

The Role of Traditional, Complementary, and Integrative Healthcare (TCIH) Therapies and Practices in the Prevention and/or Treatment of COVID-19: An Umbrella Review



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The severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) and the resulting coronavirus disease 2019 (COVID-19) infection have irrevocably transformed societies and health systems around the world. As of September 2023, more than 770 million cases and 7 million deaths have been attributed to COVID-19 globally,¹ and new SARS-CoV-2 strains are still emerging.² Three and half years after the onset of the COVID-19 pandemic, the search for effective COVID-19 treatments is still underway with an ongoing emphasis on biomedical treatments, while research on natural health products (NHPs) to support the prevention, management, and/or treatment of COVID-19 has been widespread. At the start of the COVID-19 pandemic, the global naturopathic community published ten rapid reviews in a Special Issue of *Advances in Integrative Medicine*.³ The issue outlined the historical role of natural therapies in the prevention and treatment of viral respiratory infections as one step in informing future research directions, leveraging knowledge in the naturopathic profession, and synthesizing evidence.³ Subsequently, a living evidence review of the efficacy and effectiveness of NHPs for COVID-19 was created and maintained by the World Naturopathic Federation (WNF) as a contribution to the evolving evidence base during the pandemic.⁴

Through these efforts, the naturopathic profession has assumed a key role in translating the emerging evidence regarding NHPs for COVID-19 for health practitioners, policymakers, and the general public. Naturopathic practitioners benefit from having a deep knowledge of traditional medicines (including NHPs) balanced with training in modern advances in biochemistry and pathophysiology. They are often trained as primary care practitioners and, as such, are excellently positioned to assess and interpret the clinical relevance and value of NHP research for a condition that affects so many in the community, such as COVID-19.⁵

Naturopathic practitioners employ a mix of contemporary research evidence and traditional knowledge to inform their

clinical decisions^{6,7} and this approach aids them in adapting to the ever changing external factors while still retaining the central tenets that guide naturopathic care.⁵ Even though naturopathic practitioners are well positioned to aid in public health efforts, barriers such as lack of regulation, government policies, and inadequate financial support, as well as a lack of formal linkages to public health organizations, have been identified as impediments to the naturopathic workforce being included as a valuable healthcare resource.⁸

With the increased focus of the World Health Organization (WHO) on traditional, complementary and integrative medicine (TCIM), as demonstrated by the first Global Summit on Traditional Medicine held in India in August 2023,⁹ and the Astana Declaration's call for traditional medicines to be implemented into global health care,¹⁰ it is imperative that research investigating traditional, complementary and integrative healthcare (TCIH) products and practices be considered in global healthcare strategies and in global healthcare crises, such as the COVID-19 pandemic.

OUR APPROACH TO THE UMBRELLA REVIEW

Aim of the Umbrella Review

This Special Focus Issue of the *CAND Journal* is a collation of six umbrella reviews examining the research focused on the contribution of TCIH NHPs and practices in the prevention and management of COVID-19. The WNF undertook this project with the support of the Canadian College of Naturopathic Medicine (CCNM) and the Australian Research Consortium in Complementary and Integrative Medicine (ARCCIM) as a means of providing health service providers, governments, and the wider community with a critical review of the NHPs and therapies that have received significant scholarship and research attention as they relate to the prevention and management of COVID-19.

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Yearly Live Review of NHPs and COVID-19 Research

Prior to the umbrella review process, the WNF Research Committee, in collaboration with the CCNM, conducted a year-long live review consisting of a monthly search for published peer-reviewed research pertaining to NHPs and natural therapies as they relate to the prevention and/or treatment of COVID-19 and post-COVID syndrome. The research publications collated through this live review included systematic reviews, narrative reviews, and other research papers. A summary of the systematic reviews was updated monthly on the WNF website (<https://worldnaturopathicfederation.org/live-review-of-natural-health-products-nhps-researched-with-respect-to-the-covid-pandemic/>), and an interim report of the systematic review characteristics was published in March of 2023.⁴ At the end of 2022, 308 systematic reviews and 93 narrative reviews had been collated through this live review. Due to the significant volume of research collected, and the overall increase in published works year over year, an umbrella review process was initiated, which included the critical appraisal of both the narrative reviews and the systematic reviews.

The Umbrella Review Task Force

The umbrella reviews were supported by a Task Force team of 46 individuals (researchers including research-active naturopathic clinicians) from seven educational institutions across seven countries and four WHO regions.

Target Audience

The reviews are intended to inform a broad range of stakeholders, including policymakers, researchers, biomedical health professionals and TCIH professionals, and the public. The Task Force's intention was to leverage the strong pharmacognosy and nutritional knowledge and expertise of naturopathic practitioners and researchers to provide an up-to-date synthesis of available research evidence to identify treatment opportunities that warrant further consideration in the prevention, management and treatment of COVID-19, or rule out unlikely treatment options.

Potential Contribution

These reviews provide health policymakers, researchers, and clinicians evidence to identify the NHPs and natural therapies that

are supported by research in terms of COVID-19 prevention, treatment, and management options. Additionally, the engagement of the naturopathic profession in these reviews has provided early career researchers with experience in leading an international team of authors while offering clinician researchers additional experience and training in critical appraisal and scholarship. In doing so, it has contributed to one of the WNF's primary aims: to support the building of naturopathic research capacity globally.⁵

Included Reviews

The Task Force identified and produced six umbrella reviews encompassing herbal medicine¹¹; vitamins¹²; minerals¹³; nutraceuticals (quercetin, n-acetyl cysteine, omega-3 fish oil, melatonin, probiotics, and propolis)¹⁴; diet and food¹⁵; and movement, exercise and breathing.¹⁶ As outlined in Table 1, the umbrella review started with 94 narrative reviews and 308 systematic reviews identified by the live review. After quality assessments (Phase 1) using the Scale for the Assessment of Narrative Review Articles (SANRA)¹⁷ and A Measurement Tool to Assess Systematic Reviews (AMSTAR 2)¹⁸ and screening against the eligibility criteria, 72 narrative reviews (76.6%) and 121 systematic reviews (39.3%) were selected for inclusion across the series of umbrella review manuscripts. The identified reviews were then allocated to authorship teams for each umbrella review for verification and inclusion in the respective umbrella review synthesis. As a result of this stage, some reviews were reallocated to a different umbrella review topic. An overview of the selection of manuscripts included in the different umbrella reviews for this Special Issue is presented in Table 1.

Limitations of the Evidence

The evidence presented in the umbrella reviews included herein is not intended to be a comprehensive exploration of all NHP treatments and practices commonly used in the prevention, management, or treatment of COVID-19. Neither is it intended to present a full picture of any one particular treatment or therapeutic approach. Each review is limited by the availability of evidence in the databases used in our search, and also influenced by the attention, funding, and opportunity to publish. The clinical expertise of naturopathic doctors in the form traditional

TABLE 1 Overview of Inclusion/Exclusion of Papers by Category

	NR – Pre-Phase 1	NR – Post-Phase 1	NR – Phase 2	% of NR Included	SR – Pre-Phase 1	SR – Post-Phase 1	SR – Post-Phase 2	% of SR Included
Herbal ¹¹	24	25	25	104.2%	99	51	41	41.4%
Vitamins ¹²	20	18	14	70.0%	92	59	44	47.8%
Minerals ¹³	12	8	8	66.7%	32	14	12	37.5%
Nutraceuticals ¹⁴	16	15	15	93.8%	43	20	15	34.9%
Diet and Food ¹⁵	13	9	7	53.8%	1	5	4	400.0%
Movement, Exercise and Breathing ¹⁶	9	8	3	33.3%	41	15	5	12.2%
Total	94	83	72	76.6%	308	164	121	39.3%

NR = narrative reviews; SR = systematic reviews.

knowledge, un-published clinical observations, or from the process of patient-centred clinical decision-making are not reflected.

Summary Statements

The umbrella reviews identified a range of important findings. The reviews by Murphy et al.,¹⁵ Remy,¹² and Van De Venter et al.¹³ found adequate nutritional levels of various vitamins and minerals were preventive against COVID-19 and numerous nutritional deficiencies were correlated with a decreased rate of recovery (ROR) from COVID-19 symptoms and worsened rate of conversion (ROC). Oakes et al.¹¹ reviewed the publications investigating herbal medicine and found therapeutic interventions that combined herbal medicines with conventional Western medical treatments showed significant improvements in both ROR and ROC. Although additional research is needed with respect to nutraceuticals, according to Karzon et al.,¹⁴ the current data suggests that the anti-inflammatory, anti-microbial, and antioxidant properties of various NHPs provided therapeutic value both preventively and in treatment of COVID-19. There are also a number of therapies which were reviewed by Carter et al.,¹⁶ such as breathing exercises, physical exercise, and mind-body exercises that are showing promise both from a preventive perspective and from a treatment perspective of COVID-19 due to their direct impacts on health and their indirect ability to modulate the immune system by decreasing stress. Overall, this series of umbrella reviews presents a growing body of evidence indicating that herbal medicines, vitamins, minerals, other natural health products/dietary supplements, diet, and other natural therapies are a significant therapeutic consideration in the prevention and management of COVID-19 and long-term sequelae. The series indicates that additional research is warranted.

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CONFLICTS OF INTEREST DISCLOSURE

We have read and understood the *CAND Journal's* policy on conflicts of interest and declare that we have none.

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