

Prophylactic dimensions of Ayurveda and Yoga w. s. r. to covid-19 pandemic: a critical review.

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ABSTRACT:

INTRODUCTION: World Health Organization (WHO) declared Coronavirus Disease-19 (COVID-19) as a 'Public Health Emergency of the International Concern' (PHEIC). At present there is no confirmatory treatment for COVID-19 by Preventive and Curative aspects with no side effects. **AIM AND OBJECTIVES:** To have a critical review of Ayurveda and Yoga in prevention of COVID-19 pandemic. **MATERIALS AND METHODS:** The newly emerged diseases can be studied with help of basic principles of Ayurveda. Such diseases can be termed as '*Anukta Vyadhi*'. COVID-19 is such *Anukta Vyadhi* can be categorized under the '*Janapadodhwamsa*'. Hence, the *Ayurvedic* as well as *Yogic* principles can be implemented to manage the spread of COVID-19. The relevant *Ayurvedic* and *Yogic* texts are critically reviewed to

study the principles mentioned in these ancient texts. **DISCUSSION:** Outbreak of COVID-19 has lead to high levels of Physiological illnesses like Acute Respiratory Distress Syndrome (ARDS), Cardiovascular Diseases (CVD), specific symptoms of Gastrointestinal System, Neurological manifestation like Cerebrovascular Lesions, Encephalitis and Psychological distress such as Post-Traumatic Stress Disorder (PTSD), Acute Stress Disorder, Major Depressive Disorder, Generalized Anxiety Disorder. The ancient treasure of Ayurveda and Yoga can be helpful in managing the Physiological and Psychological disturbances. These principles can offer *Sharira* (Physical) and *Manasa* (Mental) *Swasthya* (Health), thereby helping to contain the spread of this pandemic.

CONCLUSION: The *Ayurvedic* principles and *Upakramas* like *Dinacharya*-
Ritucharya,

Trayopstambha, Rasayana, Achara Rasayana and the *Yogic* principles of *Ashtanga Yoga* and *Netikarma* can have a promising role in managing the morbidity caused by COVID -19 pandemic.

KEYWORDS:

Anukta Vyadhi, Ashtanga Yoga, COVID-19, Dinacharya, Janapadodhwamsa, Ritucharya.

INTRODUCTION

World Health Organization (WHO) declared Coronavirus Disease-19 (COVID -19) as a 'Public Health Emergency of the International Concern' (PHEIC). The available modern medicine has a limited role in the treatment of COVID-19 pandemic and that too comes with certain adverse drug reaction.¹ Ancient *Ayurvedic* and *Yogic* texts have described certain principles to manage the morbidities caused by such 'Janapadodhwamsa Vyadhis'.

COVID -19 becoming an imminent threat to the humanity and civilization by every day that passes from the beginning of year 2020.² Human Coronavirus was first characterized in 1960 amongst the children. In 2003 five more types of Corona Virus had been introduced. Initially it was known as 'Severe Acute Respiratory Syndrome Corona Virus'(SARS-CoV).³ In 2019, it was introduced in 'Wuhan city of China' since then it has been spreading worldwide. On 11th February 2020, 'Severe Acute Respiratory Syndrome Corona Virus-2'(SARS-CoV-2) was renamed as 'COVID-19' by 'WHO and International Committee on Taxonomy of Viruses' (ICTV).⁴

Within short period of time COVID- 19 spread like a wildfire across the globe, almost 209 countries and territories were affected with 58,900,547 confirmed cases, including 1,393,305 deaths reported to WHO (24/11/2020, 6.08pmCET).⁵⁻⁶

The WHO announced COVID-19 as PHEIC on Jan 30,2020 and called for collaborative efforts of all countries to prevent the rapid spread of COVID-19.⁷ Health organizations across globe are performing comprehensive synergy and research to control its spread and illnesses. Modern medicine is groping in the dark experimenting with several existing antiviral drugs, which have been used to treat other viral infections in the past, but their efficacy is poor and the adverse effects are serious.⁸

Steps taken to contain the spread of COVID-19 pandemic are as follows:

A) Reduction: - As the number of cases of COVID-19 increased, the WHO had put forth multiple precautionary measures in order to tackle the outbreak.

B) Awareness: -Stay safe by taking some precautions such as-

i) Avoid the spaces that are closed, crowded or involved close contact. Maintain at least 1-metre distance, to reduce risk of infection while sneezing, coughing or interacting.

ii) Wear a mask. The appropriate use, storage and cleaning or disposal of mask are also essential steps to follow.

iii) Maintain good hygiene- Regularly and thoroughly clean your hands with soap or an alcohol-based hand rub, cover your mouth and nose with your bent elbow or tissue while sneezing or coughing, avoid touching your eyes, nose or mouth, clean and disinfect surfaces frequently.

C) Protocols: - The main aim of WHO is building the capacity to find, isolate, test, safely monitor and care for COVID- 19. Passengers have to pass through screening and testing of COVID-19 as well as mandatory fill the declaration form of places visited. Travellers have to be quarantined.

The screening and testing performed in people having sign-symptoms of COVID-19, living in infected areas and having closed contact with infected patients.

D) Vaccine Development- Comprehensive measures were taken to contain the spread of the pandemic. Vaccine development was one of such measures. The Pharmaceutical companies were encouraged to develop a vaccine against COVID-19 virus. The efforts taken by the scientists brought fruitful results and now the vaccine seems to arrive in market for the common public.⁹

There is an elaborate description of causation and management of epidemic (*Janapadodhwamsa*) in Ayurveda.⁴ Hence interventions in Ayurveda become even more relevant by the fact. Ayurveda and Yoga offer the wisdom of strengthening the human body and mind and maintaining the good health through preventive, promotive, curative and rehabilitative approaches. Assimilating these approaches with modern medicine will not only accompany each other, but also share novel and effective way to manage the current ongoing pandemic of COVID -19.⁸

The Government of India has also taken a bold step to initiate this by constituting the 'Interdisciplinary Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH) Research and

Development Task Force' with the objectives of reducing the sufferings and deaths associated with COVID-19 in India.¹⁰ Perception and practices of Ayurveda and Yoga can cover several dimensions of COVID-19 management.

AIM AND OBJECTIVES:

To have a critical review of Ayurveda and Yoga in prevention of COVID-19 pandemic.

MATERIALS AND METHODS

Disease Review- In Ayurveda, the word COVID-19 is not directly mentioned, but after summarizing all scattered references on *Janapadodhwamsa*, *Maraka* and *Aupsargika Roga*, COVID-19 can be learned under these terms of Ayurvedic literature.¹¹

Janapadodhwamsa means *Janapada* (Large population/community) and *Udhwamsa* (Destruction of community), it means the situation involving the destruction or death of a large population spread over a small locality or a country or a part of world or even the entire world.¹² *Janapadodhwamsa* diseases manifest in many people residing in a *Janapada*, with similar cardinal features due to invasion of *Bhuta- Rakshasa* (Unknown entity), *Krimi* (Worm). It can be linked with the present concept of microbes (Bacteria, viruses and other microorganisms).¹³

Hetu (Causes)-

According of Ayurveda main cause of *Janapadodhwamsa* is *Adharma* (Sinful acts). Main cause of *Adharma* is *Pradnyaparadha* (An offence against wisdom). *Chakrapani*, the commentator of *Charaka Samhita* says that, even though the individuals have differences in physical constitution, food habits,

suitability, strength, immunity, age etc. still there are some factors as seen common to all individuals and the vitiation of these factors lead to the simultaneous manifestation of diseases having the same set of symptoms leading to the destruction of countries.

The factors which are common for all the inhabitants of a country are Air, Water, Land and Seasons. Along with that other factors are described under *Niyata hetu* (Unavoidable factors) like abnormalities of Star, Moon, Planets, Sun, Air and Fire causing natural disasters like floods, earthquake, tsunami etc. and *Aniyata hetu* (Avoidable factors) like *Adharma* (Sinful acts), *Rakshasa* (Viruses, bacteria or other microorganisms), *Abhishapa* (Curse of animal, mankind), *Krutya* (Bad karmas) are responsible for *Janapadodhwamsa*.¹²

Sansarga (Mode of transmission)- From all above stated factors, the most important and common factors are *Dushit Vayu* (Vitiated air), *Jala* (Water), *Desha* (Place) and *Kala* (Season).¹⁴

Other factors are- *Prasanga* (Sexual contact), *Gatrasparsha* (Touch), *Nishwasa* (Breathing with infected person or expired air), *Sahabhajana* (Having food with infected person), *Sahashayya* (Sharing bed or seat), *Vastramalyanu-lepana* (Sharing clothes, ornaments, cosmetics).¹⁵ *Gruha* (House), *Daar* (Women), *Shayan* (Bed), *Asana*, *Yaan-Vahan* (Vehicle), *Mani-Ratna* (Ornaments).¹⁶

Samprapti/Pathogenesis (fig1)-

Lakshana (Signs and Symptoms)- The most common and cardinal symptom of COVID-19 is High grade fever and other symptoms are Cough, Breathlessness,

Diarrhoea, Headache, Conjunctivitis, Loss of taste and Smell, Chest pain, Fatigue etc.¹⁸ *Aupsargika Vyadhis* are *Jwara* (All types of fever), *Rajyakshma* (Tuberculosis), *Netra-Abhishyanda* (Conjunctivitis), *Kushtha* (All kinds of skin disorders). Specific symptoms of these diseases can be correlated with symptoms of COVID-19.¹⁹ As etiological factors responsible for spread of *Aupsargika Vyadhis* stated in *Ayurvedic* classics are exactly similar with spread factors of COVID-19, hence treatment of *Aupsargika Vyadhis* stated in *Ayurvedic* texts can be applied to COVID-19 pandemic.

Dimensions of Ayurveda in COVID-19

- Ayurveda aims to maintain the health of healthy person and cure the diseases of the ill.²⁰ Enhancing the body's natural defence system (Immunity) plays an important role in maintaining optimum health. SARS-CoV-2 mainly alters immune regulatory mechanism and damage immune homeostasis.²¹ Classic texts of Ayurveda describe epidemic management and define immunity as the ability to prevent diseases and arrest its progress to maintain homeostasis by adopting the following dimensions.²²

A] Preventive Ayurveda

- i) *Sthanaparityaga* (Leaving contaminated place and isolated)
- ii) *Shantikarma* (Maintain peace)
- iii) *Mangal japa* (Keep your mind busy in prosperous things)
- iv) *Niyama* (Following rules).²³
- v) *Dhoopanakarma Dravya- Guggula* (*Commiphora mukula*), *Agaru* (*Aquilaria agallocha*), *Sarjarasa* (*Vateria indica*), *Vacha* (*Acorus calamus*), *Gaura Sarshapa* (*Brassica campestris*) etc. can help to purify air and also to clear the air pathway.²⁴ Active compound of

Methanolic extract of Guggula gum is 5 (1-methyl,1-aminoethyl)-5-methyl-2-octanone, which possesses the significant antibacterial activity against gram positive bacteria and moderate activity against gram negative bacteria. *Vacha* contains the alpha and beta asarone which are mainly responsible for antimicrobial activity. Glucosinolates have the biocidal action on different pathogens found in *Sarshapa*. *Agaru* seed oil possesses more antibacterial activity.²⁵⁻²⁶

vi) *Dincharya* (Daily regimens) and *Ritucharya* (Seasonal regimens) can be most useful as a preventive measure. *Dincharaya* includes *Brahmamuhurta* (Getting up in early morning), *Ushapana* (Drinking lukewarm water), *Malatyaga*, *Mukhprakshalana* / *Achaman* (Mouthwash), *Dantdhavan* (Toothbrushing), *Jihvanirlekhanavidhi*.²⁷ *Ahara* (Diet), *Nidra* (Proper Sleep) and *Brahmacharya* (Abstinence) are described under the heading of 'Trayopstambha' (Sub pillars)²⁸. The maintenance of health and prevention from disease can be achieved through food and lifestyle specific to individual needs and in line with the seasons and cycle of nature. By practicing of these *Trayopstambha* (Sub pillars), Strength, Longevity, Vigour, Wealth, Glory, Knowledge, Undying fame, Virtues and Devotion to the truth, Spirituality increases.²⁹ *Rasayana* are not only having the rejuvenation properties but also the immunomodulatory potential which can be useful for preventive and post infection prophylaxis. Effect of *Rasayana* can be classified through following modes – 1) Direct enrichment of the nutritional quality of *rasa* (Nutritional plasma) e.g *Shatavari*

(*Asparagous racemosus*), *Ashwagandha* (*Withania somnifera*), Milk, Ghee. 2) Promoting nutrition through improving *Agni* (digestion and metabolism)- e.g *Bhallataka* (*Semecarpus anacardium*), *Pippali* (*Pipper longum*) 3) Promoting the competence of *strotasa* (Microcirculatory channels in the body) e.g *Guggula* (*Commiphora mukula*).

Achara Rasayana is another term explained in Ayurveda, which means rejuvenating lifestyle with social and personal conduct by which one can acquire the *Rasayana* effect.³⁰

The physical action, which enhancing the strength (*Balavardhaka*) of the body, increases the digestive power, depletion of excessive fat when performed in the required time is called *Vyayama*.³¹

B) Prophylactic / Health Promoting-

Ministry of AYUSH states some self-care guidelines for preventive health measures and boosting immunity. Recommended measures are:

- 1) General measures- *Ushapana* (Drink lukewarm water), practicing *Yogasana*, *Pranayama*, uses of spices in cooking.
- 2) Immunity promoting measures- *Chyavanprasha*, *Kwatha* of *dravyas* (Decoction of drugs), Hot milk with *turmeric* (*Curcuma longa*) powder (Golden milk).
- 3) Simple Ayurvedic procedures like *Swedana karma* (Steam inhalation), *Nasya* (Nasal application of oil), *Gandusha* and *Kavala* (Oil pulling therapy).³²

C) Clinical Ayurveda -The most common site of infection of COVID-19 is eyes, oral and oropharyngeal mucosa. Local prophylaxis of Ayurveda forms the protective biofilm on these sites and inhibits virus transmission to the lungs,

so these measures act as 'Physiological mask'.³³

Local prophylaxis are as follows-

i) *Anjana*- Eye diseases can be prevented by regular application of *Anjana* i.e. *Sauviranjana*.³⁴

ii) *Nasya*- *Nasya* is the administration of different types of medicines through the nasal passage in a systematic manner. It is administered in a wide variety of diseases and specifically in *Urdhvajatrugata vyadhis* (Upper respiratory tract diseases). *Pratimarsha Nasya* is one of the types of *Nasya*, which is indicated for daily practices and is helpful in prevention of diseases affecting head, neck, oral cavity and also in respiratory disorders.³⁵

iii) *Gandusha* and *Kavala*- It helps to maintain oral cavity clean and healthy by eliminating toxins. It is having preventive and curative property.³⁶

iv) *Tambulsevana*- It is said to be pacify all the three *doshas* and happiness, it cleanses the mouth, it causes the extra secretion of saliva, which will promote digestion.³⁷

v) *Dhumpana* -It is Inhalation of medicated smoke from nose and mouth. *Dhumpana* cures *Urdhvajatrugata Vyadhis* (the diseases of supra clavicle) and respiratory diseases like bronchial asthma and diseases caused due to *Vata Kaphaj Dosha*. Disinfective action of the *dhumpana dravyas* like *Haridra* (*Curcuma longa*), *Guggula* (*Commiphora mukula*), *Vacha* (*Acorus calamus*), cleanse the respiratory tract, oral cavity, pharynx.³⁸

vi) *Netikarma*- *Netikarma* is an integral part of *Shatkarmas* that forms the most important aspect of *Hatha yoga*. *Netikarma* gives clear sight and alleviates diseases which manifest above

the root of the neck. *Netikarma* removes foreign bodies like allergens, dust, and enhances the drainage of sinuses by preventing stasis of mucosa. It has a positive effect on cognitive faculties like memory, concentration and is beneficial in reducing anxiety and depression.³⁹

D) Spiritual/ Rehabilitation Ayurveda

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Ayurveda and Yoga give holistic approaches for living life at its fullest. The two sciences have a common understanding of the health and balance of the mind. Classical *Ashtanga Yoga* are in the form of *Yama*, *Niyama*, *Asana*, *Pranayama*, *Pratyahara*, *Dharana*, *Dhyana* and *Samadhi*. *Bahiranga* (External) *Yoga* includes first five and remaining three are included in *Antaranga* (Internal) *Yoga*.

Relation of Health and *Ashtangayoga* - Health can be achieved by implementation of *Ashtangayoga*. Physical health can be achieved by practicing the *Asana* and *Pranayama*, Mental health by *Pratyahara* and *Niyama*, Social health by *Yama*, Spiritual health by *Dharana* and *Dhyana*. The *Yama* are the social conducts which are all about creating harmony between oneself and the external world. *Niyama*, the second limb, has to do with self-discipline and spiritual observations. *Asana* refers to the posture practiced in yoga. Practice of *Asana* brings about a number of physiological, biochemical and psychological changes in the body. The fourth stage *Pranayama*, generally translated as breath control, consist of techniques designed to gain mastery over respiratory process while recognizing the connection between breath, mind and emotions. *Pratyahara* (Self-restrain),

Dharana (Concentration), *Dhyana* (Meditation), *Samadhi* (State of complete relaxation) help to keep mental, physical fitness.⁴⁰

DISCUSSION-

It is logical need to inspect how Ayurveda and Yoga can help in addressing the COVID-19 challenge. In fact, this is the time to establish the Ayurveda and Yoga to convert system in addressing, challenging restoring health. Accessible, Simple, Safe, Affordable implementation of the therapeutic approaches of Ayurveda and Yoga in COVID-19 can prevent the worsening of the disease and reduce the stress. So, this can be beneficial to health care provider, patients and to other parts of community. The care of the most vulnerable group of COVID-19 patients such as those with comorbidities, immunocompromised and older people, is another therapeutic challenge where the conventional medicine has limitations. Outbreak of COVID-19 has lead to high levels of Physiological illnesses like Acute Respiratory Distress Syndrome (ARDS), Cardiovascular Diseases (CVD), specific symptoms of Gastrointestinal System, Neurological manifestation like Cerebrovascular lesions, Encephalitis and Psychological distress such as Post-Traumatic Stress Disorder (PTSD), Acute Stress Disorder, Major Depressive Disorder, Generalized Anxiety Disorder. The ancient treasure of Ayurveda and Yoga can be helpful in managing the Physiological and Psychological disturbances. These principles can offer *Sharira* (Physical) and *Manasa* (Mental) *Swasthya* (Health), thereby helping to contain the spread of this pandemic.

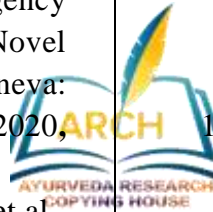
CONCLUSION –

The present review concludes that Ayurveda and Yoga has a lot to suggest in the preventive, promotive, curative and rehabilitative perspective. It can be helpful in improving pulmonary function, improving quality of life, reducing stress and for the patients recovered from COVID-19 having consequences regarding pulmonary rehabilitation. The further scope is to develop universal guidelines of principles based on Ayurveda and Yoga for the management of COVID-19 with proper scientific evidence. The Ayurvedic principles and *Upakramas* like *Dinacharya-Ritucharya*, *Trayopstambha*, *Rasayana*, *Achara Rasayana* and the *Yogic* principles of *Ashtanga Yoga* and *Netikarma* can have a promising role in managing the morbidity caused by COVID -19 pandemic.

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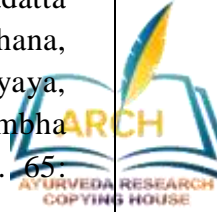
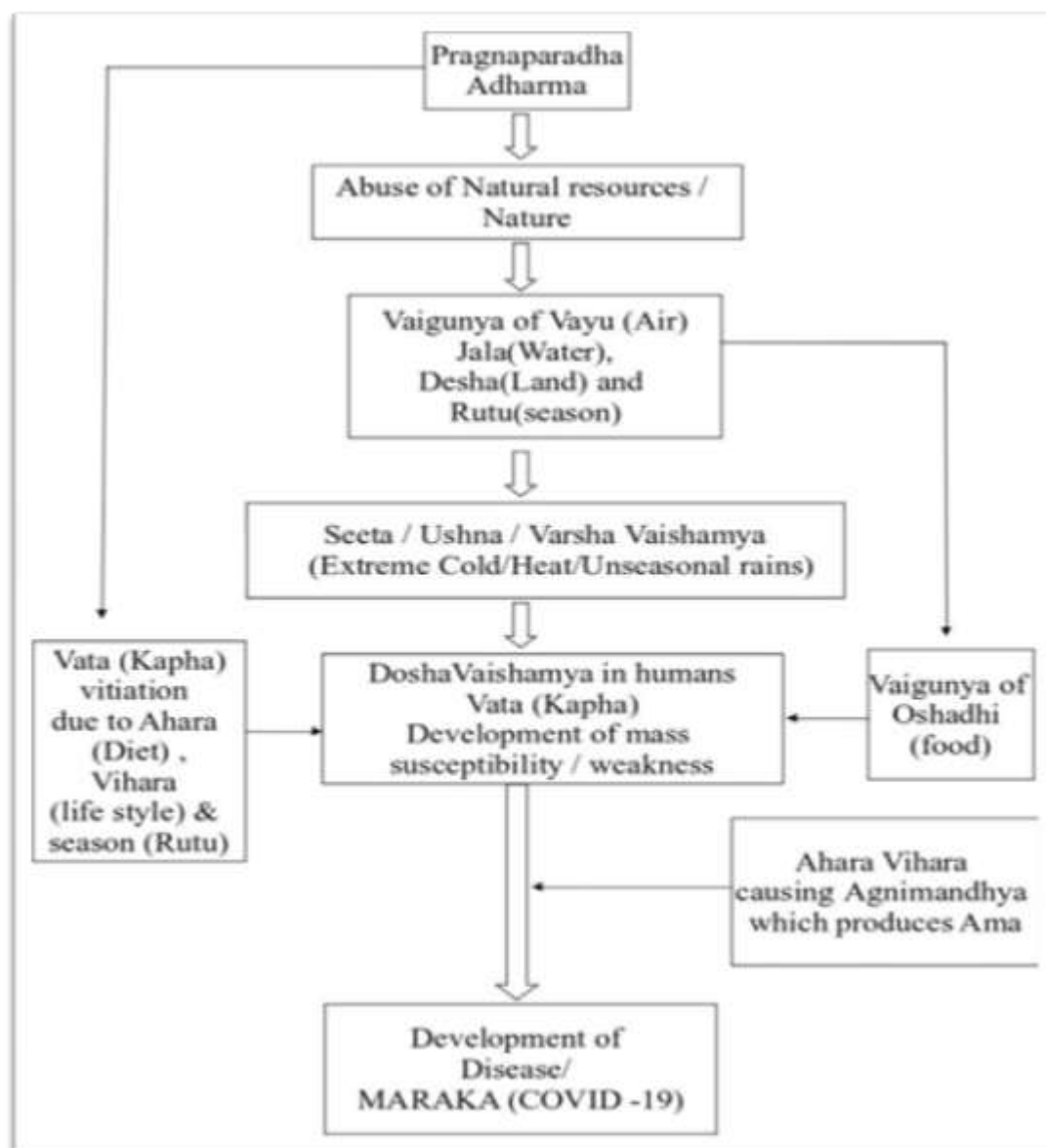


Fig.1. Probable *Samprapti* (Pathophysiology) of COVID-19 according to Ayurveda.¹⁷



Conflict of Interest:

Non

DOI

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