

Executive Summary

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Health Technology Assessment - Naturopathy

This Executive Summary presents the findings of a Health Technology Assessment (HTA) on naturopathy initiated by the World Naturopathic Federation (WNF), the non-profit organization representing the global naturopathic profession and composed of national naturopathic organizations, naturopathic educational institutions and other naturopathic organizations spanning all World Health Organization (WHO) Regions. The protocol and methods for the HTA were drafted in line with the World Health Organization HTA guidelines, adapted to meet the specific requirements and nature of the naturopathic profession. The HTA report was developed to provide an evidence-based summary of naturopathic practices and outcomes of naturopathic care. The scope of the HTA was informed by research conducted by the international naturopathic community.

Foundational Basis of the Naturopathic Profession

Section 1 of this HTA outlines naturopathy as a distinct traditional and complementary system of medicine practiced around the world with strong historical and cultural roots in Europe. Naturopathy was formalized as a distinct system of medicine at the end of the 19th century in Germany and at the beginning of the 20th century in North America. Naturopathy quickly expanded to the Western Pacific, Asia, Latin America and the Caribbean, Africa and throughout the rest of Europe. The naturopathic profession encompasses both naturopathy and naturopathic medicine. Naturopaths and naturopathic doctors (NDs) around the globe share a common philosophical framework and a set of core therapeutic modalities and practices as foundation to naturopathic practice despite some educational differences, as well as jurisdiction-specific regulation and restrictions.

HIGHLIGHTS

- Naturopathy is a traditional system of medicine originating in Europe and it is part of Traditional and Complementary Medicine (T&CM) around the world.
- Naturopaths/naturopathic doctors treat patients throughout the span of their life. Naturopathic care focuses on prevention and chronic conditions, but also in the treatment of patients with acute conditions and those in palliative care.
- Naturopathic diagnoses categorize the symptoms, conditions and/or disease-state using biomedical terminology and diagnosis criteria along with traditional naturopathic diagnostic concepts.
- Naturopathy is defined by two core philosophies and seven principles and naturopathic practice that is guided by distinct naturopathic theories.
- Naturopathic practice is complex and multi-modal and incorporates core naturopathic therapies, modalities and practices including applied nutrition, clinical nutrition, herbal medicine, lifestyle modification, mind-body medicine counselling, naturopathic physical medicine, hydrotherapy, and other therapies based on jurisdictional regulations and naturopathic education.

Naturopathic Practice

Chapter 1 describes how naturopathic practice is characterized by specific assessment, diagnosis and treatment approaches used by naturopaths/naturopathic doctors. As a European traditional medicine system sharing several historical connections with Western medicine, naturopathic practice can successfully bridge traditional and biomedical approaches to practice. *Naturopathic Assessment* is person-centered with the goal of determining the factors contributing to a patient's state of health and their symptoms and conditions. It involves investigation into lifestyle, social, environmental, external, and genetic factors, and the impact of medical interventions. Naturopaths/naturopathic doctors employ a range of assessment tools including a thorough case history, standard conventional physical examinations and laboratory testing, along with traditional *naturopathic assessment* techniques such as tongue and pulse diagnosis. The three main goals of a *naturopathic assessment* are to:

1. determine the factors contributing to a patient's state of health, their symptoms and/or diseases;
2. collect the proper information to inform a naturopathic diagnosis and
3. assess the patient's vitality and state of wellbeing.

The three primary and interrelated purposes to a *naturopathic diagnosis* are to:

1. accurately categorize the symptoms, condition and/or disease-state using biomedical terminology and diagnostic criteria along with traditional naturopathic diagnostic concepts;
2. determine the underlying causes of the patient's symptoms, conditions, or disease-state; and
3. determine the patient's healing ability.

Naturopathic practice has always been therapeutically diverse in its approach to healing and incorporates various *therapeutic modalities and practices* applied based on the naturopathic philosophical and traditional framework. The therapeutic modalities and practices core to naturopathic care and which are included in over 80% of naturopathic educational programs are clinical and applied nutrition, herbal medicine, lifestyle counselling, hydrotherapy, and homeopathy. Based on jurisdictional regulation and the training of naturopaths/naturopathic doctors in some countries, other modalities such as yoga,

naturopathic manipulation, acupuncture, intravenous therapies (IV), regenerative injection therapies and the prescribing of restricted products (e.g., bio-identical hormones, high dose vitamin D, compounds for IV therapy) form a significant part of the naturopathic scope of practice.

Naturopathic Philosophies and Principles

Chapter 2 provides an overview of the naturopathic philosophies of *vitalism* (an innate intelligence of living organisms) and *holism* (the body is a complex adaptive system that exists as a unified whole) that embrace every aspect of naturopathic care and are supported by seven naturopathic principles that guide naturopathic practice:

- I. First, Do No Harm (*primum non nocere*)
- II. Healing Power of Nature (*vis medicatrix naturae*)
- III. Treat the Cause (*tolle causam*)
- IV. Treat the Whole Person (*tolle totum*)
- V. Doctor as Teacher (*docere*)
- VI. Health Promotion and Disease Prevention
- VII. Wellness and Wellbeing

Naturopathic Theories

Chapter 3 describes core theoretical and conceptual frameworks that inform naturopaths/naturopathic doctors clinical reasoning and decision making. The main theories included are:

- The *Naturopathic Therapeutic Order* which is a systematic approach to treatment that moves from minimally invasive to more forceful treatments as necessary.
- The *Emunctory Theory* which states toxic substances can be absorbed from the environment or produced by abnormal metabolic processes and must be effectively eliminated to achieve good health.
- The *Theory of Complex Systems* outlines that the body is a complex and self-sustaining dynamic and evolving system functioning within an environment of multiple nested systems which are interconnected, and naturopathic practice must reflect this complexity.

Naturopathic Professional Formation by WHO Region

Section 2 of this HTA explains that although there is some diversity in the educational standards and regulation of the naturopathic profession around the world, the profession is strongly united in the philosophies and principles that define naturopathic practice, as well as in the core therapeutic modalities and practices used by the profession.

HIGHLIGHTS

- The naturopathic profession includes more than 110,000 naturopaths/ naturopathic doctors (NDs) practicing in over 108 countries spanning all WHO Regions.
- 34 countries have some form of statutory regulation including regulation specific to the naturopathic profession (i.e., Naturopathy Act), and/or umbrella regulation under Allied Health or T&CM.
- 75% of countries where naturopathy/naturopathic medicine is practiced use the term naturopath and 41% use *naturopathic doctor* or *naturopathic physician*. Local variations such as *heilpraktiker*, *naturista*, *naturólogo* or *naturópata* reflect the language spoken in those countries.
- Over 130 naturopathic educational programs exist around the world and there are two main types of naturopathic educational programs the doctorate-level training programs at over 4,000 hours – which currently represents 52% of all programs – and the practitioner-level training programs at 2,500 hours.

Landscape of Naturopathy by WHO Region

Chapter 4 provides an overview by WHO Region starting with naturopathy as a discrete traditional system of medicine originating in Germany in the mid-1800s. It then spread to countries in the Americas, the Western Pacific Region, India, and throughout other European countries by the early 1900s. Currently, naturopathy/naturopathic medicine is practiced in 108 countries spanning all WHO Regions and it is estimated that there are over 110,000 naturopaths and/or naturopathic doctors globally. Naturopathy is currently practiced in all WHO Regions.

- **Europe** is the traditional home of naturopathy with over 30 countries in that Region with a naturopathic workforce of around 60,000 naturopaths.
- Naturopathy was introduced into the **Region of Americas** in the late 1800s and currently there are over 30 countries in that Region with a naturopathic workforce of over 25,000 naturopaths and naturopathic doctors. North America (Canada and the United States) is considered the home of modern naturopathy as this was where codification and education became most advanced. In North America naturopathic doctors are recognized as primary care practitioners in those States or Provinces with regulation. North American NDs have played a significant role in leading naturopathic research and the codifying of naturopathic information.
- The **Western Pacific Region** has had a naturopathic workforce since the early 1900s and there are currently 14 countries in that Region practicing

naturopathy with a workforce of over 10,000 naturopaths/NDs. Naturopaths/NDs in the Western Pacific Region, especially in Australia, have been instrumental in furthering naturopathic research for the profession.

- Naturopathy was introduced into **South-East Asia** in the 1920s via India and currently there are at least five countries with a naturopathic workforce of over 10,000 naturopaths/NDs. In India, naturopathy is a recognized part of the Traditional System of Indian Medicine (referred to as AYUSH: Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa Rigpa and Homeopathy) with naturopathy and yoga being combined in naturopathic studies.
- Naturopathy was introduced to **Africa** in the mid-1900s and is now practiced in at least 13 countries in that Region with a workforce of about 5,000 naturopaths/NDs.
- Naturopathy has been introduced to the **Eastern Mediterranean** Region since the late 1990s and is currently practiced in at least eight countries in that Region.

Regulation of the Naturopathic Workforce

Chapter 5 outlines that there is a naturopathic workforce in 108 countries. While 35 countries enforce statutory regulation of the naturopathic profession another 17 have a formal process of voluntary certification. Other regulatory models used include co-regulation and negative licensing. Statutory regulation follows several legislative frameworks including regulation specific to the

naturopathic profession (i.e., Naturopathy Act), and/or umbrella regulation under Allied Health or T&CM.

Educational Standards for the Naturopathic Workforce

Chapter 6 outlines that there are 131 naturopathic educational institutions globally with 38% residing in the Region of South-East Asia, 27% in the European Region, 22% in the Region of the Americas, 9% in the Western Pacific Region, and 4% in the African Region. There are two main naturopathic educational programs doctorate-level training programs (over 4,000 hours) and practitioner-level training programs at 2,500 hours. Over 52% of the current naturopathic medical educational programs are 4,000 hours or longer and less than

9% are under 2,000 hours. *Benchmarks for Training in Naturopathy* were published in 2010 by the WHO.

Naturopathic education includes the full breadth of:

- naturopathic history, philosophies, principles, and theories.
- naturopathic medical knowledge includes basic and clinical sciences, laboratory and diagnostic testing, naturopathic assessment and diagnosis.
- naturopathic therapeutic modalities, practices, and treatments.
- supervised clinical practice.
- ethics and business practices; and
- research.

Surveys Conducted for the HTA

For five years, the WNF undertook essential foundational work to inform this HTA. An outline of the surveys conducted are as follows:

2015: The first international survey of the global naturopathic profession was conducted outlining characteristics of naturopathic practice in each country. Responses were received from 22 national naturopathic organizations which spanned all WHO Regions .

2016: A detailed international survey examining the characteristics of naturopathic education, regulation, and practice frameworks was initiated. The survey included responses from 65 naturopathic organizations (educational institutions, professional associations, regulatory bodies) from 29 countries. Data collection for this survey was completed in 2020.

2016: The international naturopathic educational institutions were surveyed. Thirty responses were received spanning 17 countries from five WHO Regions outlining what was taught in their naturopathic educational programs [4].

2016: A bibliometric analysis of research conducted by the naturopathic profession was undertaken from 2016 to 2018. The results of this international naturopathic research coalition project identified over 2200 naturopathic research papers which provided the basis for a substantial part of this HTA.

2019: An international practice survey was conducted to confirm the practices, health conditions and treatment modalities used by naturopaths/naturopathic doctors. This survey was sent to members from fourteen full WNF members (national naturopathic organizations) with an established history of naturopathic practice and included feedback from 859 naturopathic patient visits.

2019: An international survey was conducted to identify the degree that naturopathic educational institutions provide free or low-cost naturopathic care to the underprivileged, low income or specialized groups through naturopathic community clinics.

2019: A detailed analysis of program content provided by naturopathic educational institutions around the world was initiated and completed in 2021. The analysis identified 131 naturopathic educational programs located across five WHO Regions.

2020: An international survey of naturopaths/naturopathic doctors was conducted to identify the degree that naturopathic clinicians engage with and educate the public through various community education and health promotion activities. The survey was translated into five languages and over 800 responses were received from naturopaths/naturopathic doctors spanning all WHO Regions.

2020: A detailed knowledge mobilization survey was translated into five languages and shared internationally, resulting in over 500 responses from naturopaths/naturopathic doctors from around the globe. This survey examined naturopathic clinicians' approach to sharing and using knowledge and information related to naturopathic practice.

Practice and Implementation of Naturopathy in Health Care Systems

Section 3 of this HTA outlines that there is extensive evidence describing clinical outcomes associated with naturopathic therapeutic modalities and practices, and a broad evidence base examining many other aspects of naturopathic practice providing a guide to how it might fit into the global healthcare system. Policymakers and other stakeholders seeking to understand how best to optimize the health workforce and integrate naturopaths/naturopathic doctors into their policies, programs, and services for community benefit must consider this evidence within the context of contemporary naturopathic practice.

HIGHLIGHTS

- Naturopathic care is cost-effective, particularly for longer-term and chronic conditions and for persons with higher disease burden.
- Direct risks associated with naturopathic care are infrequent compared to most health professions, usually minor in nature and of types not dissimilar from other professions with similar primary care roles.
- The over 100 naturopathic community clinics around the globe serve an essential role in providing naturopathic care to the underprivileged, marginalized, low income, and underserved populations.
- Naturopaths/NDs are actively engaged in various forms of community education and health promotion activities and are well suited to play a more formal role in public health initiatives aimed at increasing health literacy.
- Naturopaths/NDs practice knowledge mobilization, employing multiple forms and sources of knowledge and mobilizing knowledge to – as well as from – others.

Safety and Risk of Naturopathic Practice

Chapter 7 outlines that the main types of risk associated with naturopathic practice are similar to those from any other health profession that employs a broad scope of practice and results primarily from the tools of trade that naturopaths/NDs use and the primary-care context within which they work. While risks associated with naturopathic practice are relatively rare, they are potentially significant enough that regulatory initiatives aimed at minimizing them should be encouraged. Lower risks associated with naturopathic practice are highly dependent on appropriate levels of education and safe standards of practice, and mechanisms should be enacted to ensure these standards are met. Most risks associated with naturopathic practice are either not unique to naturopathic practice (e.g., adverse events from therapeutic tools such as botanical or intravenous treatments) or are associated with rogue practitioners rather than representative of naturopathic practice (e.g., fraudulent behaviours). The typology of risks of naturopathic practice is what could be expected of any health profession with a substantive primary health care role and are substantively less than other practitioner groups performing similar roles.

Economics of Naturopathic Care

Chapter 8 outlines that globally, naturopathic care is primarily covered by third party insurers or out-of-pocket costs borne by consumers, rather than by government-funded programs, which may reduce the accessibility of naturopathic care.

- Some countries incorporate government-funded naturopathic care either for specific populations (e.g., veteran care) or circumstances (e.g., worker's compensation).
- Economic evaluations of naturopathic interventions that have been conducted have reliably shown naturopathic care to be cost-effective, particularly for longer-term and chronic outcomes, and for persons with higher disease burden.
- Studies also suggest societal economic benefits from naturopathic care, such as improved presenteeism and reduced absenteeism, and lower overall insurance costs per person.
- Integration of complementary therapies in multi-disciplinary settings has also shown the ability to reduce costs of care while delivering equal or better clinical outcomes in general inpatient populations, oncology patients and pain patients, and such findings are suggestive of a potentially beneficial role

for naturopaths/naturopathic doctors in integrative multidisciplinary settings.

International Survey of Naturopathic Patients and Practices

Chapter 9 highlights the results from an original research paper titled, “*Overview of international naturopathic practice and patient characteristics: results from a cross-sectional study in 14 countries*” highlights that naturopaths/NDs treat a wide range of conditions with over 70% of patients presenting with chronic conditions. Naturopaths/NDs also treat patients with acute conditions and focus on preventive and palliative care. A typical naturopathic visit will generally involve the prescription, recommendation or use of an average of four different naturopathic treatments, therapies, or practices. Naturopaths/NDs treat a wide range of health conditions both as primary care practitioners and in collaboration with other healthcare providers.

International Prevalence of Consultations with a Naturopath/Naturopathic Doctor

Chapter 10 outlines that although the naturopathic workforce has a significant presence globally, there are limited data on the prevalence of naturopathic consultations. The 12-month prevalence of consultations with a naturopath/naturopathic doctor ranged from 1% of the general population in the USA to 6% in European and Western Pacific Regions, though there are significant differences between and within Regions, which may be driven by a range of policy, legislative and social factors.

Access and Equity in Naturopathic Care

Chapter 11 highlights that the original research paper *Naturopathic community clinics: international cross-sectional survey* indicates that there are over 100 Naturopathic Community Clinics (NCCs) globally that offer free or low-cost naturopathic care to under-served populations. NCCs have been offered through various naturopathic educational institutions for over three decades.

- NCCs reach underserved, vulnerable, and marginalized populations such as low-income families, immigrants, refugees, people experiencing homelessness, indigenous peoples, people with HIV/

AIDs and those dealing with addictions or drug use as well as individuals from diverse genders including transgender and non-binary.

- NCCs provide naturopathic care that is like that delivered in general naturopathic practice treating both chronic and acute conditions. Gastrointestinal, mental health, endocrine and musculoskeletal conditions are the most common presenting concerns of individuals visiting NCCs.

Community Education and Health Promotion Activities of Naturopaths/Naturopathic Doctors

Chapter 12 highlights the results of the original research paper, “*Community education and health promotion activities of naturopaths/naturopathic doctors: results of an international cross-sectional survey*” highlights that naturopaths/NDs use a variety of educational tools, often at no cost to patients and consumers, to improve health literacy and encourage self-care. The tools used focus on ways to change health behaviours, to provide self-care guidelines, to manage health concerns and to prevent future health issues. Commonly employed tools include information sheets and handouts, social and professional network communications and information talks for members of the community. Research indicates that individuals who visit with a naturopath/ND may be more motivated to engage in positive health behaviours. This combination of patient-centered education and motivation of patient group may mean the community education activities undertaken by naturopathic practitioner have a marked impact in their patient population.

Mobilization of Knowledge and Information in Naturopathic Clinical Practice

Chapter 13 highlights the original research paper titled, “*Naturopaths’ mobilisation of knowledge and information in clinical practice: an international cross-sectional survey*”, indicates that naturopaths/NDs are able to effectively draw knowledge from a diverse range of information sources to inform their clinical decision-making. While published research evidence is the prominent source of information informing clinical practice, naturopaths/NDs also draw on traditional knowledge, clinical experience and patient expertise regarding their own health condition. Naturopaths/NDs actively share their knowledge with patients and the wider community, suggesting they may act as knowledge brokers.

Naturopathic Research

Section 4 of this HTA outlines that there is an extensive body of research examining naturopathic practices and therapies, though several considerations need to ensure research appropriately reflects naturopathic practice. The naturopathic community has been active in researching health topics beyond naturopathic medicine and T&CM.

HIGHLIGHTS

- Pragmatic clinical research methods apply a complex, person-centred approach to clinical trial design that may help determine fidelity to naturopathic practice.
- The international naturopathic research community has demonstrated sustained commitment to codifying and synthesizing existing knowledge, generating new knowledge, and disseminating this knowledge to the wider clinical and research community.
- Naturopaths/NDs have published over 2000 peer-reviewed articles since 1987 with notable increases in the last 20 years.
- The naturopathic profession requires adequate infrastructure to further support research and research capacity building, consumer and practitioner engagement, and integration into health systems.
- It is important that naturopathy is recognized as a total system of traditional medicine when designing and conducting research investigating naturopathic treatments, therapies, and practices.

Researching Naturopathy as a Traditional System of Medicine

Chapter 14 outlines that research requires a balance between internal validity and external validity. Achieving this can be challenging in T&CM professions, such as naturopathy, due to its whole practice nature. Research with a limited focus on external validity has been identified by naturopaths/NDs as having limited applicability to clinical practice. The naturopathic profession has a long tradition of generating new knowledge and naturopaths/NDs have been described as early adopters of various forms of research, and as improving evidence-based approaches to practice while maintaining a strong connection to their naturopathic philosophies and principles.

Challenges and Advancements for Naturopathic Clinical Research

Chapter 15 outlines that researching naturopathy/naturopathic medicine – as well as primary care, public health, and other T&CM practices – has historically presented several challenges due to the limitations of the randomized-controlled trial design when evaluating complex interventions underpinned by philosophies and principles beyond the biomedical paradigm.

- Naturopathic researchers have embraced widely accepted innovations in research design and methodology aimed at investigating person-centred interventions with multiple therapeutic elements.
- The pragmatic clinical research design allows for the inclusion of multi-modal interventions, real-world settings and flexibility in treatment delivery matching the approach taken in real-world naturopathic care.

Research Dissemination by the Global Naturopathic Research Community

Chapter 16 highlights an original research paper titled, *“Knowledge dissemination by the naturopathic profession: a bibliometric analysis of naturopath-authored, peer-reviewed publications”* indicates that the international naturopathic research community has been actively publishing peer-reviewed research literature for over 30 years and has demonstrated sustained commitment to codifying existing knowledge, generating new knowledge and disseminating this knowledge to the naturopathic and wider allied-health clinical and research communities. Naturopathic research is conducted in most of the educational institutions that have a naturopathic program, especially those in the United States of America, Canada, Australia, Germany, India, and New Zealand.

Effectiveness of Naturopathic Clinical Practice

Section 5 of this HTA outlines that naturopaths/naturopathic doctors treat diverse physical and psychological health concerns throughout the full range of a patient's life. Most naturopathic visits focus on chronic diseases, but naturopathic clinicians also treat acute conditions and support patients in palliative care and those seeking advice for preventive medicine. Naturopathic researchers have published 235 original clinical research articles investigating a wide range of health interventions and sampling diverse health populations. Overall, 81.1% of the studies on the effectiveness of naturopathic clinical practice identified a positive response to at least one primary or secondary outcome measure.

HIGHLIGHTS

- Naturopathic researchers have conducted original clinical research involving 81 different illness populations.
- 81.1% of the studies investigating the effectiveness of naturopathic clinical practice, therapies or treatments identified a positive response to at least one primary or secondary outcome measure.
- The risk of non-communicable diseases (NCDs) is strongly associated with modifiable risk factors – lifestyle behaviours, physical activity, sedentariness, obesity, alcohol consumption, dietary choices, and environmental exposures – all which are addressed as part of naturopathic care.
- Naturopaths/NDs have been instrumental in the development of integrative oncology, nutritional psychiatry as well as modern biomedical concepts such as the role of the microbiome on health.
- Although this section included 235 clinical research articles, due to the variety of complex interventions used by naturopaths/NDs further research is required on the effectiveness of naturopathic care.

Cancer and Cancer-related Conditions

Chapter 17 outlines that individuals seek naturopathic care for a range of cancers, as well as for recovery from cancer or palliative care. Naturopathic researchers have conducted 53 clinical studies investigating interventions for populations with cancer and cancer-related conditions, with 93.5% reporting a positive outcome. These are supported by over 100 observational studies and more than 60 reviews or meta-analysis. Conditions represented include breast, colorectal, prostate, and cervical, and other cancers.

Cardiovascular Conditions

Chapter 18 outlines that naturopaths/NDs can have a significant role in the prevention and management of cardiovascular and other NCDs. Naturopathic researchers have conducted 12 clinical studies investigating interventions for populations with cardiovascular conditions, with 72.7% reporting a positive outcome. These are supported by over 20 observational studies and more than 20 reviews or meta-analysis. Cardiovascular conditions represented include hypertension, cardiovascular disease, post-cardiac surgery, and other cardiovascular conditions.

Complex Immune Conditions

Chapter 19 outlines that the naturopathic approach views the management of conditions through a lens of complexity, addressing multiple causative factors and physiological systems concurrently. Naturopathic researchers have conducted 14 clinical studies investigating interventions for populations with complex immune condition. Complex Immune conditions represented include HIV and AIDS, multiple sclerosis and chronic fatigue syndrome.

Endocrine Conditions

Chapter 20 outlines that naturopaths/NDs are well-placed to help in the treatment and prevention of endocrine conditions and other NCDs due to their specific training and focus on lifestyle counselling and treatment of the various risk factors. Naturopathic researchers have conducted 23 clinical studies investigating interventions for populations with cardiovascular conditions, with 90.9% reporting a positive outcome. These are supported by 15 observational studies and 17 reviews or meta-analysis. Endocrine conditions represented include type II diabetes mellitus, metabolic syndrome, and other endocrine conditions.

Gastrointestinal Conditions

Chapter 21 outlines that gastrointestinal conditions are among the top reason patients seek naturopathic care. Naturopaths/NDs place a high importance on gastrointestinal health and recognize that it is linked to many other conditions. Naturopathic researchers have conducted 17 clinical studies investigating interventions for populations with gastrointestinal conditions, with 82.4% reporting a positive outcome. These are supported by 13 observational studies and 39 reviews or meta-analysis. Gastrointestinal conditions represented include irritable bowel syndrome, functional gastrointestinal disorders, inflammatory bowel disease, coeliac disease, hepatobiliary and pancreatic conditions, and other gastrointestinal conditions.

Mental Health Conditions

Chapter 22 outlines that naturopathy's broad-spectrum approach to health and disease and the principle *Treat the Whole Person* means that naturopaths/NDs acknowledge the significance of a person's mental status when treating any condition. Naturopathic researchers have conducted 24 clinical studies investigating interventions for populations with mental health conditions, with 64.7% reporting a positive outcome. These are supported by over 50 observational studies and more than 80 reviews or meta-analysis. Mental health conditions represented include depression, anxiety, and other mental health conditions.

Musculoskeletal Conditions

Chapter 23 outlines that naturopaths/NDs use a broad treatment approach with musculoskeletal conditions, which are one of the most common reasons patients seek naturopathic care. Naturopathic researchers have conducted 30 clinical studies investigating interventions for populations with musculoskeletal conditions, with 89.3% reporting a positive outcome. These are supported by over 50 observational studies and more than 50 reviews or meta-analysis. Musculoskeletal conditions represented include chronic neck pain, low back pain, osteoarthritis, fibromyalgia and other musculoskeletal conditions.

Neurological Conditions

Chapter 24 outlines that naturopaths/NDs employ a diverse treatment approach in the treatment of neurological conditions. Naturopathic researchers have conducted 21 clinical research papers investigating interventions for populations with neurological conditions, with 66.7% reporting a positive outcome. These are supported by

over 40 observational studies and more than 25 reviews or meta-analysis. Neurological conditions represented include migraine and chronic headaches, Parkinson's Disease, and other neurological conditions.

Skin Conditions

Chapter 25 outlines that naturopaths/NDs place great importance on skin conditions as naturopathic theory views the skin as the largest detoxification organ of the body and as a representation of internal health. Naturopathic researchers have conducted 8 clinical studies investigating interventions for populations with skin conditions, with 62.5% reporting a positive outcome. Skin conditions represented include acne vulgaris, psoriasis, vitiligo vulgaris and other skin conditions.

Women's Health Conditions

Chapter 26 outlines that naturopaths/NDs commit significant focus to women's health conditions and over 70% of patients seeking naturopathic care are female. Naturopathic researchers have conducted 11 clinical studies investigating interventions for women's health conditions. These are supported by over 40 observational studies and more than 30 reviews or meta-analysis. Women's health conditions represented include menopausal symptoms, menstrual disorders, and other women's health conditions.

Other Conditions

Chapter 27 outlines that in addition to the conditions listed above, there are a range of other conditions treated by naturopaths/NDs. Naturopathic researchers have conducted 14 clinical studies investigating interventions for these other conditions, with 85.7% reporting a positive outcome. The conditions represented include overweight or obesity, respiratory conditions, and genitourinary conditions.

Other Research Publications Related to Health Conditions

Chapter 28 outlines that naturopathic researchers have also published over 1400 peer-reviewed journal articles related to health conditions and roughly half of these are reviews and meta-analyses (n=357; 24.5%) or observational studies (n=363; 24.9%). These types of articles present an important contribution in the healthcare field to the understanding of health, illness, and its management.

Research on Naturopathic Therapeutics and Practices

Section 6 of this HTA outlines that naturopathic practice is known for its complexity and flexibility with a range of treatments, therapies, and practices. There is strong consensus on seven core naturopathic modalities used in practice: applied nutrition and diet modifications, clinical nutrition and the use of natural health products, herbal medicines, lifestyle counselling, hydrotherapy, homeopathic remedies, and various physical modalities such as yoga, naturopathic manipulation, and muscle release techniques. Naturopathic research on naturopathic therapeutic modalities and practices highlights how such treatments are employed – singularly and in combination – by naturopaths/NDs both in naturopathic clinical interventions and at times in collaboration with other healthcare settings. There are over 300 original clinical studies that focus on clinical outcomes associated with naturopathic treatment modalities and practices. These studies investigate treatments for over 140 conditions. These clinical studies commonly feature pragmatic elements such as multi-modal interventions, flexibility in administration, and real-world settings. Overall, 77.6% of these studies each identified a positive response to at least one primary or secondary outcome measure.

HIGHLIGHTS

- There is strong consensus on the core naturopathic modalities used in practice with a typical naturopathic visit generally involving the prescription, recommendation or use of an average of four different naturopathic therapeutic modalities or practices.
- Naturopathic care is known for its diverse and flexible therapeutic approach to healthcare. It includes the prescription of internal and topical substances; counselling with respect to diet, lifestyle, and mind-body medicine; naturopathic physical medicine and other therapies.
- The use of a complex intervention approach to care allows naturopaths/NDs to utilize the synergistic properties of various treatments and to treat the psychological, functional, and structural aspects of each patient.
- The naturopathic community have been leaders in examining the impact of integrating multiple T&CM treatment approaches in conventional care settings.
- The naturopathic multi-modal, complex intervention approach warrants further investigation.

Complex Interventions

Chapter 29 outlines that a holistic, patient-centered, multi-modal treatment approach is central to naturopathic care. Naturopathic researchers have conducted 25 clinical studies investigating complex interventions. These are supported by over 70 observational studies and 19 reviews or meta-analysis.

Applied Nutrition

Chapter 30 outlines that applied nutrition has an essential and foundational role in naturopathic care and includes diet therapy (therapeutic diets, fasting and individualized diet modification), therapeutic application of specific foods and behavioural and lifestyle counselling related to eating behaviours. Naturopathic researchers have conducted 31 clinical studies investigating applied nutrition interventions, with 88% reporting a positive outcome. These are supported by over 20 observational studies and more than 30 reviews or meta-analysis.

Clinical Nutrition

Chapter 31 outlines that clinical nutrition is one of the therapeutic modalities most used by naturopaths/NDs. Clinical nutrition includes vitamins and minerals, nutrients that have physiological effects such as amino acids and other amino-based compounds, food-based constituents, and other compounds that are important to foundational human biochemistry and physiology. Naturopathic researchers have conducted 59 clinical research papers investigating clinical nutrition interventions, with 62.5% reporting a positive outcome. These are supported by over 50 observational studies and more than 90 reviews or meta-analysis.

Herbal Medicine

Chapter 32 outlines that more than half of naturopathic visits result in some form of herbal prescription. Naturopaths/NDs are trained to use a wide range of herbs from mild herbs to extremely powerful herbs that arguably are the basis of modern pharmacological

medicine. Naturopathic researchers have conducted 48 clinical research papers investigating herbal medicine interventions, with 71.7% reporting a positive outcome. These are supported by over 70 observational studies and 19 reviews or meta-analysis.

Lifestyle Modifications

Chapter 33 outlines that naturopaths/NDs were among the first health professionals to formally acknowledge lifestyle modifications as an important element of care. The importance of lifestyle counselling in naturopathic practice continues and is considered one of the core therapeutic elements in naturopathic practice. Naturopathic researchers have conducted three clinical studies investigating lifestyle modification interventions, with 100% reporting a positive outcome.

Mind-body Medicine Counselling

Chapter 34 outlines that mind-body medicine (MBM) Counseling is prescribed and practiced by naturopaths/NDs with patients of all ages presenting with functional disorders (e.g., gastrointestinal, endocrine, neurological or cardiovascular conditions), structural disorders (e.g., musculoskeletal conditions, chronic pain), psychological conditions (anxiety, depression, ADHD), and as part of preventive and palliative care. Naturopathic researchers have conducted nine clinical studies investigating mind-body medicine counseling interventions, with 88.9% reporting a positive outcome.

Naturopathic Physical Medicine

Chapter 35 outlines that addressing or correcting structural integrity is considered an essential stage of the Naturopathic Therapeutic Order as naturopaths/NDs recognize that there is a correlation between an individual's alignment and structure, the functioning of internal organs and a person's psychological state. Naturopathic researchers have conducted nine clinical studies investigating physical medicine interventions, with 66.7% reporting a positive outcome. These are supported by 20 observational studies and seven reviews or meta-analysis.

Hydrotherapy

Chapter 36 outlines that hydrotherapy – the application of water for therapeutic purposes – has been used for thousands of years and has been part of naturopathic care since its inception. Naturopathic researchers have conducted 17 clinical studies investigating hydrotherapy interventions, with 84.2% reporting a positive outcome.

Acupuncture

Chapter 37 outlines that Acupuncture is included in the curriculum of naturopathic educational programs and within the scope of naturopathic care in some countries such as Canada, the USA, South Africa, India, Germany, Switzerland, and Brazil. Naturopathic practice may include needling, electroacupuncture, auricular acupuncture, acupressure, cupping and moxibustion. Naturopathic researchers have conducted 32 clinical studies investigating acupuncture interventions, with 84.8% reporting a positive outcome. These are supported by ten observational studies and 15 reviews or meta-analysis.

Yoga

Chapter 38 outlines that yoga plays a significant role in naturopathic care, especially in India. In India, yoga and naturopathy are integrated in naturopathic educational programs and practice. Naturopaths/NDs use a variety of yogic practices, such as *asanas*, *pranayama*, and meditation, to achieve demonstrable improvements in patient health and wellbeing. Naturopathic researchers have conducted 58 clinical studies investigating yoga interventions, with 86.3% reporting a positive outcome. These are supported by over 20 observational studies and more than 50 reviews or meta-analysis.

Optimizing Pharmaceutical- based Interventions

Chapter 39 outlines that it is important that naturopaths/NDs are well-informed on drug-herb and nutrient interactions, and the comparison of pharmaceutical and naturopathic-based interventions. In some jurisdictions, primarily within North America, NDs have prescribing rights as part of their defined scope of practice. Naturopathic researchers have conducted eight clinical studies investigating ways to optimize pharmaceutical-based interventions.

Other Research Publications Regarding Naturopathic Therapies and Practices

Chapter 40 outlines that naturopathic researchers have conducted extensive clinical research, yet they only represent one quarter of the 1203 published peer-reviewed journal articles examining the broad range of therapies commonly used in naturopathic practice. A substantial proportion of observational studies including research using survey, interview or focus group methods (n=195; 16.2%), and reviews and meta-analyses (n=297; 24.6%) have been published by naturopathic researchers.

Discussion

Section 7 contains the Discussion (Chapter 41) and it highlights the key questions identified by extensive consultation with stakeholders as important for policy and practice decision-making at systems and organizational levels for naturopathic practice. It also summarizes the effectiveness and efficacy of naturopathy and naturopathic medicine and the policy relevance and implementation of the findings presented in the HTA.

About the World Naturopathic Federation

In 2014 the WNF, developed by the global naturopathic community, was incorporated in Canada. As of 2021, the WNF represents 78 naturopathic organizations, 35 national naturopathic organizations as full members, 10 associate members, 25 educational members and eight specialized naturopathic organizations. Between 2015 and 2021 the WNF has actively worked to codify and consolidate the current information and research available on the naturopathic profession. In that time, the WNF produced 19 publications and seven policy statements.

WNF Mission

- Supporting the growth and diversity of naturopathy / naturopathic medicine worldwide.
- Supporting the appropriate regulation and recognition of naturopathy / naturopathic medicine.
- Promoting accreditation and the highest educational standards in each WHO Region.
- Encouraging naturopathic research.
- Establishing and maintaining a database of naturopathic organizations, regulation, accreditation, conferences, and research activities.
- Working with world agencies (World Health Organization, United Nations, UNESCO) and national governments and supra-national agencies to promote the naturopathic profession.

WNF Current Membership Countries

African Region

- Democratic Republic of the Congo
- Ghana
- Nigeria
- South Africa
- Zambia

The Americas

- Brazil
- Canada
- Chile
- Ecuador
- El Salvador
- Guatemala
- Mexico
- Peru
- Puerto Rico
- Uruguay
- United States of America

Eastern Mediterranean Region

- Cyprus
- Saudi Arabia

European Region

- Belgium
- Czech Republic
- France
- Greece
- Ireland
- Italy
- Norway
- Portugal
- Russia
- Slovenia
- Spain
- Switzerland
- United Kingdom

South-East Asian

Region

- India
- Nepal

Western Pacific Region

- Australia
- Hong Kong
- Japan
- New Zealand
- Singapore