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Role of AYUSH during Covid-19 crisis

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ABSTRACT

The novel virus was first identified from an outbreak in the Chinese city of Wuhan in December 2019, and attempts to contain it there failed, allowing it to spread across the globe. The World Health Organization (WHO) declared a Public Health Emergency of International Concern on 30 January 2020 and a pandemic on 11 March 2020. As of 26 January 2022, the pandemic had caused more than 360 million cases and 5.62 million deaths, making it one of the histories. There is a lot of discussion on COVID-19 control plan from the mainstream approaches, but it is also necessary to focus on the contributions of the Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa Riga and Homeopathy (AYUSH) sector, which is now being brought into public health interventions nationally. During the Covid crisis role of AYUSH was appreciated by whole world and the system of AYUSH played a crucial role in Covid 19 crisis. This paper will put light on the role of AYUSH and AYUSH healthcare workers during Covid 19 crisis.

Key words: Covid 19, AYUSH, AYUSH health care workers, pandemic, Health crisis.

INTRODUCTION

Corona viruses are a type of virus. There are many different kinds, and some cause disease. SARS-CoV-2, has caused a pandemic of respiratory illness, called COVID-19. Since then, hospitals across the globe tried to ensure they have the capacities, staff, structures and supplies needed to respond to COVID-19 (referring to the transmission scenarios: clusters of cases or large numbers of cases). Of course, preparing for an unpredictable pandemic is a big challenge and a

difficult exercise for every healthcare system in the world, especially in regions that have less or no experience. The infection was transmitted to people through unidentified intermediary creatures in Wuhan, Hubei territory, China, in December 2019, which has a specific beginning in bats. The restricted freedom and the panic situation cause fear, anxiety, behavioural issues, domestic abuse, interpersonal relationship issues, financial crisis, separation anxiety, withdrawal symptoms resulting from non-availability of alcohol, increased violence against women, etc. are also reported throughout the globe. In the middle age group, they have raised future concerns resulting from the job insecurities and almost resultant financial crisis. Livings away from home in such situations create separation anxiety among them and also interpersonal relationship issues.^[1]

There is no registered medicine or vaccine against COVID-19, the immune system is the best defence because it supports the body's natural ability to defend against pathogens (e.g., viruses, bacteria, fungi, protozoan, and worms) and resists infections.

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Transmission

- Current evidence suggests that the virus spreads mainly between people who are in close contact with each other, for example at a conversational distance. The virus can spread from an infected person's mouth or nose in small liquid particles when they cough, sneeze, speak, sing or breathe. Another person can then contract the virus when infectious particles that pass through the air are inhaled at short range (this is often called short-range aerosol or short-range airborne transmission) or if infectious particles come into direct contact with the eyes, nose, or mouth (droplet transmission).
- The virus can also spread in poorly ventilated and/or crowded indoor settings, where people tend to spend longer periods of time. This is because aerosols can remain suspended in the air or travel farther than conversational distance (this is often called long-range aerosol or long-range airborne transmission).
- People may also become infected when touching their eyes, nose or mouth after touching surfaces or objects that have been contaminated by the virus.^[2]

However, In India, the world's oldest existing health care system originated. Therefore, it is carefully watched by the world community for how it handles the crisis using its assets. Ayurveda has enough potential and possibilities to be employed both for the prevention and treatment of COVID-19. Charaka Samhita, an essential classical textbook of Ayurveda, describes *Janapadodhwansa* (epidemic) management and defines immunity as the ability to prevent disease. Through Yoga, Meditation, *Aasana*, *Pranayama*, we can strengthen our immune system, including our *Pranavaha Srotas*, our respiratory system. Various *Rasayana* medicines are used for rejuvenation & improving immunity in Ayurveda. Rising tolls of COVID-19 positive cases and deaths possibly raise anxiety and stress, while depressive and loneliness feelings are likely due to mandatory social distancing measures. Ayurvedic herbs i.e., *Ashwagandha*, *Guduchi*, *Yasthimadhu*, *Pippali* proved

to be beneficial to help fight against the virus. Several steps for mental health are described, which have a potential role in engaging the community in creating a more positive, healthy environment. "Prevention is better than cure" is a well-accepted principle of public health. AYUSH systems lay greater emphasis on preventive aspects and are culturally appropriate, placing the individual at the centre of care, and empowering them to take care of themselves.^[3]

Ayurveda and Yoga for COVID-19

Ayurveda, the Indian scientific traditional health system, has given paramount importance to the factors that strengthen the host defence (*Bala/Vyadhikshamatwa*). In fact, health depends on the *Bala* (strength) of an individual and further the criteria for administering any treatment eventually said to depend upon the *Bala* itself.

Ayurveda interventions become even more relevant in COVID-19. There is an elaborate description of causation and management of epidemic/pandemics (*Janapadodhwamsa*) in Ayurveda. The principles of management of infectious diseases and pandemics have been elaborated in Ayurveda literature. Individuals afflicted with these diseases could be treated with *Panchakarma* (bio-purification therapies), *Rasayana* (immunomodulatory and rejuvenative measures) to enhance immunity along with *Sadvritta* (behavioural code) and balanced diet (*Pathyaahara*).

Ayurveda advocated prevention through lifestyle and dietary management and *Rasayana* therapy, which is an effective measure in prevention of disease by providing nonspecific immunity. Respiratory system specific *Rasayana* have been used and found to be effective in the management of viral respiratory tract infections; in dengue by providing non-specific immunity and acting as inhibitory sources against the crucial dengue receptor NS2B-NS325 or by eliminating the vectors chikungunya etc. The *Rasayanas* are known for their immune-modulation and rejuvenation properties, which are important in COVID-19 management. Several in vitro, animal and clinical studies have demonstrated the immune-modulatory

effect of the *Rasayana* drugs such as *Ashwagandha* (*Withania somnifera*), *Guduchi* (*Tinospora cordifolia*), *Amalaki* (*Embllica officinalis*) among many others. Further they may also provide promising results as add-on therapy in mild to moderate cases of COVID-19. The Ayurveda and Yoga modalities offer several immune boosting measures which helps protect against infections and provide general wellbeing. Noticeably, these interventions have the advantages of simplicity, affordability, availability, and acceptability and appear promising as feasible measures for large-scale implementation.^[4]

Yoga

Poor mental health conditions, including stress and depression, are known to increase the risk of acute respiratory infections. Rising numbers of COVID-19 cases and deaths possibly raise stress and anxiety, while loneliness and depressive feelings are likely due to mandatory social distancing measures. Consideration of the mind is another distinction of Ayurveda and Yoga. Several measures for mental health are described, including *Pranayama* and meditation.

Pranayama is known to improve lung function. Meditation is found to reduce inflammation markers and influence markers of virus-specific immune response. Yoga including meditation could be a simple and useful home-based practice for the prevention and post-recovery management of COVID-19. Yoga improves physical health as well. *Pranayama* can help improving respiratory health, *Yogic Neti Kriya* has been shown to be beneficial in prevention and useful in mild cases. Meditation can help reducing stress and in regaining health faster after virological cure is obtained.^[5]

Ayurveda and Yoga can certainly play a pivotal role to augment preventive measures provided in the guidelines by Ministry of Health and Family Welfare (MoHFW). The current understanding of COVID-19 indicates that good immune status is vital to prevention and to safeguard from disease progression.

Following three aspects are considered while preparing this protocol:

1. Knowledge from Ayurveda classics and experience from clinical practices
2. Empirical evidences and biological plausibility
3. Emerging trends of ongoing clinical studies

This COVID 19 Protocol is developed by expert committees from All India Institute of Ayurveda (AIIA), Delhi, Institute of Post Graduate Training and Research in Ayurved (IPGTRA), Jamnagar, and National Institute of Ayurveda (NIA), Jaipur, Central Council for Research in Ayurveda (CCRAS), Central Council for Research in Yoga and Naturopathy (CCRYN), other national research organizations. This protocol is for management of mild COVID-19. Moderate to Severe COVID-19 individuals may have informed choice of treatment options. All severe cases will be referred. This protocol and its annexure are approved by the Chairman, Interdisciplinary Committee for inclusion of Ayurveda and Yoga in the management of mild COVID-19 and approved by the empowered committee of the Interdisciplinary AYUSH Research and Development Taskforce on COVID-19, both constituted by the Ministry of AYUSH.

General and Physical measures

1. Follow physical distancing, respiratory and hand hygiene, wear mask.
2. Gargle with warm water added with a pinch of turmeric and salt. Water boiled with *Triphala* (dried fruits of *Embllica oficinalis*, *Terminalia chebula*, *Terminalia bellerica*) or *Yashtimadhu* (*Glycyrrhiza glabra*) also can be used for gargling.
3. Nasal instillation/application of medicated oil (*Anu Taila* or *Shadbindu Taila*) or plain oil (Sesame or Coconut) or nasal application of cow's ghee (*Goghrita*) once or twice in a day, especially before going out and after coming back to home.
4. Steam inhalation with *Ajwain* (*Trachyspermum ammi*) or *Pudina* (*Mentha spicata*) or Eucalyptus oil once a day
5. Adequate sleep of 6 to 8 hrs.
6. Moderate physical exercises

7. Follow Yoga Protocol for Primary Prevention of COVID

Dietary measures

1. Use warm water or boiled with herbs like ginger (*Zingiber officinale*) or coriander (*Coriandrum sativum*) or basil (*Ocimum sanctum* / *Ocimum basilicum*), or cumin (*Cuminum cyminum*) seeds etc., for drinking purpose.
2. Fresh, warm, balanced diet.
3. Drink Golden Milk (Half tea spoon *Haldi* (*Curcuma longa*) powder in 150 ml hot milk) once at night. Avoid in case of indigestion.
4. Drink AYUSH *Kadha* or *Kwath* (hot infusion or decoction) once a day⁶

Rationale for positioning Ayurveda and Yoga interventions for inclusion in Clinical management protocol: COVID-19 (Prophylactic and therapeutic)^[6]

Name of the drug	Rationale behind its use in COVID-19
<i>Ashwagan dha</i> (<i>Withania somnifera</i>)	Owing to its immune-modulatory, anti stress, antiviral efficacy properties. Insilico studies have shown its high binding affinity to ACE2-RBD interface which will stop SARS COV 2 entry into cell. Safety: Studies have reported its safety in long term use.
<i>Guduchi</i> (<i>Tinospora cordifolia</i>)	Immuno-modulator, Anti-inflammatory, Antiviral activities. Significant increase in the IFN- γ , IL-2, IL-4, and IL-1 levels and significant reduction in mortality rate. It has shown good antipyretic, anti-inflammatory, antioxidant, anti-allergic, anti-stress, anti-malarial, hepato-protective, and immuno-modulatory activities. Clinical studies have indicated its immune modulating functions and have been effectively used in HIV and chikungunya. Diterpenoid, tinosporin found in TC has shown activity against HIV, HTLV and other viral diseases In in-silico studies <i>Tinospora cordifolia</i> showed high binding efficacy against SARS-CoV-2 targets involved in attachment and replication of the virus, as compared to Favipiravir, Lopinavir/Ritonavir against 6Y84, efficacy of Remdesivir against 6M71 which were either similar or inferior to the natural compounds from <i>Tinospora cordifolia</i> - Safety: The herb has been reported to be safe even in high doses for long term, clinical studies have also shown it to be safe in long term use
<i>Yogasana</i> and	Improve lung function. Meditation is found to reduce inflammatory markers and influence markers of virus-specific immune response. Yoga including

<i>Pranayam</i>	meditation is safe, simple and useful home-based practice for the prevention and post recovery management of COVID-19
<i>Guduchi + Pippali</i> (<i>Tinospora cordifolia</i> + <i>Piper longum</i>)	These two botanicals are very common in clinical practice of Ayurveda and being used for various respiratory diseases. Hence the combination is suggested for treatment of COVID-19 as an adjunct modality. <i>Pippali</i> (<i>Piper longum</i> Linn.) is one of the major <i>Rasayana</i> (rejuvenator) drugs in Ayurveda and is widely used to treat various diseases especially for the treatment of respiratory disorders. <i>P. longum</i> exhibit inhibition of TNF- α induced ICAM-1 and VCAM-1 expression also inhibit the TNF- α induced expression of cell adhesion molecules by inhibiting nuclear factor- κ B (NF- κ B) activation in endothelial cells. It also possesses good bioavailability enhancers properties. Safety: Acute toxicity studies of <i>Piper longum</i> do not show any mortality or morbidity when 3 to 5g/kg is administered to animals during pharmacological study; however, under certain conditions, such as pregnancy and lactation, the fruits of <i>P. longum</i> should be used cautiously because of potential interactions. Many clinical studies have been done with <i>piper longum</i> which shows the herb to be safe.
AYUSH 64	Because of its proven anti-malarial composition having collateral benefits acting as anti-pyretic, anti-viral effects. The formulation was found clinically effective in <i>Plasmodium vivax</i> , <i>P. falciparum</i> infected Malaria and in recovery from Influenza Like Illness symptoms. Further the ingredients of the formulation, have reported for its antipyretic, antipyretic, anti-malarial & Hepatoprotective, immune-modulatory properties. Safety: AYUSH 64 was found to be safe and non-toxic in a dose of 500 mg/kg of body weight for 12 weeks in experimental studies. Clinical studies on safety and efficacy has also shown the drug to be safe without any ADR/SAE reported and on LFT, KFT and haemogram parameters besides clinical efficacies. ^[7,8]

YOGA

Extensive works have shown that systematic *Asana* practices, dedicated *Pranayama*, meditation, and mantras could provide a broad-spectrum immune build up in the body so that viral infection could be averted and/or its virulence reduced. A study on healthy individuals doing transcendental meditation showed higher blood levels of B-lymphocyte series as well as natural killer (NK) cells, as compared to nonmeditators. Kamei et al. reported a significant correlation between alpha brain wave activation in the frontal lobe as seen in electroencephalogram

(indicating restful awareness) and an increase in NK activity during yoga practices pointing to the relationship between a calm mind and better cellular immunity. Certain meditation, *Yoga Asana* (postures), and *Pranayama* (breathing) practices may possibly be effective adjunctive means of treating and/or preventing SARS-CoV-2 infection by virtue of its anti-inflammatory, promotion of anti-inflammatory and typically reduction of proinflammatory cytokine activity, including natural killer (NK) cell activity and NK and T cell cytokine production. Further it is also effective in decreases in the circulating levels of the proinflammatory cytokine interleukin (IL)-12 and increases of the anti-inflammatory cytokine IL-10 as per certain studies.^[9,10]

CONCLUSION

From the above, we can reveal that the diet and lifestyle which were described thousands of years ago in the classical texts of Ayurveda are beneficial, and one can follow it for prevention of COVID-19. By adopting such preventive as well as curative measures mentioned in the Ayurvedic classics, we may be capable of leading a life with a positive physical as well as mental health. *Rasayana*, due to its multidimensional activity, performs as a substance that is responsible for taking care of body, mind, and spirit and thus affecting total wellbeing. There is not any doubt that India very densely populated country in the world, with poor knowledge of personal and social hygiene and have average health care infrastructure. Still, the mortality rate might be lower than developed countries because, in India, a large subset of the population depends upon the traditional system of medicine and home remedies. Also, the immunity of Indian is good due to their food habits and daily routine based on circadian rhythm. Recognizing the value of Ayurveda, the Ministry of health, in an association of the ministry of Ayurveda, jointly circulating the protective guidelines and protocol in the India first time to defeat this deadly infectious disease. Various Institutions are doing Clinical trials on COVID-19 by using *Samsamni Vati*,

Sudarsan Curna, *AYUSH Kwatha*, *Anu-Taila Nasya*, and other Ayurvedic formulation. Different Immunity booster medicines like *Chyawanprash*, turmeric milk, and Holy basil tablet are used to improve immunity. State AYUSH services dispense the immunity booster kit to Frontline workers/fighters like medical & health care personal, police force, and the general public.

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