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Yoga & naturopathy in COVID Era: An update

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Abstract

The COVID-19 pandemic has precipitated a global health crisis, necessitating innovative strategies to mitigate its impact on public health systems worldwide. This paper explores the role of yoga and naturopathy in the COVID-19 era, elucidating their potential to bolster immune function, alleviate stress, and foster overall well-being. Originating from ancient healing traditions, particularly in India, yoga and naturopathy offer holistic interventions that complement conventional medical treatments. Government initiatives, exemplified by those in Tamil Nadu, India, underscore the integration of these practices into COVID-19 treatment protocols. Experienced practitioners administer tailored protocols encompassing yoga asanas, breathing exercises, and naturopathic modalities, thereby addressing symptoms and enhancing resilience. These interventions, rooted in centuries-old wisdom and supported by scientific evidence, emphasize the significance of holistic approaches in managing the pandemic and fortifying health systems for the future. Embracing the synergy between traditional healing practices and modern medicine holds promise for cultivating a more resilient and comprehensive approach to healthcare in the face of present and future challenges.

Keywords: COVID Era, naturopathy, global health crisis

Introduction

COVID-19, caused by the SARS-CoV-2 virus, is a highly contagious respiratory illness first identified in Wuhan, China, in December 2019, leading to a global pandemic declaration by the World Health Organization in March 2020 (Moneshwaran *et al.*, 2024) [36]. The virus primarily disseminates via respiratory droplets and fomite transmission. Clinical manifestations vary in severity, encompassing fever, cough, fatigue, and respiratory distress. This necessitates rigorous preventive measures to curb its spread and mitigate its worldwide impact on public health systems (Franjić, 2024) [10]. The initial wave of the COVID-19 pandemic precipitated a significant global health crisis, inundating healthcare systems and precipitating extensive lockdown measures and restrictive protocols across nations (Konishi, 2024) [21]. The global count of SARS-CoV-2 infections has surpassed 12 million cases, alongside a documented mortality toll exceeding 0.162 million (Benjamin *et al.*, 2020) [4]. The rise in cases and deaths has caused significant societal impact, leading to widespread suffering and economic problems. As countries struggled to contain the virus, efforts were made to ramp up testing, contact tracing, and vaccine development. However, despite these measures, a second wave of infections soon followed, with new variants of the virus emerging and posing additional challenges (Lele & Goswami, 2024) [26]. This highlighted the need for continued vigilance and adherence to public health guidelines to prevent further waves and protect vulnerable populations.

Yoga and naturopathy are ancient healing systems that have been practiced for centuries, originating in India and other parts of the world (Goswami & Bakshi, 2020) [14]. The principles of yoga focus on achieving balance and harmony in the body, mind, and spirit through physical postures, breathing techniques, and meditation (Garg, 2022) [12]. On the other hand, naturopathy emphasizes the body's innate ability to heal itself through natural remedies such as diet, herbs, and lifestyle modifications (Goswami & Bakshi, 2020) [14]. Both of these practices have gained popularity in recent years as people seek alternative and holistic approaches to health and wellness.

During the COVID-19 pandemic, the importance of these practices has become even more evident, as they can help boost the immune system, reduce stress, and promote overall well-being (Kathiresan *et al.*, 2021; Sadhana *et al.*, 2023) ^[20, 46]. The pandemic has placed immense strain on healthcare systems worldwide, with hospitals overwhelmed and healthcare workers facing unprecedented challenges. The need for alternative approaches to support public health has become increasingly urgent, as traditional healthcare systems struggle to cope with the demands of the pandemic (Venugopal *et al.*, 2020) ^[55]. Governments and healthcare organizations are being forced to adapt quickly and find innovative solutions to combat the spread of the virus and provide care for those affected. The pandemic has also highlighted the importance of investing in public health infrastructure and preparedness to better respond to future health crises.

Government Initiatives & Integrating Yoga/Naturopathy into COVID-19 Treatment Protocols

The Government of India has adeptly managed the COVID-19 pandemic by adhering to recommendations from the World Health Organization (WHO) and the Indian Council of Medical Research (ICMR). Notably, the Ministry of AYUSH has devised complementary therapeutic approaches to aid in disease control (Maheshkumar *et al.*, 2020) ^[31]. Collaboratively, the Tamil Nadu government, in conjunction with the Indian System of Medicine, has instituted comprehensive infection prevention strategies and immune system reinforcement measures, incorporating a module on yoga and naturopathy (Jerrin *et al.*, 2021) ^[18].

Yoga and Naturopathy, as indigenous medical systems of India, have advocated for integrating yoga practices and natural remedies alongside conventional allopathic interventions for COVID-19 patients. This holistic approach enhances immune function, mitigates stress, and ameliorates symptoms (Bhandari *et al.*, 2023; Namdeo *et al.*, 2023) ^[5, 39]. Approved by the state government and authorities in Indian Medicine, experienced yoga and naturopathy experts with a decade of experience in Tamil Nadu have been enlisted to administer yoga and naturopathy protocols alongside allopathic treatments in all COVID care facilities. A carefully planned protocol, devised by qualified yoga and naturopathy practitioners, tailored to the disease profile and prevalent symptoms among afflicted individuals, encompasses a spectrum of interventions. These include yoga asanas (postures), pranayama (breathing exercises), and naturopathic modalities such as steam inhalation, salt water gargling, consumption of natural immune-boosting beverages, aromatherapy, and exposure to sunlight (Prabu *et al.*, 2021) ^[43]. These interventions, deeply entrenched in traditional practices and backed by centuries of use, are believed to confer manifold health benefits. Yoga practices enhance physical resilience and cultivate mental tranquility, alleviating stress and nurturing holistic well-being (Ravi *et al.*, 2022) ^[45]. Hydrotherapy boosts circulation by applying hydrostatic pressure, while also stimulating lymphatic drainage, aiding in detoxification (Deenadayalan *et al.*, 2022) ^[8], while aromatherapy utilizes essential oils to affect neurotransmitters, inducing relaxation and sensory responses via limbic system activation (Shamsunisha *et al.*, 2023) ^[48]. Self-acupressure targets anatomical points to alleviate discomfort by modulating neural pathways, promoting endorphin release and circulation (Valsakumar *et al.*, 2023; Yang *et al.*, 2021) ^[53, 59].

Sunlight boosts vitamin D production, vital for strong immune function in COVID-19 cases, emphasizing its crucial role in viral immunity. Natural immune enhancers such as ginger, Tulsi leaves, pepper powder, and adhimaduram are employed to fortify the body's defenses against illness (Patel & Prasad, 2023) ^[41].

Psychological Well-being amidst COVID-19: Evidence from Yoga and Naturopathy Interventions

Infection with SARS-CoV-2 is predominantly facilitated by the angiotensin-converting enzyme 2 (ACE2) receptor and auxiliary cofactors within the pulmonary milieu, resulting in the development of pneumonia and acute respiratory distress syndrome (ARDS). However, the pathogenesis of this viral infection extends beyond the respiratory system, with systemic dissemination inciting inflammatory responses and inter-organ communication, ultimately precipitating multi-organ failure (Kuppusamy, Wankhar, *et al.*, 2021) ^[22-24]. Severe cases of COVID-19 are typified by notable elevations in inflammatory markers such as C-reactive protein (CRP) and D-dimer, alongside calculated inflammatory indices, and perturbations in hemoglobin levels. Moreover, these cases frequently exhibit leucocytosis characterized by heightened absolute neutrophil count, coupled with diminished absolute lymphocyte count (Moorthy *et al.*, 2022) ^[37]. Previous studies suggest that yoga and naturopathy practices can modulate the immune response by reducing levels of pro-inflammatory cytokines and increasing the activity of immune cells (Mishra & Mishra, 2024) ^[35]. Yoga, with its focus on breath control, mindful movement, and OM chanting has been shown to lower stress levels and promote relaxation, which in turn can enhance immune function (Maheshkumar *et al.*, 2022; Manavalan *et al.*, 2023; Thanalakshmi *et al.*, 2024) ^[30, 32, 50]. Naturopathic remedies such as ginger and tulsi leaves, rich in gingerol, eugenol, and various phytochemicals including bromelain, quercetin, curcumin, and catechins, exhibit antioxidant and anti-inflammatory properties. These compounds mitigate oxidative stress and inflammation, contributing to their potential therapeutic effects on the body (Gadge, 2021; Venugopal *et al.*, 2022) ^[11, 54]. By understanding the intricate mechanisms at play, we can better appreciate the holistic approach of these practices promoting overall health and well-being, especially in the context of combating COVID-19.

In one of the previous studies, a 20-minute Bhramari Pranayama intervention yielded notable reductions in depression, anxiety, and stress scores among asymptomatic COVID-19 patients. This suggests the potential effectiveness of this yogic breathing technique in alleviating psychological distress associated with the virus (Jagadeesan *et al.*, 2022) ^[16]. In another study, yoga and naturopathy interventions demonstrated substantial efficacy in mitigating anxiety and depression symptoms among 130 COVID-19-positive patients. Administered for 60 minutes daily over two weeks, the intervention resulted in significant reductions in scores on the Hospital Anxiety and Depression Scale (HADS) for anxiety and depression, as well as on the COVID-19 Anxiety Scale (CAS). Feedback from participants was overwhelmingly positive, indicating the potential benefits of these interventions for psychological well-being during COVID-19 infection (Jerrin *et al.*, 2021) ^[18]. Furthermore, a study investigating tele-yoga among COVID-19 patients revealed significant physiological, psychological, and mindfulness enhancements. The experimental group, undergoing a regimen of breathing exercises, pranayama, and

meditation for seven days via telecommunication platforms, exhibited significant improvements compared to the control group, which continued standard treatment. These findings indicate that integrated tele-yoga interventions may hold therapeutic potential in ameliorating these variables among asymptomatic COVID-19 patients (Jain Shrimal *et al.*, 2023) [17]. Young doctors faced immense challenges at the forefront of patient care, dealing with personal fears and making critical decisions under pressure and with limited resources (Moorthy *et al.*, 2023) [38]. Despite this, many doctors found ways to cope and support each other. Recent studies indicate that yoga practice reduced stress, and anxiety, and improved sleep quality among healthcare providers, highlighting the potential benefits of incorporating such practices into medical treatment plans, particularly during crises like the COVID-19 pandemic (Kanchibhotla *et al.*, 2021; Padmavathi *et al.*, 2023) [19, 40]. Another study revealed that regular meditation practice significantly reduced psychological distress and improved sleep quality in COVID-19 patients who were isolated at home (Rajagopalan *et al.*, 2022) [44]. As per a case report, it appears that hot fomentation might offer a viable adjunctive therapy for improving pulmonary function in individuals experiencing post-COVID breathlessness (Chidambaram *et al.*, 2024) [7]. These studies provide valuable insights into how yoga and naturopathy can positively impact the body's immune response, respiratory function, and overall well-being during a COVID-19 infection. By combining traditional medical interventions with alternative therapies such as yoga and naturopathy, healthcare providers can address the root causes of illness and promote overall wellness. This integration can lead to a more personalized and patient-centered approach to treatment, taking into account the individual's physical, mental, and emotional well-being.

Recommended interventions

In the context of the COVID-19 pandemic, a range of yoga and naturopathy interventions have been recommended to support overall well-being and enhance immune function. These interventions draw upon the principles of balance, natural healing, and holistic wellness. Yoga asanas, including Surya Namaskar, Tadasana, and Bhujangasana, are recognized for their potential to enhance respiratory function, circulation, and stress reduction. Research indicates that practicing yoga improves cardiorespiratory efficiency, thereby augmenting lung capacity and enhancing the immune system, potentially enhancing resilience against respiratory ailments such as COVID-19 (Kuppusamy, Ramaswamy, *et al.*, 2021) [22-24]. Pranayama techniques, such as Bhrumari pranayama (Humming breath sound), Anulom Vilom (Alternate Nostril Breathing) and Kapalbhathi (Skull Shining Breath), are recommended for their capacity to strengthen the respiratory system, increase oxygenation, and promote relaxation (Kuppusamy, Kamaldeen, *et al.*, 2021; Lalitha *et al.*, 2021; Upadhyay *et al.*, 2023) [22-24, 25]. Meditation has been found to have a positive impact on mental health, promoting a sense of calm and relaxation during challenging times (Antonova *et al.*, 2021) [1]. Previous studies have shown that incorporating mindfulness meditation into daily routines can help reduce anxiety and stress levels in individuals experiencing symptoms of COVID-19 (Rajagopalan *et al.*, 2022) [44]. Naturopathic modalities are proposed to support immune function and ease COVID-19 symptoms, aiming for holistic well-being (Kathiresan *et al.*, 2021) [20]. Some modalities show promise in enhancing immune response and alleviating respiratory issues seen in other illnesses.

Among these are steam inhalation, salt water gargling, color therapy, magnetotherapy, mud therapy, massage therapy, hot chest packs, plantain leaf baths, hydrotherapy, and dietary remedies. Steam inhalation hydrates airways and aids mucus clearance, while salt water gargling may reduce viral load in the throat (Given & Steele, 2021; Tsai & Wu, 2020) [13, 51]. Color therapy exposes the body to specific colors, and may potentially reduce viral load in the throat and nasopharynx (Milicã *et al.*, 2013) [34]. Magnetotherapy uses static magnetic fields to reduce inflammation and pain, but its efficacy in COVID-19 is uncertain (Markov, 2007) [33]. Mud therapy uses mineral-rich mud or clay for detoxifying and immunomodulatory effects (Balakrishnan *et al.*, 2023; Baldi *et al.*, 2015) [2, 3]. Massage therapy alleviates stress and promotes relaxation, potentially supporting immune function indirectly (Vijayakumar *et al.*, 2023; Wheibe *et al.*, 2024) [56, 58]. Hot chest packs provide relief for respiratory congestion by improving blood circulation and mucus drainage (Shah *et al.*, 2021). Plantain leaf baths have anti-inflammatory properties and may benefit respiratory health (Dharmashamvardhini, 2020) [9]. Essential oils like eucalyptus, peppermint, and tea tree possess antimicrobial properties, aiding respiratory decongestion (Maftuchah *et al.*, 2020; Patne *et al.*, 2020; Teymoori, 2022) [27, 42, 49]. Aromatherapy promotes relaxation, reducing stress and enhancing overall well-being, suggesting potential as adjunctive therapies in respiratory health and stress management (Shamsunisha *et al.*, 2023) [45]. Hydrotherapy uses water-based treatments to improve circulation and promote relaxation, potentially supporting immune function (Deenadayalan *et al.*, 2022; Kuppusamy Maheshkumar *et al.*, 2021) [8, 29, 22-24]. Maintaining a healthy diet rich in vitamins and minerals can provide essential nutrients that support immune function and help the body fight off infections (Chavda *et al.*, 2022; Iddir *et al.*, 2020) [6, 15]. Additionally, acupuncture, an ancient Chinese practice involving the insertion of thin needles into specific points on the body, has been shown to help regulate immune responses and reduce inflammation (K. Maheshkumar *et al.*, 2021; Wang *et al.*, 2023) [29, 57].

Future Directions

To further explore the potential benefits of integrating yoga and naturopathy into traditional medical treatments for COVID-19, future research should focus on conducting clinical trials to assess the efficacy of these alternative therapies. Additionally, healthcare providers should receive training on how to incorporate these practices into their treatment plans and provide patients with comprehensive care that addresses their holistic health needs. By continuing to study and implement these integrative approaches, we can work towards improving patient outcomes and promoting overall wellness in the face of infectious diseases like COVID-19.

Conclusion

By embracing the synergy between traditional healing practices and modern medicine, we can forge a more resilient healthcare system capable of addressing the complex challenges posed by the COVID-19 pandemic and beyond. Integrating yoga and naturopathy into mainstream healthcare represents a pivotal step towards fostering holistic well-being and resilience in the face of infectious diseases and other health crises.

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