not find significant reductions in blood pressure in CAD patients. However, garlic showed significant effects in reducing LDL cholesterol and improving HDL cholesterol levels, contributing to reverse cholesterol metabolism. It also had sustainable effects on LDL, HDL, total cholesterol and triglycerides, and was associated with reduced CAC scores, suggesting potential for reducing inflammation, atherosclerotic plaque development, and coronary heart disease risk (Adela, 2021).

Limitations: The study highlighted the need for larger trials with a greater population size to confirm these findings and provide more conclusive evidence regarding garlic's effects in CAD patients.

What mechanisms might be behind these effects?

Herbalism is thought to exert its therapeutic effects through multiple mechanisms involving the complex interactions of active compounds within plants. One key aspect is synergism, where the active compounds in plants work together to produce a greater effect than when used individually. This synergistic effect can also occur between different herbs used in combination (Fontaine, 2015f). Plants are rich in phytonutrients, biologically active chemicals produced via photosynthesis or as defense mechanisms, which contribute to their medicinal properties. These include alkaloids that have analgesic propertied and affect the nervous and circulatory systems, bitter principles that stimulate appetite and liver activity, and carotenoids that protect the skin and reduce the risk of heart attacks and macular degeneration. Antioxidants present in plants neutralize free radicals, unstable molecules that cause oxidative damage associated with aging, cancer, and degenerative diseases, thereby reducing oxidative stress (Fontaine, 2015f).

Specific herbs demonstrate these mechanisms through their unique compositions of phytonutrients. Ginseng, for example, contains ginsenosides that act as antioxidants and anti-inflammatory agents, affecting the central nervous system and modulating cortisol levels, which can raise blood sugar. Arring et al. found modest evidence for ginseng's efficacy in reducing fatigue, although only one study showed significantly greater improvement over placebo, highlighting the need for further research (Arring et al., 2018). Green Texas's beneficial effects on blood pressure are attributed to catechins that improve endothelial dysfunction and hypertension by influencing nitric oxide production and promoting vasodilation. Chen et al. reported that green tea consumption significantly reduced both systolic and diastolic blood pressure, with catechins increasing plasma nitric oxide concentration, inhibiting inflammatory cytokines, and reducing platelet aggregation. These compounds also suppress inflammatory factors such as cytokines and nuclear factor-kappa B and inhibit the expression of endothelial nitric oxide synthase and endothelia-1, leading to vasodilation and subsequent blood pressure reduction (Chen et al., 2020).

Ginkgo biloba's anti-inflammatory effects are linked to its high flavonoid (22-27%) and terpenoid (5-7%) content. The flavonoids—delphinine, cyanidin, myricetin, and quercetin—prevent the folding of soluble N-ethylmaleimide-sensitive factor attachment protein receptor (SNARE) proteins, which regulate cell membrane permeability, thus controlling inflammation. Hosseinikia et al. found that Ginkgo biloba leaf extract significantly reduced serum inflammatory markers like C-reactive protein (CRP), interleukin-6 (IL-6), and tumor necrosis factor-alpha (TNF-alpha), suggesting its potential use for inflammation control (Hosseinikia et al., 2022).

Garlic extract has been studied for its effects on lipid metabolism and inflammation in coronary artery disease patients. Adela et al. conducted a systematic review and metaanalysis that showed garlic supplementation resulted in significant reductions in lowdensity lipoprotein cholesterol and improvements in high-density lipoprotein levels, contributing to reverse cholesterol metabolism. The active compounds in garlic, such as Sallylcysteine, have positive effects on atherosclerosis, blood pressure, blood lipids, and inflammation. These sulfur compounds inhibit the angiotensin-converting enzyme, reduce inhibit the angiotensin-converting enzyme, reduce thromboxane B2 and prostaglandin, leading to vasodilation and blood pressure reduction (Adela et al., 2021). However, mixed results were observed due to variations in dosages and different garlic preparations, indicating the need for larger studies with standardization formulations.

What are the benefits of Herbalism compared to conventional medicine?

Herbalism offers several key advantages over conventional medicine, primarily due to its holistic approach, natural composition, and historical usage across various cultures. One significant benefit is the synergistic action of plant compounds. Instead of isolating a single active ingredient, herbal remedies utilize the whole plant, which allows for different components to work together for a greater effect. This concept of synergism ensures that the body receives a more balanced and multifaceted treatment, as seen in the various photochemical present in plants, such as alkaloids, carotenoids, and essential oils (Fontaine, 2015f). For example, while conventional medicine often isolates active compounds, such as aspirin from willow bark, herbalism integrates the full spectrum of active compounds, potentially reducing the risk of side effects and increasing overall efficacy. Additionally, many of these plant-based compounds, such as antioxidants, help neutralize free radicals, which can reduce oxidative stress linked to aging and degenerative diseases (Fontaine, 2015f). Traditional Chinese Medicine also focuses on preventative medicine, restoring balance before illness occurs, which can lead to higher quality of life, reduced risk of disease complications, and fewer doctor appointments which can be very expensive (Fontaine, 2015e).

What gaps are there in the research?

Despite its widespread use and long history, herbalism still faces several significant gaps in research and regulation that hinder its full integration into mainstream medical practices. These gaps span across clinical trial design, safety concerns, and economic barriers.

7. Lack of Standardization and Regulation

   Herbal supplements are not subject to the same regulations as pharmaceuticals. The Dietary Supplementation Health and Education Act of 1994 allows herbal remedies to make general health claims without FDA approval, leading to inconsistent quality and effectiveness (Fontaine, 2015f). Cost and inability to patent herbal remedies prevents the push for FDA regulation.

   FDA approval needs to be incentivized in order to convince companies to put their funding and research into proper regulation of herbal medicines.

8. Small Sample Sizes and Limited Population Diversity

   Many herbal studies involve small and homogenous populations, limiting generalizability,

   Future research should include larger, more diverse populations to ensure findings are applicable to people of varying ages, genders, and ethnic backgrounds.

9. Safety and Drug Interactions

   Herbs can pose risks, especially when used in excess or with conventional medications. St. John's Wort, for example, can interfere with antidepressants and birth control (Fontaine, 2015f).

   More studies are needed to explore the long-term safety of herbs and their interactions with conventional medications to better inform healthcare providers and patients.

10. Methodological Challenges

    Herbal studies often lack appropriate placebo controls, and many use combination treatments, making it difficult to isolate the effects of individual herbs. This variability complicates the assessment of their true efficacy.

    Research designs need to include rigorous placebo controls and focus on isolating single herbs to produce more reliable and reproducible results.

Forest Bathing

What is forest bathing?

Officially acknowledged by the Forest Agency of Japan in 1982 as a natural method of healing, Shinrin Yoku, or Forest Bathing is the interdisciplinary practice at the corner of environmental sciences and human health (Li, 2022). Forest bathing involves an immersive experience in a forest environment in which all five senses are used to bring awareness to not only you but the surrounding nature (Wen et al., 2019). It is used as a preventive medicine for both psychological and physiological ailments. Research has proven it to improve immune function, regulate blood pressure, reduce the risk of cardiovascular disease and respiratory disease, and improve affect including the reduction of ADHD symptoms. The Japanese Society of Forest Medicine posits the effects of Forest Bathing to its similarity to aromatherapy. When you take a deep breath of the forest air you are also breathing in volatile organic compounds released by plants called phytoncides which are responsible for various health effects (Li, n.d.). However, there are many more theories on the potential mechanism behind Forest Bathing.

Beginning in 2004 with the Ministry of Agriculture, Forestry and Fisheries of Japan, research has become widespread and thorough leading to the scientific validation of the practice. The Forest Agency of Japan created the Japanese Society of Forest medicine in 1982 to verify the effects of Forest Bathing through a scientific lens (Li, n.d.). The Forest Therapy Society was created in 2004 to conduct its own research on its effects and the International Society of Nature and Forest Medicine promotes further research. In 2007 the first task force on forest and human health, created by the International Union of Forest Research Organizations (IUFRO), held its first meeting in Finland with the goal of supporting dialogue between scientists from different disciplines and implementing agencies internationally (IUFRO, (n.d.). Because of the plethora of research studies that have been done through these organizations there are many new explanations for the health effects of forest bathing such as the biophilia theory, the attention restoration theory, the greenery hypothesis, and the stress reduction theory but none pose complete explanations. More research is needed to provide an all-encompassing explanation.

There is still debate over the validity of Forest Bathing and some of the research behind it due to the anticipatory effect. Michele Antonelli et al. mentioned the results found in their study on the effects of Forest Bathing on cortisol levels may have been due to the anticipatory placebo effect. Participants in this study were split into two groups. One was sent to an urban environment while the other went to a forest environment. While the forest group had lower levels of cortisol

than the urban group after the intervention, the forest group also had reduced levels before the intervention. Antonelli et al. proposed that the expectation that you are about to enter a relaxing environment is enough to reduce cortisol levels without the actual intervention (Antonelli et al., 2019). Antonelli et al. are not the only researchers concerned about this skewing their results. There are many studies done to test whether the Anticipatory Effect is legitimate, and many have proven it to be true. Those that were told they were about to perform a stressful task drank less than the control group in order to not inhibit their abilities showing a reaction to stress before the stressful event has even occurred (Bernstein et al., 2017). Another study measured the impact of non-monetary promotions on the satisfaction levels of customers after receiving the product. They found that due to the anticipatory effect the non-monetary promotions resulted in customers being less discouraged by long wait times and produced a greater positive reaction upon receiving the product (Mukherjee et al., 2021). It is important to understand that the Anticipatory Effect will have impacted the results of many research studies on Forest Bathing however it is not a complete explanation and therefore continuing research to discover the mechanisms behind this practice is crucial.

Research continues in-depth today with the organizations previously mentioned continuing their work as well as other organizations beginning to take part. To encourage advancement in knowledge on the relation between forest, trees, and human health, COST Action E39 was created in 2004 as part of a broader initiative in Europe with the same goals. This category of research has since been incorporated into urban planning and public health strategies and encourages the use of forests in preventative healthcare (Kjell & Sangster, 2005). The Ministry of Agriculture, Forestry and Fisheries not only kickstarted large-scale research efforts but has also been implementing the findings of this research in a national health program run by the Forest Agency of Japan in which Forest Bathing is used as a stress management strategy for workers in Japan. With the goal of forest preservation, they have established many recreational forests for people to enjoy and hopefully learn to appreciate nature enough to protect it. The Agency is currently striving to reach its goal of complete carbon neutrality by 2050 (IUFRO, n.d.). The IUFRO has many task forces and projects around the globe helping the United Nations in reaching the 17 Sustainable Development Goals by 2030 (United Nations, n.d.).

Evidence of impact

In 2019 Ye Wen et al. conducted a systematic review of medical empirical research on forest bathing in order to be able to scientifically integrate forestry and medicine. 28

papers were included in the study and each studies' results were analyzed. The research findings determined that Forest Bathing, based on 28 different studies, increases parasympathetic nervous system activity which explains many of the effects seen in these studies. Other outcomes include improved cardiac function, improved metabolic health, improved immune function and lung health, reduced oxidative stress, and improve mental health.

A few of the studies showed a decrease in blood pressure, pulse, heart rate, and low frequency heart rate variation. There was a decrease in brain natriuretic peptide which is a biomarker to diagnose heart failure (Bunag, 2007). There was also a decrease in endothelia-1 which is a vasoconstrictor responsible for postmenopausal hypertension, preeclampsia, and pulmonary hypertension (Titus et al., 2023). All of these changes suggest improved cardiac function in participants. Some of the studies found that forest bathing decreased triglyceride levels and increased adiponectin suggesting potential heightened insulin sensitivity and reduced risk of diabetes, CVD, and Metabolic Syndrome (Ciaraldi et al., 2007).

Some of the studies showed a reduction in Natural Killer and Natural Killer-like cells while their activity increased, minimizing excessive immune reactions while becoming more specific and efficient in their response. A few studies also saw a decrease in Interleukin-6 and Interleukin-1beta, which are responsible for inflammation, and in tumor necrosis factor-alpha which if excessively activated, can result in autoimmune diseases as well (Tanaka et al., 2014, Castejon & Brought, 2011, Jang et al., 2021). Some of the studies saw a decrease in Interleukin-8 and C-reactive protein which are both used as a biomarker for assessing the severity of inflammation (Bernhard, 2021, Du Clos, 2000). Tissue inhibitor of metalloproteinase-1 and interferon-gamma, responsible for cellular proliferation and wound healing, were also reduced (Gardner & Ghorpade, 2003, Tau & Rothman, 1999). These findings suggest improved regulation of the immune response resulting in a reduced risk of chronic inflammation and other autoimmune diseases. A few of the studies saw reductions in pulmonary and activation-regulated chemokine and surfactant protein D which if unregulated, can result in lung-related diseases suggesting forest bathing's role in improving lung health and reducing the risk of respiratory diseases. Some of the studies saw increases in glutathione peroxidase, biological antioxidant potential, superoxide dismutase while malondialdehyde decreased suggesting antioxidant improvements allowing for Forest Bathing to aid in reducing oxidative stress.

One study saw an increase in high alpha brain waves associated with a state of relaxation and flow proving the physiological mechanism behind the following psychological improvements. However, the same study also saw an increase in high beta brain waves associated with high levels of stress hormones. This could also result

in a higher level of focus. Combined the witnessed effect was a relaxed and focused state that could be responsible for the many of the following psychological changes. Several studies saw a decrease in negative emotions such as depression, anxiety, anger, and fatigue. Confusion was also decreased, and vigor increased. Participants in these studies also had more self-reported positive attitudes such as “comfortable,” “Relaxed,” and “Natural.” Participants saw improved self-esteem and greater health promoting behaviors. Physical and mental recovery also improved by decreasing the experienced symptoms and increasing mental recovery. All of these prove Forest Bathing’s ability to improve mental health (Gu et al., 2019).

I reviewed eight other studies summarized below:

In 2009 Bum Jin Park examined the physiological impacts of forest environments compared to urban settings. The findings indicated that forest settings contribute to lower cortisol levels, reduced pulse rate and blood pressure, and a shift towards greater parasympathetic nervous system activity, which is crucial for stress management. This study also demonstrated the broader use of forests in health promotion, rehabilitation, and disease prevention, supported by initiatives like COST Action E39 and the IUFRO task force.

Limitations: Many of the studies contained small, homogenous groups which limits the ability to apply the findings to a broader population. Urban settings do not fully isolate the effects of forest bathing from simply being outdoors. Most of the studies did not have a long-term follow up which fails to provide evidence on the sustainability of these effects, potentially overestimating the benefits of forest bathing. Self-reported measures that can be influenced by short-term factors might not accurately reflect long-term health benefits especially if participants are aware of the study’s purpose. The inherit difficulty of blinding in forest studies leads to the anticipatory effect skewing results (Park et al., 2009).

In 2019 Michele Antonelli et al. conducted a meta-analysis indicating that forest environments have a significant impact on stress reduction, particularly through lower salivary cortisol levels compared to urban settings across various studies involving healthy participants. Forest activities such as walking and meditating were consistently associated with decreased cortisol levels.

Limitations: Many studies included had small sample sizes which can limit the ability to detect small but clinically significant effects. The variability in control conditions could influence the outcomes. Urban settings as controls might not adequately isolate the effects of forest bathing from simply being outdoors. Moreover, the studies did not always clearly differentiate between active and passive interactions with nature, which could lead to different physiological responses. The timing of cortisol measurements varied across studies, which could affect the results. As noted by the authors, blinding participants during this intervention is difficult so the anticipatory effect may have skewed the results (Antonelli et al., 2019).

In 2019 Akemi Furuyashiki et al. demonstrated that forest bathing not only lowers blood pressure and salivary cortisol but also enhances immune function and activated the parasympathetic nervous system. This aligns with the practice's origins in Japan as a recreational therapy advocated by the Forestry Agency.

Limitations: The study included working-age individuals from urban areas and excluded those with severe conditions which might limit the generalizability of the findings to the broader population including those with more severe symptoms. This study did not have a non-forest environment control group which makes it difficult to attribute the observed benefits to forest bathing alone without considering the potential effects of being in any natural setting versus urban settings. The study only examined the effects of a single-day long session of forest bathing. This does not provide information on the long-term effects of repeated sessions, or the sustainability of the benefits observed. Psychological outcomes were assessed using self-reported measures, which can be subject to bias. Expectation bias, or the anticipatory effect, may have been present as the participants knew where they were going before the intervention (Furuyashiki et al., 2019).

In 2020 Hyeyun Kim et al. focused on menopausal women with insomnia, showing that forest bathing reduced cortisol levels, which in turn improved sleep patterns, reduced nighttime hot flashes, and decreased anxiety and depression. This study highlighted the direct impact of reduced cortisol on various symptoms of menopause, leading to overall improved sleep efficiency and reduced daytime sleepiness.

Limitations: This study only involved 35 participants which means the findings may not be applicable to all postmenopausal women with insomnia. This study covers only the duration of the forest therapy program and does not assess long-term sustainability of the observes benefits. Without a control group, it is challenging to definitively attribute

the improvements directly to the forest therapy opposed to other potential variables such as a change in environment. Part of the data collection for this study involved selfreported questionnaires which can be proven to bias. The anticipatory may be present in this study (Kim et al., 2020).

In 2022 Qing Li documented the establishment and impact of Japan's national health program for forest bathing in 1982. This extensive research showcased the effectiveness of forest environments in boosting Natural Killer (NK) cell activity, reducing stress hormones like cortisol and adrenaline, and promoting cardiovascular health. Notably, these effects were sustained for days, and in some cases, up to a month after forest bathing sessions. The studies within this program confirmed forest bathing's roe in reducing the risk of various cancers and other health issues, making it a strong case for its preventative capabilities against communicable diseases like COVID-19.

Limitations: The study populations are often relatively small and specific, which may limit the generalizability of the findings to other groups. The research mentions comparing effects of forest bathing with urban environments but does not always include a neutral control environment making it difficult to isolate the specific effects of the forest from simply being outside or in a non-urban setting. The biological markers used to measure health benefits are influence by many factors making it challenging to attribute changes directly to the forest bathing experience without more extensive controls. Most studies focus on short-term effects which does not allow for an understanding of the sustainability of these benefits. Subjective measures were used which may be biased. The anticipatory effect may be present in these studies (Li, 2022).

In 2023 Chiew Jiat Rosalind Siah et al. focused on the psychological well-being improvements through forest bathing, specifically noting reductions in depression and anxiety, alongside less pronounced blood pressure and heart rate. This study underscores the psychological benefits of forest environments, further supporting the role of nature in mental health interventions.

Limitations: The populations studied often included specific groups which may not represent broader populations. The majority of studies only assessed immediate or short-term effects of forest bathing, lacking long-term follow-up to determine the persistence of benefits. Psychological outcomes are often measured through selfreport in these studies, which can be inherently subjective, and the physiological markers measured can be influences by extraneous factors that were not controlled for in the

studies. The knowledge and expectations of the participants regarding the benefits of forest bathing could induce anticipatory effects that way impact the psychological and physiological measures being studied (Siah et al., 2023).

In 2023 Runxia Huang et al. investigated the seasonal effects of forest environments on geriatric hypertension, noting that forest settings with high phytoncides and negative air ions contribute to reduced stress hormones like cortisol and adrenaline, while increasing heart rate variability and improving overall cardiovascular health.

Limitations: The findings of this study are specific to the elderly with hypertension and therefore may not be generalizable to other populations. The study attempts to address the effects of seasonal variations by conducting the experiment across four seasons. However, the environmental variables such as temperature, humidity, and air quality inherently differ with seasons, which could independently affect health outcomes. The use of self-reported measures for mood states could introduce subjectivity and bias in the results. Mood improvements reported by participants might be influenced by the novelty of the experience or the expectation of benefit. Participants might have experienced anticipatory benefits just from expecting positive outcomes (Huang et al., 2023).

In 2024 Jennifer Keller et al. explored forest bathing as a preventative medicine in adolescents in Japan and South Korea. The study revealed significant improvements in mental well-being, relaxation, and environmental awareness after sessions of forest bathing. Notably, it also suggested potential benefits for treating PTSD, based on corroborating studies in which participants experienced decreased signs of potential depression and expressed a strong desire to continue the practice.

Limitations: The study involved students form the author's own classes, which might introduce bias in responses. The study did not use a control group that did not participate in forest bathing. This makes it difficult to isolate the effects of forest bathing from other potential variables that could influence mental well-being. The study primarily focuses on the short-term effects of forest bathing. Long-term studies would be necessary to understand the sustainability of these benefits and whether repeated sessions have cumulative effects. The use of self-reported measures for assessing mental well-being could be influenced by other variables such as current emotional state or a desire to please the researcher. This study did not use a blinded design, which means participants may have had preconceived notions about the

benefits of forest bathing, possibly affecting their responses and behaviors during the study (Keller et al., 2024).

What mechanisms might be behind these effects?

The effects of forest bathing are thought to be due to the inhalation of phytoncides released from the local plant life. There are many different compounds found on various plants that have been studied individually and their effects align with the findings from studies on forest bathing. Alpha and beta-pinene are bicyclic monoterpenes found in pine and other conifers, cannabis, camphor, rosemary, eucalyptus, and more. These compounds exhibit antimicrobial, antiviral, anti-inflammatory, anticancer, near protective, gastroprotective, anxiolytic, and sedative properties, though they are metabolized and eliminated from the body quickly, which reduces their effect (Salehi et al., 2021). Limonene, a monoterpene from the Rutaceae family, produced by citrus peels, mint, juniper, and rosemary, offers antioxidant, anti-inflammatory, anticancer, antinociceptive, gastroprotective, antiapoptic, and anxiolytic benefits. It has the potential in treating neurodegenerative diseases such as Alzheimer's, Parkinson's, and multiple sclerosis (Eddin et al., 2021). Other notable phytoncides include citrate, mycrene, ocimene, menthol, humulene, and many others, which collectively enhance the therapeutic effects of forest environments. These compounds contribute to the overall health benefits of forest bathing by interacting with the nervous system and providing a range of protective and healing properties (Thangaleela et al., 2022). While phytoncides have many beneficial effects, it is important to note that some can harmful as well. Isoprene is primarily produced by C3 plant species and ocean phytoplankton which include mosses, ferns, vegetation, gymnosperms, and angiosperms (Sharkey & Yeh, 2001). This compound is emitted under stress conditions and extends the residence of greenhouse gases and contributes to local pollution (Vickers & Sabri, 2015).

Another mechanism potentially responsible for the recorded effects of forest bathing involves negative air ions (NAIs). NAIs are electrically charged molecules that are formed when a gas molecule loses an electron, and another atom gains it and becomes negatively charged. One of the main sources of NAIs at high altitudes is due to the photoelectric effect. When shone of metallic surfaces, certain wavelengths of light will produce electrons. UV rays are also capable of ionizing air molecules directly. Another process of generating NAIs is corona discharge which results from differences in electric fields. This can occur during thunderstorms, near leaf tips, during mist formation and dissipation, during rapid movement of air over land, or in high mountain

areas. These ions are present for only a brief time but increase during or after such events.

Another source of NAIs is the Lenard effect, which occurs when water droplets collide, generating negatively charged ions through spray electrification. These NAIs, particularly superoxide ions, are generated when free electrons from broken bonds in water molecules bond to neutral water molecules (Jiang et al., 2018). Studies suggest these NAIs can improve erythrocyte deformability, enhancing oxygen delivery to tissues and thus improving aerobic metabolism, as well as decreasing blood lactate levels and increased blood pH (Iwama, 2004).

Plants also contribute to NAI production. Naturally, plants produce low levels of NAIs, but these can increase under high-voltage electric fields (Bachman et al.,1965). Superoxide ions, the most recognized NAIs, are produced internally in the thylakoid membrane of photosystem I and II during photosynthesis. Enzymes like peroxidases in the apoplast contribute to superoxide generation, playing roles in plant defense and oxidative stress management. Externally, chloroplasts can generate superoxide under specific treatments, enhancing plant growth metrics like heights, dry weight, and leaf area. In terms of human health, NAIs are suggested to alleviate symptoms of allergies, normalize arterial pressure, support tissue oxygenation, and potentially influence serotonin levels. Superoxide ions, more stable than other negative ions, play roles in bacterial killing and can enhance the effectiveness of analgesic agents, particularly in conditions like Parkinson's disease. Additionally, NAIs help remove fine particulate matter (PM) from the air, a significant pollutant linked to respiratory and cardiovascular diseases. Hey electrically charge PM, causing it to settle faster and attach to nearby surfaces, thus reducing inhalable dust counts (Tanaka et al. 2014).

Overall, the generation and presence of NAIs in forest environments though various natural mechanisms contribute to the physical and mental health benefits experienced during forest bathing. These benefits are linked to improved metabolic activity, enhanced oxygen delivery, and reduced pollutant exposure, underscoring the therapeutic value of spending time in nature.

Another factor involved in the effects of forest bathing on health is the overall structure of the forest itself. Lower stand density in forests in associated with greater emotional and cognitive restoration, providing a more relaxing environment. Temperature also plays a significant role, particularly in spring and summer months when the warmth reduces feelings of anger, tension, and fatigue (Kim & Lee, 2023). The color green, prevalent in forests, has a calming effect, lowering heart rate during walks. However, when exercising, green can lead to higher perceived exertion, while red reduces tension, suggesting that the green environment promotes relaxation and

energy conservation during physical activity (Briki & Majed, 2019). Together, these factors enhance the overall restorative and calming effects of spending time in forested areas.

What are the benefits of forest bathing compared to conventional medicine?

Forest Bathing, offers unique benefits compared to conventional mindfulness practices, making it an appealing alternative for mental and physical well-being. While mindfulness-based therapies are not necessarily a part of conventional medicine, they are well-established in treating depression, and other mental health conditions. But these therapies can also pose challenges for individuals with mental health issues who struggle to reach a meditative state. Mindfulness often requires a structured, solitary environment with a focus on internal self-regulation of thoughts and emotions, which can lead to risks such as panic attacks, rumination, and anxiety of not properly guided.

In contrast, forest bathing provides a more accessible and supportive environment through an outward attentively focus, reducing the potential for negative psychological effects. By immersing oneself in nature and consciously engaging the senses, forest bathing tapas int o the innate human connection with the natural world, known as biophilia, and uses Attention Restoration Theory to redirect attention away from rumination. Forest bathing also tend to be less structured, allowing for curiosity, exploration, and a richer sensory experience that automatically promotes relaxation and emotional connection with less effort. The practice is adaptable to various environments and populations, making it accessible to a broader audience. Additionally, forest bathing has been shown to improve cardiovascular, immune, and respiratory health, in part due to the beneficial chemicals released by trees.

While mindfulness requires regular, solitary practice and can be challenging without consistent support, forest bathing typically involves slower movement, group sharing, and a more holistic approach that fosters social connection and gratitude towards the environment. However, forest bathing does have its limitations, such as the need for access to natural forested areas, potential discomfort from weather conditions, and the challenge of overcoming biophobia (fear of nature). Despite these barriers, forest bathing offers a comprehensive and gentle alternative that can enhance both mental and physical health in ways that conventional mindfulness practices may not fully address (Clarke et al., 2021).

What gaps are there in the research?

Despite the substantial body of research supporting the benefits of forest bathing, there are still significant gaps in our understanding of its mechanisms and long-term effects that need to be addressed to fully understand its benefits and integrate it effectively into healthcare practices.

11. Sample Size and Population Diversity

    Many studies have been conducted with small, homogenous groups, limiting the generalizability of the findings to broader populations.

    Further studies should involve larger, more diverse populations to ensure that the findings can be applied across different demographics, including various ages, genders, socio-economic statuses, and health conditions.

12. Control Conditions and Effect Isolation

    Urban settings are often used as control environments, but these do not fully isolate the specific effects of forest bathing from the general benefits of being outdoors. Additionally, the distinction between active and passive interactions with nature is not always clear, leading to varied physiological responses.

    More comprehensive control conditions should be included in studies, such as alternative natural environments, to better isolate the unique effects of forest bathing. Research should also differentiate between active and passive engagement with nature to understand how each contributes to health outcomes.

13. Long-Term Follow-Up and Sustainability

    Most studies focus on short-term outcomes, with little data on the long-term sustainability of forest bathing's benefits.

    Longitudinal studies are necessary to assess the durability of the benefits of forest bathing over extended periods and to determine whether repeated sessions offer cumulative advantages.

14. Objective vs. Subjective Measures

    The reliance on self-reported measures in many studies introduces potential biases and may not accurately reflect long-term health benefits.

Future research should incorporate more objective measures, such as physiological biomarkers and real-time monitoring using wearable technology, to provide more reliable data on the effects of forest bathing.

15. Blinding and Placebo Control

The difficulty of blinding participants in forest studies can lead to the anticipatory effect, where participants experience benefits due to their expectations rather than the interventional itself.

Studies should implement more rigorous blinding techniques, such as using misleading information or placebo nature experiences, to better isolate the actual effects of forest bathing.

16. Environmental and Seasonal Variability

The effects of environmental and seasonal variability, such as temperature, humidity, and air quality, are not always fully accounted for in studies, which could independently influence health outcomes.

Future studies should rigorously control for these environmental variables or use statistical methods to account for them. Comparing different types of forest and their specific environmental conditions could also help clarify how these factors influence the outcomes of forest bathing.

17. Conventional Medicine

The effects of forest bathing in comparison to conventional medicine have not been examined. In order to understand forest bathing's role in "complimentary" medicine research must be conducted on how its impact is different from other techniques to treat the same conditions. Such treatments include pharmacotherapy. Effects on respiratory health should be compared to bronchodilators and inhalers. Effects on sleep and insomnia should be compared with sleep medications. And psychological effects should be compared to antidepressants, mood stabilizers, and other prescription medications.

Homeopathy

What is Homeopathy?

Homeopathy is a medical system involving diluted substances below the pharmacological dosage (Ullman, 2021). Some even believe the extreme of these dilutions are an example of placebos (Ijaz, 2020). The concept was first proposed by German physician Samuel Hahnemann at the end of the 18th century as both a spiritual and scientific method of healing (Grams, 2019). It is commonly used for asthma, allergies, respiratory tract infections as well as many other ailments (Pitari, 2006). There are three principles that make up homeopathy: Similarity, Testing on Healthy Individuals, and Potentiation (Grams, 2019).

Hahnermann was intrigued by the discovery of cinchona bark as a cure for malaria. He noticed that this same substance, at higher doses, causes symptoms similar to those of Malaria. He took this concept of "like cures like" and made it a main principle in his medical system, referred to as "similarity" (Ullman, 2021). Similarity is the belief that similarities between nature and the human body dictate medicine. An example of this would be beans resembling human kidneys, as such beans would be the cure to ailments of the kidney (Grams, 2019). Similarity then extends to the Malaria case in that the symptoms or ailments that a substance causes can be cured by lower doses of that same substance (Ullman, 2021). This then leads to the second principle: Testing on Healthy Individuals. In order to determine what substances to use for which conditions, Hahnermann would give a substance to a healthy individual in order to record the physiological response (Grams, 2019). It could then be determined that a dilution of that same substance could be used to cure those symptoms (Ullman, 2021). The final principle of homeopathy is Potentiation, the belief that dilution makes a substance more potent (Grams, 2019). Hahnermann began diluting his medicine to prevent adverse effects but then realized that the less of the actual substance was in the medication, the more effective it was (Ullman, 2021). The central belief of this principle is that the substance's "spiritual healing power," or "energy," is transferred to the solvent and therefore the physical molecule does not need to be present for the dilution to be effective (Grams, 2019). A large part of the dilution process is referred to as "succussions" which is the aggressive agitation of the liquid. Hahnermann began to realize that his medications were more effective when he administered them in his patients' house. He deduced that the uneven roads he drove on to get to their homes caused his medication to be agitated and that shaking of the dilution is what makes them more effective (Ullman, 2021).

Homeopathy is a controversial practice in the medical field as it contradicts the central principles of pharmacology. The dose-to-effect, or dose-response, relationship that dictates the consumption of modern medicine typically suggests higher doses, until a certain point, are more effective than lower doses. This is in direct opposition to

Hannermann's principles (Grams, 2019). It is also controversial in that many believing this practice involves "harm-by-deception." Since the dilutions no longer contain any molecules of the substance, it can be seen as placebo medicine. By telling people you are giving them medication to cure their disease that actually has no pharmacological value you are preventing them from seeking help and therefore causing them harm. This can be seen as neglectful healthcare that prevents patients from getting effective treatment (Ijaz, 2020).

Despite its many controversies, homeopathy is a popular practice in several countries. There is little regulation as research for a "spiritual" practice can be challenging however Germany, where homeopathy originated, does have certifications to become a homeopath. The German Central Association of Homeopathic Doctors can train medical professionals to attain "additional homeopathic designation" (Grams, 2019). Homeopathic treatments also qualify for health insurance (Grams, 2019).

Evidence of impact

I reviewed 4 studies summarized below:

In 2006 Paolo Bellavite et al. reviewed 24 studies conducted between 1978 and 2006, half of which were randomized, on the effects of homeopathy in treating upper respiratory tract infections (URIs) and otorhinolarynhologic problems such as the common cold, flu and tonsillitis. Some individualized studies compared homeopathic and conventional treatments, showing mixed results. One study suggested a trend favoring homeopathy, others found similar pain levels across groups. A year-long randomized pediatric trial for rhinitis, tonsillitis, and pharyngitis indicated that homeopathy performed slightly better than the placebo, though the results were criticized for potentially underestimating the control group's need for conventional medication. Studies comparing homeopathic treatments to standard medication found them to be equally effective, and other trials showed no significant differences between homeopathic and conventional treatments for conditions like acute and chronic sinusitis (Bellavite, 2006).

Limitations: The use of individualized treatment in some of the studies meant that the medications the treatment group received varied by the person and sometimes changes throughout the trial. This means what should have been a control for the experiments were actually another variable making it difficult to compare effects. Many of the studies had conflicting results preventing verifiable conclusions to be drawn about the efficacy of homeopathy while others used subjective measures exclusively allowing for bias in their

results. More rigorous, standardized trials are needed to clarify the effectiveness of homeopathy in treating respiratory conditions.

In 2023 Jennifer Dörfler et al. conducted a systematic review of homeopathy's effects on physical and mental conditions in patients undergoing oncological treatment, examining studies from 1800 to 2020. This review included 18 studies and focused on conditions such as radiodermatitis, chemotherapy-induced nausea, joint pain, and oral mucositis. Homeopathic treatment reduced chemotherapy-induced nausea and vomiting more than antiemetic therapy. One study showed that those who received homeopathic treatment had higher survival times and lower two-year mortality rates compared to placebo or chemotherapy groups. However, breast cancer patients saw no significant improvement in radiodermatitis as well as for joint stiffness and oral mucositis (Dörfler, 2023).

Limitations: Several gaps in research were identified, such as the use of sage tea as a control in the oral mucositis study, which may have influenced results due to its own health benefits. They lung cancer survival study was limited by its small sample size (150 participants), making it difficult to draw definitive conclusions. Adverse reactions were also challenging to assess in patients receiving concurrent cancer treatments. Additionally, the studies reviewed lacked standardization in terms of remedies, potencies, and patient characteristics, which limited the ability to perform meta-analyses. Incomplete descriptions of dosages, drop-out rates, and treatment durations further hindered the reliability of the findings. More rigorous and well-designed studies are needed to clarify the potential role of homeopathy in oncology.

In 2006 Giuseppina Pitari attended a conference at Verona's School of Homeopathic Medicine to discuss the scientific validation of homeopathic medicine The conference focused on key principles such as complexity, individuality, similarity, and 'potenization.' The review of 80 studies indicated that homeopathy showed the most promising results in clinical studies on respiratory pathologies such as asthma. Poor methodology in research has led to inconclusive results on the impact of homeopathy. The role of water's 'imprint' and the activation of water clusters in triggering biological responses was discussed as a potential mechanism but remains unproven (Pitari, 2006).

Limitations: Lack of randomization, placebo controls, and standardized methodologies prevent the validation of results. The variability in homeopathic trial methods, such as different study aims, placebo usage, and poor data analysis, prevents the possibility of meta-analysis in Homeopathic Pathogenic Trials (HPTs). More rigorous trials are needed to

better understand homeopathy's effectiveness, particularly in respiratory conditions and other chronic ailments.

In 2021 Dana Ullman explored the potential mechanisms behind hormesis and homeopathy through nanopharmacology and "water memory." It was suggested that nanoparticles in highly diluted remedies hold information about the substances they have encountered, which may be passed to the patient. Vigorous shaking (succussions) enhances this effect by creating nanobubbles and silica fragments that increase potency. Ullman proposed that these nanoparticles can cross cell membranes and affect gene expression, potentially explaining homeopathy's influence on processes like cancer cell behavior and neuronal functions (Ullman, 2021).

Limitations: The nanoparticle theory is not widely accepted, and homeopathy's inconsistent performance in double-blind trials complicates validation. Further inconsistent protocols and varying toxicity thresholds add challenges to developing a standardized protocol. More rigorous research is needed to confirm nanopharmocology's role in homeopathy.

What mechanisms might be behind these effects?

Homeopathy is thought to exert its effects through several potential mechanisms, though none have been definitively proven. One idea presented at the 2006 Verona conference is that water may possess properties that allow it to retain an "imprint" of biological compounds even after extreme dilution. This process, known as "potenization," supposedly activates water clusters that can interact with cellular receptors, triggering biological responses. However, this theory remains unproven (Pitari, 2006).

Another proposed mechanism involves nanoparticles and the concept of water memory. It is suggested that nanoparticles in homeopathic solutions hold information about the substances they have been exposed to, even after extreme dilution. The vigorous shaking of homeopathic solutions, a process called "succussions," is believed to increase water pressure, forming nanobubbles. These nanobubbles gain a negative charge and build up the exclusion zone, a phase where water molecules are said to retain information. When nanobubbles implode, the resulting heat and pressure push silica fragments coat the nanoparticles, which remain even after further dilution, potentially increasing the remedy's potency (Ullman, 2021).

Ullman also prosed that these nanoparticles, due to their large surface area, may be more reactive and capable of influencing biological processes by interacting with cells. For instance, it is believed that nanoparticles can easily cross cell membranes and, in some

cases, even pass through the blood-brain barrier. This has led to studies showing that homeopathic remedies, despite their extreme dilutions, can still affect gene expression, particularly in cancer cells and neurons. Some studies have demonstrated that certain homeopathic remedies can modulate gene expression in neuronal cells, which is commonly linked to treatments for anxiety (Ullman, 2021).

The biphasic dose-response model, similar to the concept of hormesis, also plays a role in explaining homeopathy's effects. While hormesis in conventional medicine involves administering doses just below toxic levels to stimulate a beneficial response, homeopathy operates on an even lower dose threshold. This theory suggests that higher doses of a substance may cause harm, but lower doses could produce stronger, beneficial effects. Studies have indicated that ultra-high dilutions, even beyond Avogadro's number, have effects on living cells, likely due to the presence of nanoparticles, which have been identified in these diluted solutions (Ullman, 2021).

However, there are notable limitations and criticisms of these proposed mechanisms. The process of diluting a substance to 12C-potency (a ratio of 1:99 diluted 12 times) would theoretically leave no molecules of the original substance, according to Avogadro's number. Additionally, some substances used in homeopathy are water- or alcohol-soluble and may not form nanoparticles or float during the succussion process. Other substances, such as X-rays or magnetic fields, which are used in some homeopathic preparations, complicate the nanoparticle theory as they are not physical matter. Despite these gaps, proponents argue that homeopathy offers a non-toxic alternative to conventional treatments and has the potential for personalized treatment based on gene expression (Ullman, 2021).

What are the benefits of Homeopathy compared to conventional medicine?

Compared to many conventional medical treatments, homeopathy offers several notable benefits, including a lower risk of adverse effects. For conditions like upper respiratory infections (URIs) and acute otitis media, which are often overprescribed antibiotics, homeopathy provides a non-toxic alternative that reduces the risk of antibiotic resistance (Bellavite, 2006). A study comparing homeopathic treatment to antibiotics for recurrent rhinopharyngitis in children found that homeopathy resulted in fewer symptoms, fewer complications, and improved quality of life, while also lowering medical costs (Bellavite, 2006). Additionally, homeopathy is non-invasive and can be tailored to an individual's genome due to its potential effects on gene expression, allowing for more personalized treatment (Ullman, 2021). Even for those skeptical of its physiological effects, the holistic and individualized nature of homeopathy, combined with the placebo effect, can provide benefits without the side effects often associated with conventional treatments (Smith, 2012).

What gaps are there in the research?

Despite the research supporting the benefits of homeopathy, it is largely faced with criticism for its lack of consistent evidence and gaps in its potential mechanisms. These gaps need to be addressed to fully understand its benefits and integrate it effectively into healthcare practices.

Sample Size and Population Diversity

Many studies focus on individuals with specific conditions, without representing a wider, more diverse population in terms of age, gender, and health status. Majority of the studies also had small sample sizes making it unclear if these findings are applicable on a larger scale.

More research with larger, more varied populations is needed to ensure that homeopathic treatments are defective across different demographics.

Placebo Control

The lack of a standardized and effective placebo control proves a challenge in comparing homeopathic studies to each other. It is also difficult in some scenarios to isolate the true effects of the homeopathic treatment.

More comprehensive and standardize control conditions need to be established for future studies.

Variability in Treatment Protocols

Homeopathy often individualizes treatments, with different remedies given to different patients even when they present the same condition. Both remedy selection and dilution levels can vary between individuals and throughout the same trial. This lack of standardization creates challenges in comparing results across studies.

Treatment methods within a study should be uniform across all participants in future studies.

Lack of Rigorous Clinical Trials

Many homeopathic studies lack the rigorous design elements typically found in conventional medical research, such as double-blind, randomized controlled trials that Ullman suggests are not compatible with homeopathic principles (Ullman, 2021). Without strict controls, results are subject to bias.

Future studies should be double-blinded and randomized in order to control for bias.

Inconsistent Reporting of Adverse Effects

Reporting of adverse effects in homeopathic studies are inconsistent, making it difficult to validate the claim of homeopathy being non-toxic. Some trials reported no side effects, while others provided vague or incomplete descriptions of adverse reactions.

More strict requirements on what needs to be reported in studies and to what extent need to be implemented for future studies.

Challenges in Mechanistic Understanding

The mechanisms through which homeopathy is thought to work remain speculative and unproven. Neither the nanoparticle theory nor water memory have yet to be extensively researched which means the application of these theories to homeopathy have not been researched at all.

Future studies should focus on directly proving the mechanism behind homeopathy's effects.

Marketing Examples

We not only offer high-quality, personalized care, but prioritize education and scientific validation. We offer free consultations so that our clients can make informed decisions about their healthcare that they trust.

EVENTS

Group Meditation	Every Sunday 5-6pm
Forest Bathing Excursion	Every Saturday 10-12am
Beginners Guide to Self Reflexology	11/8 6-7pm
Natural Methods for Homone Health	12/8 6-7pm

MASSAGE THERAPY

Massage therapy is a therapeutic approach that uses hands-on techniques to stimulate healing. We offer a variety of massage types tailored to meet our patients needs, including deep tissue, sports, Swedish, and prenatal massage. Each massage is designed to reduce stress, improve circulation, and promote physical and emotional well-being as part of a holistic health journey.

ABOUT NATURAL OPTIONS

We believe in empowering individuals to take control of their health with holistic, evidence-based care that addresses the root causes of health concerns. Our mission is to offer a supportive environment where patients can explore natural therapies that complement conventional medicine.

We aim to promote community wellness through accessible, holistic healthcare options and to build trust in naturopathic medicine by educating clients on its scientific foundation.

CONTACT US:

(000)-000-0000

NaturalOptions@gmail.com

123 Anywhere St.,
Any City, ST 12345

WHAT WE PROVIDE

NATUROPATHIC MEDICINE

Naturopathic medicine uses holistic natural therapies to support the body's inherent healing abilities. It includes treatments, such as hydrotherapy and botanical medicine. Our clinic also offers high-quality supplements and plant-based remedies to enhance wellness. Physical medicine, including therapeutic exercises for rehabilitation, helps patients recover strength and mobility. Together, these therapies promote sustainable health that treats the whole person, not just symptoms.

NATURAL OPTIONS WELLNESS CLINIC ESTD 2025

NATUROPATHIC MEDICINE

YOUR PATH TO HOLSITIC HEALTH

www.naturaloptions.com

FUNCTIONAL MEDICINE

Functional medicine combines natural therapies with scientific methods to create a holistic view of health. This approach includes detailed lab work analysis to uncover underlying imbalances, nutritional counseling to support optimal wellness, and thorough physical exams to asses overall health. Minor surgical procedures can also be part of functional medicine when necessary, always with a focus on minimally invasive techniques that align with natural healing.

JOIN US

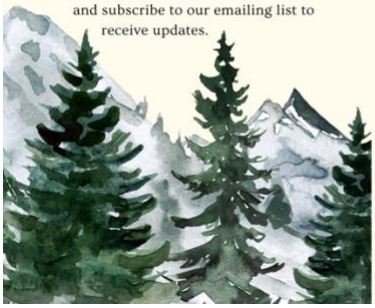
Every Saturday 10-12am
(Weather Permitting)***

Meet at [State forest parking Lot, or any other nature reserve] at 9:50am, departure at 10am.

What to Bring:

- Water
- Comfortable, closed toed shoes
- Jacket or anything to keep warm

*** Follow us on Instagram: NaturalOptions and subscribe to our emailing list to receive updates.



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FOREST BATHING EXCURSIONS

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WHAT ARE THE BENEFITS?

Research on forest bathing has shown various health benefits. Studies indicate that spending time in forest environments promotes relaxation and reducing stress. Additionally, it has been proven to lower blood pressure, heart rate, and reduce the risk of heart disease

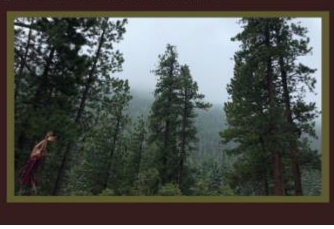
Forest Bathing also benefits metabolic and immune health by reducing inflammation and enhancing immune responses. It also has antioxidant activity reducing the risk for cancer.

Psychologically, it has shown promising effects in reducing anxiety, depression, and fatigue while enhancing relaxation and mental clarity.

WHAT IS FOREST BATHING?

Forest Bathing, or Shinrin Yoku, is a practice originating in Japan in which individuals immerse themselves in a forest environment and fully engage their senses. Officially recognized by the Forest Agency of Japan in 1982, this method combines mindful presence with the natural surroundings, allowing participants to slow down, observe, listen, touch, and breathe in the forest air.

Forest Bathing has gained recognitions globally, with organizations like the Forest Agency of Japan and the International Union of Forest Research Organizations supporting its practice. It is also being integrated into public health strategies and urban planning, encouraging people to interact with natural spaces in a mindful way. Forest Bathing not only enhances individual well-being but also promotes a deeper appreciation for forests, aiding in conservation and environmental preservation efforts worldwide.



HOW DOES IT WORK?

Forest Bathing exerts its effects through several natural mechanisms. One major factor is the release of phytoncides - compounds from tress and plants that we breathe in, which may help reduce stress and support well-being. Forests are also rich in negative air ions, tiny particles generated by water movement, sunlight, and plant activity. These ions can improve air quality, oxygen delivery, and may influence mood. Finally, the calming atmosphere of forests, with their cool shade, open spaces, and green colors, helps create a restorative experience. Together these elements create a uniquely soothing environment that supports mental and physical health.

Financial Spreadsheet

Monthly Operating Costs

Category	**Monthly Cost**
Rent & Utilities	5500
Licenses & Liability Insurance	150
Personal Salary	4000
Marketing and Website Maintenance	100
Supplies and Inventory	1,900
Event and Workshop Materials	200
Professional Development	150
Total	**12,000**

Profitability Analysis

Category	**Revenue Per Unit**	**Units Needed to Cover Costs**
Product Sales	50	68
Services Revenue	100	60
Memberships	100	20
Event Fees	20	30

Pitch Deck

Natural Options

YOUR PATH TO HOLISTIC HEALTH

Honors Thesis Formal Oral Presentation
Hailey Howard, Founder
04 December, 2024

OUR MISSION

To promote community wellness by offering accessible, holistic healthcare options and to build trust in naturopathic medicine by educating clients on its scientific validity.

THE PROBLEM

~ Conventional treatment focuses on symptoms
~ Lack of awareness and/or understanding

OUR SOLUTION

Personalized, holistic care ~
Free consultations ~
Educational tools and events ~

TARGET MARKET

For patients who feel overlooked by conventional healthcare & seek a holistic, safe alternative to symptom-focused treatment.

~ Wellness Enthusiasts
~ Chronic Conditions
~ Families
~ Seeking Education & Community

QUESTIONNAIRES

Non-Clients
- ✓ *less harmful*
- ✓ *holistic*
- ✓ *natural*

47%
completely trust

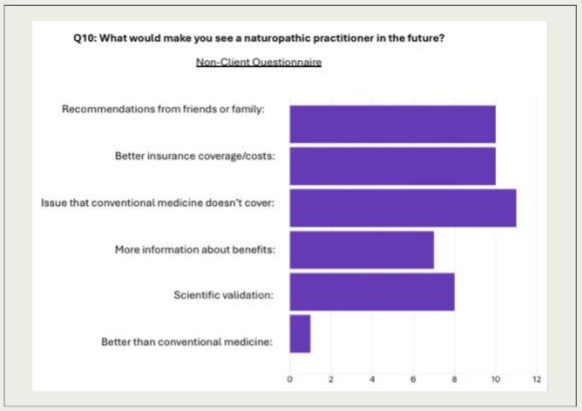
Clients
- ✓ *prevention*
- ✓ *holistic*
- ✓ *natural*

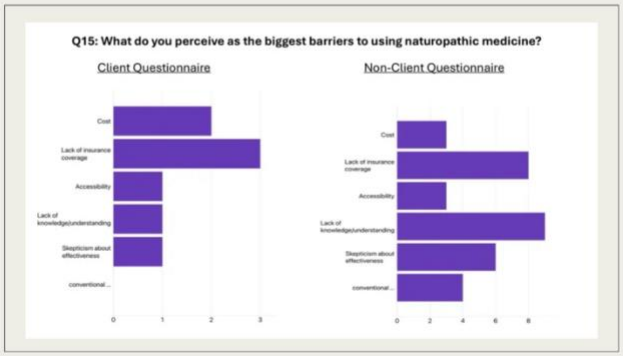
66%
completely trust

73%
need health issue not addressed by conventional

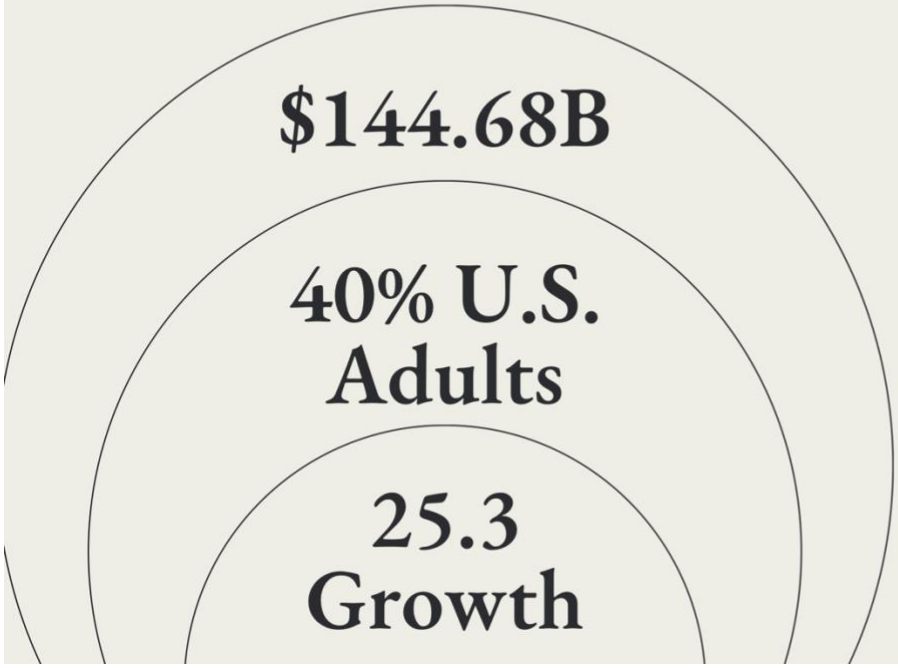
60%
find lack of knowledge to be a barrier

100%
find insurance to be a barrier





MARKET OPPORTUNITY



- ~ Raised Awareness
- ~ Increased Chronic Disease Rates
- ~ Aging Population
- ~ Preference for Preventative & Natural
- ~ Integration with Conventional

COMPETITIVE ADVANTAGE

Comprehensive Offerings

Evidence-Based Practices

Emphasis on Education

Community Engagement

Digital Adaptation

WHAT WE PROVIDE




Holistic
Services
- Free Consultations
- Lab Work Analysis
- Nutritional Counseling
- Naturopathic Medicine
- Massage Therapy

Natural
Products
- Herbal Teas
- Supplements
- Body & Hair Products
- Tinctures & Extracts

Community
Events
- Group Meditations
- Educational Lectures
- Forest Bathing Excursions

Educational
Resources
- Handouts
- Social Media Content
- Website

MARKETING STRATGEY

How We Reach Clients

Social Media Platforms

Educational Materials

Community Events

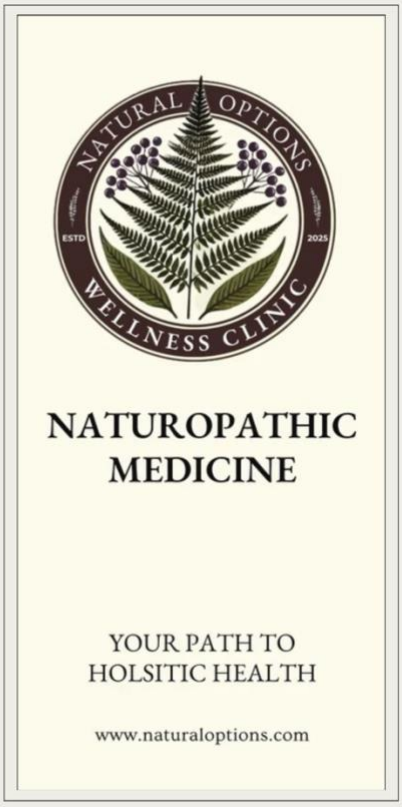
Collaborative Partnerships

How We Retain Clients

Membership Programs

Follow-Up Support

Community Engagement



FINANCIAL SNAPSHOT

Revenue Streams

How we profit

~ Product Sales & Services

~ Memberships & Gift Cards

~ Event Fees

Fixed Costs

What we maintain

~ Equipment

~ Rent & Utilities

~ Licenses & Liability Insurance

~ Marketing & Website Maintenance

Variable Costs

What we adjust

~ Supplies & Inventory

~ Event & Workshop Materials

~ Professional Development

VISION FOR THE FUTURE

Expand Services
Acupuncture, cupping, yoga, IV therapy
Obtain necessary licensure and hire specialists to broaden service capabilities

Expand Reach
Online Store
Launch a user-friendly platform for purchasing products with the goal of serving clients beyond the local area.

Healthy Community
Education & Engagement
Use events and workshops to build awareness of how to improve health. Support from the community will encourage people to make behavior changes and maintain them.

Trusted Wellness Hub
Holistic, evidence-based care
Position the clinic as a reliable destination for integrative health by combining naural treatments with scientific research to address root causes and promote long-term wellness.

Thank You!

Honors Thesis Formal Oral Presentation
Hailey Howard, Founder
04 December, 2024

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