

INTERNATIONAL CONFERENCE ON  
AYURVEDIC ARCHITECTURE FOR THE  
PLANNING OF MENTAL HEALTH  
DURING COVID-19 CRISIS



23rd October, 2021

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INTERNATIONAL CONFERENCE ON  
AYURVEDIC ARCHITECTURE FOR  
THE PLANNING OF MENTAL HEALTH  
DURING COVID-19

By:

All India Ayurvedic Specialist (PG) Association

&

IConference, New Delhi

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**Dhanvantari** is the Hindu god of medicine and an avatar of Lord Vishnu. He is mentioned in the *Puranas* as the god of Ayurveda. He, during the Samudramanathan arose from the Ocean of Milk with the nectar of immortality. It is common practice in Hinduism for worshipers to pray to Dhanvantari seeking his blessings for sound health for themselves and/or others, especially on Dhanteras or Dhanwantari Trayodashi. The Indian Government has declared that Dhanwantari Trayodashii Kumara every year would be celebrated as "National Ayurveda Day.

In ancient texts there are some shlokas devoted to origin of Lord Dhanvantari:

ॐ शंखं चक्रं जलौकां दधदमृतघटं चारुदोर्भिश्चतुर्मिः ।  
सूक्ष्मस्वच्छातिहृद्यांशुक परिविलसन्मौलिमंभोजनेत्रम ॥  
कालाम्भोदोज्ज्वलांगं कटितटविलसच्चारूपीतांबराढ्यम ।  
वन्दे धन्वंतरिं तं निखिलगदवनप्रौढदावाग्रिलीलम ॥  
सूक्ष्मस्वच्छातिहृद्यांशुक परिविलसन्मौलिमंभोजनेत्रम ॥

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All India Ayurveda Specialist (P.G) Association also named as “Akhil Bhartiya Ayurveda Visheshajna (Snatkottar) Sammelan” had been established in 1978 and registered as a society in New Delhi vide Registration no. 10211 dated 4.5.1979. This Association is committed to propagate Ancient wisdom of Ayurveda through organization of various conferences, Seminars, Lectures, webinars (National and International), exhibitions and essay competitions. This is a unique organization having all post graduate members to provide an opportunity to sharer views, clinical experiences and updates them with latest advancements. AIAS (PG) Association has also taken a lead in running country based Ayurvedic specialties camps in various parts of our country. The organization gives a worthy platform to academicians, researchers and practitioners to discuss relevant issues and pave a path in developing new approaches and policies in the benefits of humanities also working to represent various problems being faces by Ayurveda to the notice of the Government authorities. The ultimate beneficiary of all those activities is the consumer of health services. This Association is purely scientific, social, cultural organization and has no political alliances.

The association is always ready to work for the upliftment and globalization of Ayurveda and welfare of Ayurvedic Graduates and Post Graduates.

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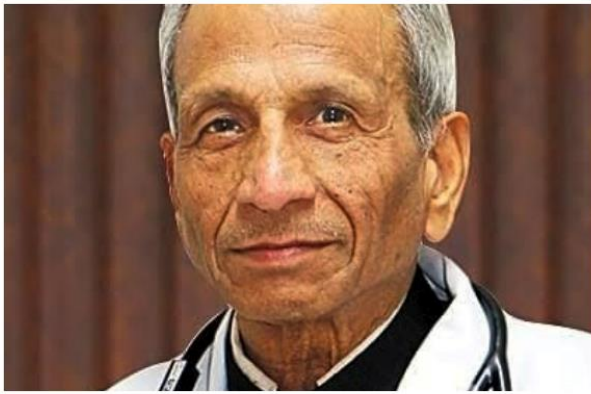
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Mental health means architecture of personal and social life. Food habits, interaction with family and society, recreational practices are main source of mental health. How to develop your personality energetic, motivational and intuitive are some goals to achieve a perfect mental health. Means and medicines are abundantly spread in Ayurvedic practice.

This conference must achieve all the important land marks of human mental welfare in present and post COVID scenario.

I congratulate Dr. R. K. Yadav (Associate Professor, All India Institute of Ayurveda, New Delhi), Dr. Gunjan Bansal (Event Organiser) and other team members for overwhelming, appreciable and memorable event.

Prof. V. D. Agrawal  
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Dear Delegates

Warm greetings!!!

On behalf of IConference and the organizing committee, I would like to cordially welcome you to the “International Conference on Ayurvedic Architecture for The Planning of Mental Health During Covid-19” to be hosted on 23<sup>rd</sup> Oct, 2021

It will feature highly respected internationally renowned speakers who will share, discuss, debate and dissect significant new developments and advancements that will impact the future of Ayurveda.



I have no doubt that the scientific presentations and deliberations during this conference will be quite useful to all the participants and will inspire them to strive for excellence in their respective departments.

The organizing committee has left no stone unturned to ensure that the conference turns out to be an occasion from which all of you carry back long-lasting memories of scientific excellence.

I welcome you, your family and friends again to the wonderful gathering and make the maximum out of it.

I thank each and every one of you who are contributing to the success of the conference and looking forward to see you all soon.

JAI HIND

Best Wishes

Dr Gunjan Bansal  
CEO, IConference  
Jt. Secretary



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**AHARA (FOOD) IN MENTAL HEALTH PROMOTION IN COVID AND AFTER  
COVID**

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*Coronavirus disease is currently posing a global hazard. Many people have died as a result of the COVID-19 epidemic and many of us suffered from its short term and long-term effects after the illness. All these forced the scientist to understand the role of different treatment modalities in COVID-19. COVID-19 resulted in high rates of mortality and illness, as well as loss of income and social isolation for billions of people around the world. When it was at its pinnacle, a huge portion of the population suffered from anxiety, worry, and concern for themselves and their families, particularly older and children's. In addition, there was a large amount of stress among healthcare workers. During lockdowns, quarantines, and isolation, many people around the world have experienced loneliness, anxiety, and other mental health difficulties. It is unknown what impact this COVID crisis will have on population mental health in the short and long run. Mental wellbeing is one of the most crucial aspects of total health. Our physical health and immunity are also harmed by psychological disorders. The only approach is the preventive and promotive approach which is very well explained in the Ayurvedic text. Due to that whole world is now focused on the Ayurvedic medical sciences. Ayurveda defined Ahara as mahabhesaja means chief treatment modality. Ahara is a preventive, promotive and treatment approach that aids in the reduction of mental issues, the maintenance of mental health, the reduction of stress, and the enhancement of human immunity against infectious diseases such as COVID-19.*

## **INTRODUCTION**

Despite the global implementation of a variety of intervention measures ranging from national quarantines to school closures, the COVID-19 pandemic has caused massive disruptions across practically all sectors of society and has overloaded healthcare institutions in many well-resourced countries, the COVID-19 epidemic is spreading rapidly around the world, posing a serious threat to global public health in terms of total wellbeing. SARS-CoV-2 strains that are more transmissible have recently been circulating over the world. The first generation of COVID-19 vaccines has been available to the general population since the end of 2020, with research underway to evaluate if they are still effective against these new forms. The globe is beginning a new phase in its struggle against the COVID-19 effect and after effect on mental health, and it's unclear how long it will take to return to pre-COVID-19 normalcy completely.

A pandemic is more than just a medical emergency; it affects people and society on a large scale, causing chaos, anxiety, stress, stigma, and xenophobia. The rapid human-to-human transmission of SARSCoV2 necessitated the imposition of regional lockdowns to prevent the disease from spreading further. Isolation, social alienation, and the shutdown of educational institutions, employment, and entertainment venues forced people to stay at home to assist break the transmission cycle. The restrictive measures, like Self-isolation and quarantine on the other hand, have harmed people's social and mental health. Loss and separation from loved ones due to COVID, loss of independence, boredom, and uncertainty, can lead to a decline in an individual's mental health.

For billions of people, this disease's global expansion has resulted in high rates of mortality and morbidity, as well as loss of income and long-term social isolation. All of this contributes to a reduction in population mental health, both short and long term. At the time of lockdown, isolation and quarantine, everyone in their home felt the Novel stress -lockdown stress as cases of corona

## **INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS**

increased and co-morbidity increased vertically. Many questions arose in our minds, such as whether we would survive or not, when the lockdown would end, whether we would have enough food at home to survive if the lockdown continued, what about our jobs, whether our salaries would be credited to our accounts if the lockdown continued, how would we increase our immunity, and so on. Because of this novel coronavirus, all of these questions that came into our minds trigger new stress termed “Lockdown stress”. This lockdown tension is more widespread in our bodies and minds than any other physical or mental condition.

However, in the Initial phase, fear of infection, loss of employment, and financial pressure are all likely to raise psychological distress in the general population. Individuals who have already been exposed to traumatic experiences may endure even more distress. Grief and trauma are likely to develop in the long run, and if financial and social consequences become established, the risk of depression and suicidality may rise.

The most vulnerable population for mental health issues are the people and their families who had been infected as well as health care workers. Post-epidemic, survivors endure more psychological discomfort than those from impacted communities. People who work in vocations that could expose them to infection, as well as those who have friends or family members who have been infected, maybe at a higher risk of psychological discomfort. Government regulations and physical barriers aimed at restricting illness spread also have an impact on community mental health. Job loss, financial stress, and social isolation are all well-documented correlations of mental health issues during a pandemic. The long-term impacts of COVID-19, everyday fresh reports on mortality and morbidity issues in patients having a history of COVID-19 in the past, and Vaccination side effects news all contribute to the emergence of psychological issues following the disease.

### **AFTER COVID MENTAL HEALTH ISSUES**

Following the COVID-19, a wave of psychiatric issues originated. As a result of the pandemic's long-term effects, restrictive measures such as social distance and quarantine, and socio-economic effects, the incidence of common mental health disorders is projected to climb during the post-pandemic period. Social withdrawal can result from prolonged social isolation. Increased anxiety, despair, and post-traumatic stress disorder are long-term psychiatric problems in patients who have previously been exposed to coronavirus outbreaks. At one year following discharge, survivors of critical illness have significant levels of anxiety, sadness, and post-traumatic stress disorder. After COVID-19, the majority of patients had impaired attention, concentration, memory, and mental processing speed. Patients who require artificial ventilation while in the hospital have a much lower quality of life.

The financial recession following COVID has also been linked to higher rates of psychological distress, anxiety, depression, substance misuse disorders, suicide, and suicidal conduct. Unemployment, precarious work, poorer socioeconomic level, and pre-existing psychiatric difficulties appear to be factored in mental health issues following COVID. Suicidal inclinations may have increased as a result of a prospective economic recession accompanied by a spike in unemployment as a result of the Covid-19 outbreak.

An individual's psychological condition as it relates to community health and it differs from person to person and is influenced by his personal, professional and social life. When psychological health

deteriorates, it leads to a decline in the overall community or social health, as well as a detrimental impact on society's growth.

### **How do you deal with mental health difficulties in COVID and after COVID?**

Mental health is defined as a condition of well-being in which each individual fulfils his or her potential, can cope with daily stressors, can work successfully and fruitfully, and can contribute to her or his community. Along with physical and spiritual well-being, mental well-being is a key component in the *Ayurvedic* notion of '*Swasthya*.' Individuals' mental health serves as the foundation for good communication, learning, emotions, thinking, and self-esteem. Mental health is essential in many aspects of human existence, including interpersonal connections, psychological and emotional well-being, and effectively contributing to society.

Modern medical science has now explored the insights of the gut-brain axis and developed a new dimension dubbed 'Nutritional Psychiatry' to prevent and cure mental health concerns. Gut health has been related to physical and mental well-being. One of the most neglected topics in psychiatry is the role of nutrition in mental health.

*Ayurveda* the science of life described the concept of *Ahara*(Food) thousands of years back and called *Ahara* as *mahabhesaja* “The Supreme Medication”. *Ahara*(food) is one of the *tryoupstambha*, which signifies its importance in our life. Proper Food is necessary for survival and optimal body development. The importance of *ahara* was defined by *Ayurveda*, who stated that good physical strength, intellect, complexion, cheerfulness, good voice, happiness, and satisfaction are all depending on *Ahara*. Dietetic concepts based on *Ayurveda* (*Ahara vidhi vidhana* and *Astavidha Ahara Visheshayatan*) are well-designed to make food nutrient-dense in every way.

As COVID-19 is a novel disease, scientists are still unable to find its treatment. Only preventive aspect is available in terms of social distancing and other preventive measures. *Ayurveda* “the old age system of medicine” is the hope of ray in COVID-19 in terms of preventive, promotive and therapeutic approaches. *Ayurveda* first aim is prevention and described various preventive principles which if followed properly prevent us from communicable and non-communicable diseases. *Ahara* is the wonderful concept of *Ayurveda*. *Ayurvedic* literature mentioned *Ahara* as personalized (Ayurnutrigenomics approach), preventive and health promotive medicine. The novelty of the *Ayurvedic* Approach to Treatment is that it emphasizes a healthy diet (prophylactic and promotional nutrition) while simultaneously being concerned with a specialized diet in disease conditions (clinical nutrition). *Ahara* not only worked upon physical health but also worked on mental health. The role of *Ahara* in mental health is well illustrated in *Bhagvat Gita* in the terms of *Sattvika*, *Rajsika* and *Tamsika* food. So, *Ahara* is the part of the holistic approach of treatment and never be underestimated in the purview of COVID.

### **Mental health in Ayurveda:**

*Ayurveda*, an ancient Indian medical system, takes a comprehensive approach to mental health care that considers the mind, body, and soul. *Ayurveda* has included mental health aspects in its explanation of the idea of *Swasthya*.

- A pleasant and well-balanced mental state.
- Possessing a cheery and courteous nature.
- A good night's sleep is essential.

- Mental faculties that are stable and well-balanced
- The sensory qualities are in a pleasant and dynamic state.
- *Dharaniya Vega* control like *krodha, moha* etc.
- Mind that isn't overly afflicted by negative occurrences.

*Mana* is the entity that provides knowledge and is closely tied to *Atma*, the entity that allows one to perceive. As a living entity is a microcosm of the macrocosm or world, the mind of a living body is also endowed with the *Trigunatwa* characteristics of *Satva*, *Rajas*, and *Tamas*. Due to its distinguishing trait of *Kalyanaamsha*, *Satva* is the only one of these three that is pure (*Shuddha*) in quality. *Rajas* and *Tamas* are thought to be impure due to their attributes *Roshamsha* (Intense passion/drive) and *Mohamsha* (Being misunderstood), respectively, whereas *Kalyanamsha* (Positive Elements) are said to be pure. The dynamic interplay between the three *Gun*as is responsible for Psyche's activities. The predominance of any of the three *Gun*as guides the cognitive, conative, and emotional components of the mind in every individual. *Mana* (mind) is having the three *Gun*as (qualities): *Satva* (purity), *Rajas* (attachment), and *Tamas* (absorption) (responsible for ignorance). The *Rajas* and *Tamas* are called *Mano Dosha* because they are unclean and have a key role in psychopathology. So, for mental health promotion, enhancement of *sattva* is essential which can be occurred by application of *Ayurvedic* principles of living in life like *Ahara*, *Ausadha*, *Acharya Rasayana* and *Sadvritta*.

## **AHARA AND MENTAL HEALTH RELATIONSHIP**

Every living and non-living thing in the cosmos is made up of five basic elements, known as the *Pancha Mahabhautika*, which include Earth (*Prithvi*), Water (*Ap*), Fire (*Teja*), Air (*Vayu*), and Ether (*Akasha*). The *Panchabhautika* components of ingested food nourish the body's tissue elements which are also *panchabhautika* in composition. Both the food we eat and our bodies are *Panchabhautika* in nature. *Ayurveda* defined three *Dosha* which are the functional entities of body and these *Tridosha* are made up of five basic elements called *panchmahabhautika*. The balance and imbalance of the *Tridosha* respectively determine the health and illness state of this body. The same balance of imbalance of *Triguna* respectively leads to mental health promotion and illness. *Ayurveda* considers the mind and body to be the two routes via which ailments manifest.

*Ahara* is the finest of all remedies, and it is one of *Ayurveda*'s three sub-pillars (*Tryo-Upasthamba*). Unhealthy nutrition is the cause of both *Sharirika* (physical) and *Manasika* (psychological) *Vyadhi*, according to *Ayurveda*'s traditional scriptures (diseases). In the manifestation of psychiatric problems, *Viruddha Ahara* (incompatible food), *Dushta Ahara* (polluted or inadequately prepared food), and *Ashuchi Ahara* or *Malina Ahara* (unhygienic food) are all key factors. The primary notion of *Pathya Ahara* is central to *Ayurveda*'s preventive and curative elements.

*Ayurveda* cites unhealthy eating habits in the development of mental diseases including *Unmada*, *Apasamara*, and *Atatvabhinivesha*, among others. Though there is no direct classification of *Ahara* in traditional texts based on *Manasika Gunas*, the link between *Sharirika* and *Manasika Dosha* makes this clear. Recent research has also shown that a shift away from conventional lifestyles and diets is associated with an increase in depression and other mental health conditions. Many mental ailments, such as Dementia, including Alzheimer's disease, Depression, Anxiety, Bipolar affective disorder, Schizophrenia and other psychoses, and Developmental disorders, including

autism, have been linked to a faulty lifestyle and poor diet. Various recent researches have conclusively demonstrated the link between eating choices and mental illnesses. The transition from a traditional to a Western dietary pattern has become the major cause of the rising burden of non-communicable diseases, and this shift will make individuals more prone to mental health concerns in the present pandemic in the years 2020-2021.

## **IMPORTANCE OF AHARA IN MENTAL HEALTH PROMOTION**

Hectic lifestyle, pressure to earn more, peer pressure, huge families, anxiety to finish work, social and family stress are all common concerns that we all face on a daily basis. All of these difficulties changed our eating habits in terms of quantity and quality and we shifted to processed, readily prepared, quick, fried, and unwholesome foods. Unhealthy eating habits harm our physical and emotional health and make us more susceptible to sickness. Diet is the most significant source of energy for both healthy and sick people. A man cannot become healthy unless he consumes a healthy and balanced diet, and no treatment will be effective unless a good dietetic regimen is followed.

*Ayurveda* mentioned that the basis of life, strength, complexion, *Ojas*, growth and development, perspicuity of *Indriyas*, happiness, clarity of voice, lustre, pleasure, an increase of *Dhatu*s, intellect, health, and so on is stated to be *Ahara* (meal)(Kashyap samhita khila sthana 4/11.2). The food inside the body is divided into three components, according to the *Chhandogya Upanishad: Sthoola, Madhyama, and Anu bhaga*, which nourish *Purisha, Mamsa, and Mana*, respectively. *Mana* is the subtle and abstract element of *Anna*.

"*Annamayam hi soumya manah*," according to *Chandogyopanishad*, "the mind is the substance of the food we eat." Just as when the curd is churned, the finest part of the butter rises to the top and nourishes *Mana*, the finest part of food rises to the top and nourishes *Mana*.

Food has been accorded top priority since the Vedic era. *Sattvika, Rajasika, and Tamasika* are the three types of *Ahara* described in the *Bhagvad Geeta*. *Sattvika* foods are nutrient-dense, unctuous in character, and provide stability and a suitable environment for the heart and spirit. *Rajasika* meals are pungent, sour, salty, very hot, highly strong in flavour, excessively dry, causing a burning sensation, and foods that create grief. Food that is not freshly cooked, unclean, or lacking nutrition, bad-smelling, stale, combined with pollutants, dust, and other contaminants, as well as leftover food, is classified as *Tamasika* food.

According to the *acharyas*, mental diseases are caused by overindulgence in meat, fish, and wine, an unsuitable diet, heavy, hot, and stale food articles, and the suppression of sleep, hunger, thirst, and natural desires. According to *Acharya Charaka*, a person with a strong mind who abstains from meat and drink and eats only wholesome foods is clean both inwardly and physically and is unaffected by "*Nija*" or "*Agantuja Unmada*." In people who suffer from mental health problems, *Sattvika* (light, pure, readily digestible food and milk) meals with *ghrita* medicated with herbs should be recommended.

Specific foods, as well as health-promoting routines/regimens, play a significant part in treatment, alongside medications. As a preventative, causal, and therapeutic element, somatic or psychic food plays a vital role. A healthy person's diet can help them stay healthy, improve their health, and avoid psychosomatic sickness. In the sick, it aids in quick recovery by not interfering with the

action of the medicine and restoring lost vigour. The importance of *Ahara*, or food, in modern science is widely established as a source of nourishment, but its role in prevention, promotion, and treatments is new to them. But *Ayurveda* recognised and accepted those scientific premises years ago.

According to *Ayurveda*, each person's diet should be tailored to their physical state, *Sharirika* and *Manasika Prakriti* (physical and mental constitution), *Agnibala* (digestive power), seasonal and daily fluctuations, and other natural elements. Individual dietary planning is one of the most important aspects of the *ayurvedic* nutrition concept, as it satisfies both of *Ayurveda's* goals.

The purpose of this chapter is to highlight the critical importance of nutrition in the mental health promotion in COVID and after COVID mental illness as well as to offer nutritional guidance for stress and mental burden prevention in the high-risk group. Nutrition is crucial to mental well-being.

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**AHARA (FOOD) IN PROMOTION OF MENTAL HEALTH IN COVID AND AFTER  
COVID**

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## **INTRODUCTION**

The global occurrence of infectious diseases, such as COVID-19, is highly related to symptoms of psychological distress, mental disturbances, and physical pain. Furthermore, previous knowledge of infectious diseases has shown that the number of people mentally affected by the pandemic exceeds the number of those physically infected by the disease, indicating the massive influence of such disease on mental health. There is a wide consensus that the COVID-19 pandemic not only affects physical health, but also mental health and well-being. World Health Organization in their mental health outline, high lightened stigmatization and scapegoating of affected persons, health care professionals and authority figures is common occurrence during epidemics, which still prevails during current outbreak of COVID-19. Many literatures suggests that people affected by COVID-19 may have a high burden of mental health problems, including depression, anxiety disorders, stress, panic attack, irrational anger, impulsivity, somatization disorder, sleep disorders, emotional disturbance, posttraumatic stress symptoms, and suicidal behavior.

Acharya Charaka has described *Chikitsa Siddhant* to be followed during *Janapadoudhwamsa*; Karma *Panchavidham*, *Rasayanamupyoga*. *Langhan*, *Langhan-Pachana* and *Doshavasechan*. *Harsha Prinananam* - Cheerful mind best in bringing delightfulness. For implementation of mental health prevention and promotion in the current pandemic along with the mindfulness, cognitive-behavioral and relaxation strategies, 'Ahara' also plays the most effective part. *Ahara* (Diet), *Nidra* (sleep), *Brahmcharya* (celibacy) are the three sub-pillars of life. For management of the disease *Ahara* comes under *Yuktivyapashraya chikitsa*. *Ahara* is considered equally essential for a successful treatment. In many illnesses food itself is used as a curative measure in Ayurveda and hence prescribes specific diet on the *Vyadhi Avstha* (Diseased conditions) and also recommends some prophylactic diet. *Ahara* should be according to *Prakriti*, disease condition, season, *satmyata* of patient. Food and drinks with desirable smell, taste and touch and having been taken according to prescribed method produce energy in mind, constitution of dhatus, strength, complexion and clarity of sense organs, if properly taken. With the consumption of proper diet one can achieves optimal nutritional status which is fundamental to modulate inflammatory and oxidative stress processes, which are all interrelated with the immune system. Hence, consumption of *Ahara* according to Ayurveda principles and yoga practices helps in prevention and promotion of physical, mental and spiritual health. *Aacharya Kashyap* describes, food as always been an important way to treat illness and maintain health and that's why he called food as *Mahabhaishyajya*.

## **MENTAL HEALTH AND COVID-19**

### **CAUSES OF MENTAL DISORDERS IN COVID-19**

- Quarantine, social distancing, and self-isolation
- Concerns about one's own health and that of their beloved ones



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- Uncertainty about the future
- Stigma and discrimination toward infected people and their family members.
- Absence of proper treatment for the disease
- Self-confinement
- Economic slowdown during and following the pandemic.
- Large amount of uncontrolled news spread by the internet.
- Pandemic brought on by an infectious virus causes obsessive compulsive disorder type of panicky attacks.

A post-mortem case series showed that the main effect of SARS-CoV-2 on the brain is through inflammation. Early case reports and the first paper from the UK CoroNerve surveillance platform described some new onset psychosis, as well as patients with altered mental status, and others with cerebrovascular events. A study using US electronic health records found an increased incidence of a first diagnosis of psychiatric disorders within 90 days of a COVID-19 diagnosis, but the relation between cause and effect was uncertain. Mental health and psychosocial consequences of the COVID-19 pandemic may be particularly serious for at least four groups of people: (a) those who have been directly or indirectly in contact with the virus; (b) those who are already vulnerable to biological or psychosocial stressors (including people affected by mental health problems); (c) health professionals (because of higher level of exposure); and (d) even people who are following the news through numerous media channels.

### RELATION BETWEEN AHARA AND MENTAL HEALTH:

आहार शुद्धौ सत्त्व शुद्धिः | सत्त्व शुद्धौ स्मृतिः ध्रुवा |  
स्मृति लम्बे सर्व ग्रन्थीनां विप्र मोक्षः ||

As explained in Chandogya Upanishad “Purity of mind follows from purity of food” Which explains: "By the purity of food one becomes purified in his inner nature; by the purification of his inner nature, he verily gets memory of the self; and by the attainment of the memory of the self, all ties and attachments are severed." The desired food endowed with desired smell etc., nourishes the body as well as all the senses. Diet has intimate connection with the mind. Mind is formed out of the subtlest portion of food. Sage Uddalaka instructs his son Svetaketu "Food, when consumed becomes threefold: the gross particles become excrement, the middling one's flesh and the fine ones the mind. Mind is one of the senses described in *Ayurveda*. The food nourishes *Dhatus*, *Ojas*, strength, complexion depends on *Agni*.

#### Classification of food

Food is bifurcated as follows: swallowed (*Ashita*) drank (*Peeta*) licked (*Leedha*) chewed (*Khadita*) and also based on taste.

#### Concept of *Pathya*

The root term for *Pathya* is ‘*Patha*’ means various channels in body and ‘*Anapetam*’ means not causing any harm to human body. So, any food which is not harmful for body channels and on the contrary which is wholesome soothing for body can be labelled as *Pathya*.

#### *Oja* and Mind

Food nourishes *Dhatus* and *Oja* is the essence of all the dhatus. There are two types of *Oja*, one is *Par Oja* another one is *Apar Oja*. Heart is the site of *Par Oja* and *Apar oja* is present

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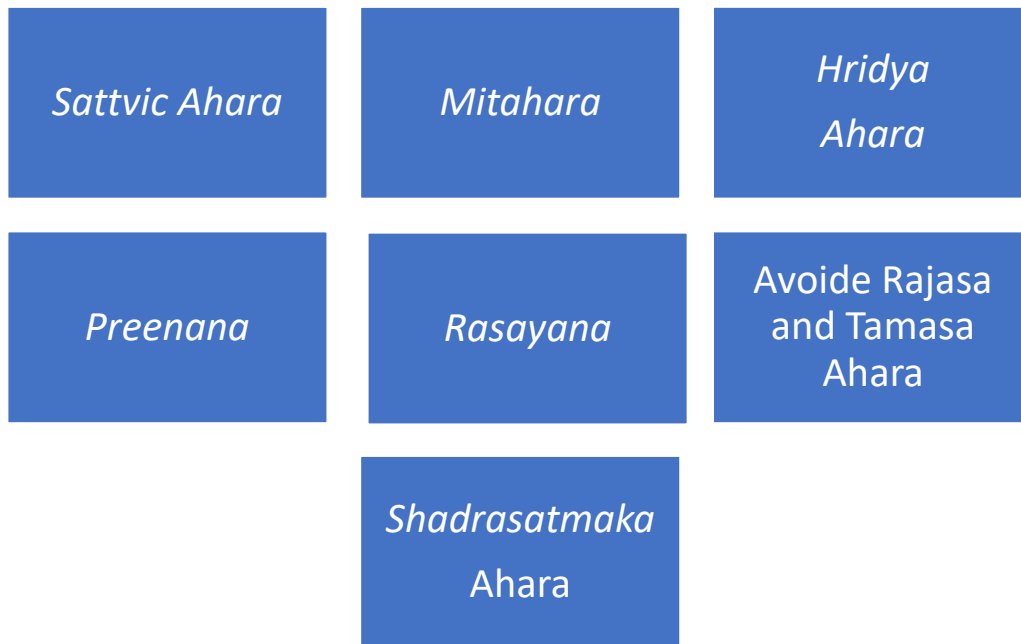
throughout the whole body. Decrease in *Oja* causes symptoms related to mental health that are *Vibheti* (fear), *Durbaloabhikshanam* (physically and mentally weak), *vyathit indriya* (discomfort in sense organ). So, for the prevention of mental health proper formation of *Oja* with the intake of proper diet is essential. Acharya Sushruta described the food as the food which nourishes and gladdens the heart and directly increases the body strength. It improves memory, digestive power, energy, strengthen mind, increases '*Ojas*' and increases the longevity of life.

### What diet should we taken on daily basis?

Acharya Charaka has described the constituent of wholesome diet. Which include good and fine rice like '*Shastika*' *shali*, green gram, rock salt, gooseberry, rain water, milk, ghee, flesh of animals living in *Jangala pradesha* and honey should be adopted in diet generally.

### Types of Ahara for promotion of mental health in COVID

The food which increases vitality, energy, vigour, health and joy and which are delicious, bland, substantial and agreeable are dear to the pure. The passionate desire foods that are bitter, sour, saline, excessively hot, pungent, dry and burning and which produce pain, grief and disease. The food which is stale, tasteless, putrid and rotten, leavings and impure is dear to the Tamasic." (Bhagavad-Gita. Ch. XVII-8, 9, 10).



Many studies explaining the pathophysiology of COVID-19 describes the disease as *Sannipat jwara*, *Nij jwara*, *krimi*, *Visha*, *Janopadodwansa*. During the illness most of the patients suffer from anosmia, ageusia, anorexia, fever, cold, cough, body ache, dyspnoea. *Agnimandya* is the preliminary cause of all the symptoms. So, during COVID-19 treating the patients with *Deepana*, *pachana*, *Laghu Ahara* is necessary. After COVID illness for prevention of *Jwarottar Daurbalya* (Post COVID weakness) diet should be more of *Balya*, *Brihana*, *Rasayana* type.

### Sattvic Ahara:

In Bhagvad Gita diet is distinguishes as *Sattvic*, *Rajsika* and *Tamsika*. If a person consumes *Sattvic Ahara*, it promotes *Sattva Guna* of mind i.e., a quality of mind which induces clarity,

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synchronization and sense of balance between body and mind. Food and food habits which are "pure, essential, natural, vital, energy-giving, clean. Following diet is included under *Sattvic Ahara*

- Fresh seasonal fruits, fresh vegetables
- Honey
- Whole grains (rice, whole wheat, barley, oat)
- Legumes (mung, masoor)
- spices (basils, coriander, cumin, ginger, turmeric, black, pepper)
- *Sattvic* herbs;(Shatavari, Ashwagandha, Jatamansi, Tulsi)

### Mitahara

*Mitahara* focused on the quantity and quality of food and drinks, takes neither too much nor too little, and suits it to one's health condition and needs. The Hathayoga Pradipika suggests “*Mitahara*” regimen of a avoids foods with excessive amounts of sour, salt, bitterness, oil, spice burn, unripe vegetables, fermented foods or alcohol. Quantity of food depends upon the quality of food according to its *Guru* (heavy to digest) and *Laghu* (light to digest) property.

### Rasayana:

From *Rasayana* therapy, one attains strength of physique and sense organs including mind. Hence, food having *Rasayana* property should be included in diet of covid-19 patients and also to increase the strength of body after COVID.

*Ghrita* + Milk (Aachar Rasayan)

*Ghrita*: Rasayana, Oja Vriddhi, Medhya, Balya, Appetizer

Milk: *Vaatpittahar*, *Rasayana*, *Jeernajwara*, *Ojo Vriddhi*, *Manoroga*

### Hridya Ahara:

Chakrapani stated that हृदयं तर्पयतीति हृद्यो भवति । *Hridya* means which nourishes the *Hridaya*. *Hridaya* is the site of *Buddhi* and *Chetana*, *Madhura* (sweet) and *Amla*(sour) *Rasas* have the *Hridya* (Cordial) property.

- *Dadima* (*Punica granatum* Linn.)

There is proven effect of pomegranate juice for anxiety and depression.

- *Narikel* (*Cocos nucifera* Linn.)
- *Kharjura* (*Phoenix sylvestris* Roxb.)
- *Kushmand* (*Benincasa hispida* Savi.)

### Preenana:

COVID affected persons suffer from anorexia, ageusia so liquid diet containing the nutritious value can be given.

- *Kharjuradi Manth* – According to Chakradutta, Bhaishajyaratnavali and Bhaishajyakalpana the contents are *Kharjura*, *Draksha*, *Amalaki*, *Parushaka*, *Vrikshamla*, *Tintidika*, *Dadima* are the contents of *Kharjuradi Manth*. Most of the ingredients of *Kharjuradi Manth* have

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*Madyodbhutavikarashamaka* properties as *Vatapittashamaka*, *Agnideepana*, *Yakriduttejaka*, *Hridya*, *Balya*, *Aruchinashaka*, *Nadibalya*, *Mastishkashamaka*, *Medhya*, *Soumanasyajanana*, *Vedanasthapana* properties.

- *Takra* -Dried ginger, salt/ Sugar/ *Trikatu*, *Saindhav*  
These 3 combinations are used for *Vatja*, *Pittaj*, *Kaphaj* vyadhi respectively.
- *Mansrasa* (Soup)- *Bruhan* (nourishing), *Balya* (Strengthening), *Hridya* (Cordial)
- *Laja Mand*-
- *Mudga Yush*
- *Sattu Ghol*
- *Narikel jal*- *Hridya*, appetizer

### **Shadrasatmaka Ahara:**

Ayurveda recommends consumption of all 6 tastes in regular diet in varied proportions for prolonged immunity and better health.

### **Following the rules of consumption of food:**

Adequate nutrition is the foremost for healthy life and also to cure the illness but to gain the optimum benefits from food knowing proper dietary guidelines is essential. Acharya Charak has given *Ahara Vidhi Vidhan* (dietary guidelines) which can prevent many diseases arising merely due to faulty dietary habits.

*Ushnamashniyat* (consuming warm food)

*Snigdamashniyat* (Diet should include fat)

*Matravatashniyat* (Balanced Diet)

*Jeerneashniyat* (Meal taken after digestion of previous meal)

*Veeryaviruddhamashniyat*

*Ishtadeshe ishtasarvopkarnam chashniyat* (Meal taken at proper place and with proper instruments)

*Naatidrutamashniyat* (Not eating too fast)

*Naativilambitamashniyat* (Not eating too slowly)

*Ajalpanahasan tanmanabhunjeet* (Eating without talking or laughing, Mindful eating)

*Atmanamabhisamikshya bhunjeet samyak* (Eating after analysing one's needs)

### **EFFECT OF MINDFUL EATING**

A pilot Study on yogic lifestyles has proven the effect of mindfulness to self, mindful eating and yogic exercise on overall decrease in perceived stress score and an increase in self-compassion score of the participants that were significant after the duration of 4-weeks.

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## Mindful eating practices

- Sit comfortably.
- Take 3 slow deep breaths.
- Bring your attention to your food.
- Experience what it's like to eat your food.
- Before and as, you eat notice the look, smell, texture, sounds, and taste of your food.
- One may get distracted by thoughts or other things. Just notice them without judgement and let them go, turning your attention back to what it's like to be eating.

## Apathya Ahara

### ***Rajasika Ahara (Stimulant foods)***

- Caffeinated Drinks like coffee, tea, cold drinks
- Energy drinks
- Black chocolate, brown chocolate
- Spicy, pungent, salty, bitter food
- Unfertilized eggs
- *Gingko biloba*

### ***Tamasika Ahara (Sedative foods)***

- Meat, fish, fertilized eggs
- Onion, garlic, mushroom
- Alcoholic beverages
- Stale food
- Food that is remained for more than 3 hrs. (Bha.gi.)

## **CONCLUSION**

The pandemic is over, but its effects on mental health and well-being of the general population, health professionals, and vulnerable people will remain for a long time. Consideration of Ayurveda *Ahara Kalpana* and yogic practices for dietary constituents and nutritional factors plays important role in promoting overall health in times of ongoing national restrictions. Yoga influences the sattvic *Guna* to increase, so a yoga practice combined with sattvic diet can help us to establish a more sattvic type of mind which in turn can improve your yoga practice, helping one to achieve higher states of awareness. “*Annam bramha,*” is a firm belief in ancient Indian culture and cuisine, which translates to mean the presence of divinity is perceived in all that is consumed. Food has been priced the most important aspect in life as it nourishes mind and body.

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**AHARA (FOOD) IN MENTAL HEALTH PROMOTION IN COVID AND AFTER  
COVID**

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**ABSTRACT**

*COVID-19 as a pandemic has affected each and every element of human life. It has worldwide impact on human health, work of people, economy and food system to. Mental health which is an essential component of human health is also affected from it. Recently in COVID-19 period cases of depressive disorders, anxiety disorders, phobic disorders, panic attack, drug and non-substance abuse are increased drastically. As no specific treatment protocol is available for COVID-19, adapting healthy lifestyle is the only solution which is also true for the mental health promotion during this COVID time. In healthy lifestyle, diet is the most crucial factor and for health promotion Ayurveda always gives stress on individual's diet. In this chapter there is description of probable role of Ayurveda dietary in promotion of mental health during COVID-19 and after COVID has been given.*

**Keywords:** *Aahar, Ayurveda dietary, COVID-19, Mental health, Satvik, Rajsik and Tamsik food*

The novel coronavirus disease 2019 (COVID-19) has spread globally and bring an unprecedented crisis for public health, food system and economy. With its wide negative impact on physical health, financial built and social implications it also has psychological issues related to human health which are increasingly being reported in several scientific and social studies. WHO also raised concern on it's mental-health related and psycho-social consequences? Usual activities, routines and lifestyle of people deeply affected by quarantine and self-isolation that may lead to an increase in loneliness, anxiety, stress, depression, sleep disturbance, substance and non-substance abuse, self-harm or suicidal ideations. A huge burden of mental health issues because of COVID-19 includes anxiety disorders, stress, depression, phobic disorders, panic disorders, OCD, substance related and addictive disorders, sleep disorders, irrational anger, impulsivity, somatization disorders, emotional disturbance, eating disorders, posttraumatic stress disorders and self-harm tendency or suicidal behavior. Mental health problems associated with COVID-19 are not confined only to a specific group or population as it has spread in elderly people, children and teenagers, health care professionals and people with past and family psychiatric history.

Being a novel viral disease with no specific treatment protocol, stress is being given on healthy life style practices. Changes in Diet, sleep and physical activities in a healthy way have positive impact on negative mood during COVID-19 and diet is the utmost important factor as it has direct relation to coping method to tackle the psychological symptoms associated with COVID-19.

In Ayurveda the food is consider as the major beam of life and prime element of *Traya-upastambha* (three major pillars of life) and the food is said to be responsible for better complexion, clarity or mindfulness, good voice, longevity, geniuses, happiness, satisfaction, nourishment, strength and intellect. In addition, the food also considered as essential etiological factor in development of psychiatric disorders. Unclean, unwholesome, untimely eating habits, as well as neglecting any prescribed dietetic rules alleviates the *Doshas* (physiological entities)

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and *Rajas* and *Tamas Guna* (psychological entities) which afflict the *Manas* and produces *Unmada* (Psychiatric disorder as per Ayurveda). So, diet also has major role in sustaining of a good mental health.

**HOW FOOD NOURISHES OUR MIND OR MANAS**

Before taking Diet as a major concern in promotion of mental health in COVID and after COVID it is important to discuss that how the food which we are taking nourishes our mind or *Manas* and ultimately decide our mood or behavior. The recent advances in field of Nutritional psychiatry suggests that Gut-Brain axis theory is most promiscible theory to explain food and mood relation. According to this theory, Serotonin is a neurotransmitter that helps regulate sleep and appetite, mediate moods and inhibit pain. Since about 95% of the serotonin is produced in gastrointestinal tract, and gastrointestinal tract is lined with a hundred million nerve cells, or neurons, it makes sense that the inner workings of digestive system don't just help to digest food, but also guide emotions. The function of these neurons and the production of neurotransmitters like serotonin is highly influenced by the billions of "good" bacteria that make up intestinal microbiome. These bacteria play an essential role in health. They protect the lining of intestines and ensure they provide a strong barrier against toxins and "bad" bacteria; they limit inflammation and they improve how well absorb nutrients from food; and they activate neural pathways that travel directly between the gut and the brain.

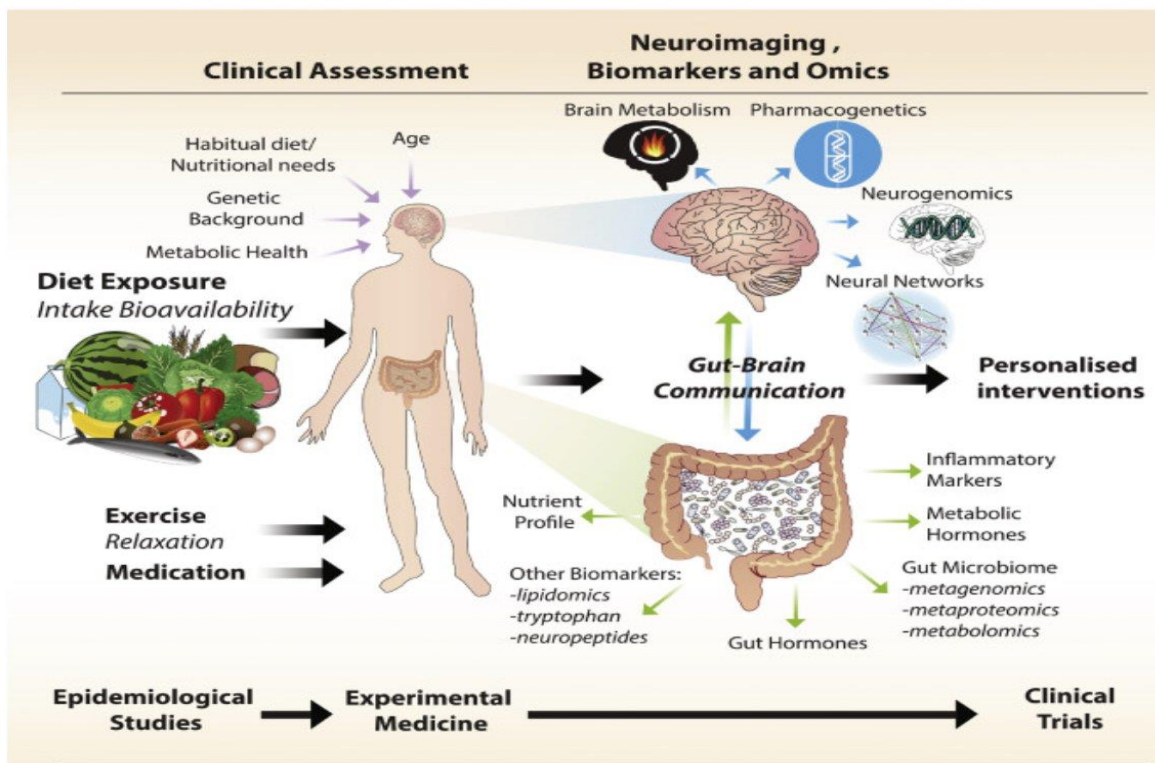


Figure 1.1: Gut-brain axis (ESNM.eu# health#nutrition #microbiota #gutmicrobiota)

In ancient scripture of Sanskrit specially in *Chandogyounishad*, the concept of nourishment of *Manas* is described in detail. According to this concept the *Anna* (food) which we consume firstly converted by *Jatharagni* (digestive fire) into *Anna Rasa* (Juice form). This *Anna rasa* get divided into three parts *Sthula Bhag* (Macro type), *Madhyam Bhag* (intermediate type) and *Sukshma Bhag* (Micro type). Among these three, *Sthula Bhag* get converted into *Mala* (excretory product), *Madhyam Bhag* provide nourishment to *Dhatu* (body tissue) and *Sukshma*



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*Bhag* reaches to heart through *Sukshma Nadi* (minute channel) named '*Hita*' and approached the *Manas* and provide nourishment to it.



Figure1.2: Nourishment of Manas through food

### TYPE OF DIET AND ITS EFFECT ON MANAS

Some studies reveal that a particular type of diet has direct effect on mental health like diet rich in fresh vegetables and fruits is related with higher rate of happiness and mental wellbeing. Particularly the Mediterranean diet reduces the risk of depression.

In Ayurveda *Manas* is explained as *Satvik*, *Rajsik* and *Tamsik Manas* on the basis of *Triguna* (three psychological entities i.e., Satva, Raja and Tama as per Indian Psychology). Similarly, in *Shrimadbhagavad Geeta* on the basis of *Triguna* three types of *Ahara* (food) i.e., *Satvik Ahara*, *Rajsik Ahara* and *Tamsik Ahara* are described as.

- आयुःसत्त्वबलारोग्यसुखप्रतीतिविवर्धनाः ।  
रस्याः स्निग्धाः स्थिरा हृद्या आहाराः सात्विकप्रियाः ॥
- कट्वम्ललवणात्युष्णतीक्ष्णरूक्षविदाहिनः ।  
आहारा राजसस्येष्टा दुःखशोकामयप्रदाः ॥
- यातयामं गतरसं पूति पर्युषितं च यत् ।  
उच्छिष्टमपि चामेध्यं भोजनं तामसप्रियम् ॥ (Sh.Bh.Gi.17/8-10)

The *Satvik Ahara* is that food which augment life, firmness of mind, strength, health, happiness and delight, and which are succulent, oleaginous, substantial and agreeable, are dear to one endowed with *Satva*. *Satvik* food elevates the quality of *Satvik Manas* which includes absence of all killing or hostile propensities, a judicious regimen of diet, forbearance, truthfulness, piety, a belief in God, spiritual knowledge, intellect, a good retentive memory, comprehension, and the doing of good deeds irrespective of consequences.

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*Rajsik Ahara* are too bitter, sour, salty, hot, pungent, dry and burning and which causes production of pain, sorrow and disease, are dear to one having *Rajas*. *Rajsik* food elevates quality of *Rajas Manas* which includes feeling of much pain and misery, a roving spirit, non-comprehension, vanity, untruthfulness, non-clemency, pride, an over winning confidence in one's own excellence, lust, anger and hilarity.

*Tamsik Ahara* is that which is not properly cooked, lacking in essence, putrid and stale, and even ort and that which is unfit for sacrifice, is dear to one possessed of *tamas*. *Tamsik* food elevates quality of *Tamsik Manas* includes despondency, stupidity, disbelief in the existence of God, impiety, stupor and perversity of intellect, lethargy in action and sleepiness.

### **AYURVEDA DIET IN MENTAL HEALTH PROMOTION DURING COVID-19 AND AFTER COVID-19.**

The concept of *Satvik*, *Rajsik* and *Tamsik Ahara* described in *Bhagvad Geeta* has limited approach until these are not integrated with principles of Ayurveda dietary. Principle of Ayurveda dietary includes *Hittama* and *Ahittama Ahara Dravya* (beneficial and harmful food items), *AsthaAharavidhi Visheshayatna* (eight factors related to diet), *Ahara Prayog Vidhan* (proper method to take diet), *Dwadashashan Pravichar* (twelve factors related to diet selection), *Mitahara* (concept of balance diet), *Ritucharya* (seasonal food regime) and *Vairodhik Ahara* (dietetic incompatibility). On rectifying the concept of *Satvik*, *Rajsik* and *Tamsik Ahara* on the basis of principle of Ayurveda dietary we can further reframed the meaning of *Satvik*, *Rajsik* and *Tamsik Ahara* which may have major role in mental health promotion during COVID-19 and after COVID-19.

***Satvik Ahara:*** On basis of principle of Ayurveda dietary, *Satvik Ahara* can further define in term of *Rasa* (taste), *Guna* (properties), *Dravya* (specific items), *Matra* (amount) and *Prayog Vidhi* (method of consumption).

#### **In context of *Rasa***

- *Satvik* diet includes consumption of all the six *Rasas* (tastes) in diet like *Madhura* (sweet), *Amla* (sour), *Lavana* (salty), *Tikta* (bitter), *Katu* (spicy) and *Kashaya* (astringent) in a balanced way.
- mainly use *Prakrut Madhura Dravya* (naturally sweet food items) like fresh fruits and vegetables in diet.

#### **In context of *Guna* and *Dravya***

- use of naturally oleaginous food items regularly in diet as dairy products (Milk, ghee, butter, buttermilk), one or more cooking oil as sesame, groundnut, sunflower, coconut, soyabean and cottonseed oils and Dry fruits like almonds, walnuts, pistachios, cashews.
- use the wholesome, unprocessed food items extensively in diet like *Sathi Rice*, *Shali Rice* (Red Shali), *Yava* (barley), *Godhoom* (wheat), *Moong* (green gram), *Saindhava* (rock Salt), Milk, Ghee, Honey, *Amla* (Indian gooseberry), *Harad*, *Draksha* (prunk), *Dadim* (pomegranate), *Patol* (pointed gourd).

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### In context of *Matra*

- In relation of *Matra* (amount) *Satvik* diet includes dietary intake according to *Pachakagni* (digestive power).
- keeping one third of total diet as solid, one third as liquid and don't fill up stomach completely with this diet and also leave some empty space in stomach and also consume such food items which are *Guru Ahara Dravya* (heavy to digest) in half of quantity and also do not take food items which are *Laghu Ahara Dravya* (light to digest) in excessive amount.

### In context of *Ahar Prayog Vidhi*

- follow the specific dietary intake sequence while taking diet.
  - Starts with consumption of Madhura Dravya (Sweet food items), in middle Amla and Lavan Dravya (sour and salty food items), in the end the consumption of Katu and Tikta Dravya (spicy and bitter food substances).
  - Consumption of fruits first, beverages in the middle, and chewable food items in the end.
- Take food only twice a day at fixed times in the presence of sunlight.
- Do not consume diet very often or very slowly and take it diligently.
- choose and consume diet on the basis of advantages and disadvantages of that diet in respect of health.
- pay special attention not only to the food items, but also to the method of serving them and the vessels in which they are served.

***Rajsik Ahara:*** On basis of principle of Ayurveda dietary, *Rajsik Ahara* can further defined in term of *Rasa* (taste), *Guna* (properties), *Dravya* (specific items), *Matra* (amount) and *Prayog Vidhi* (method of consumption).

### In context of *Rasa*

- *Rajsik Ahara* includes excessive use of *Amla Dravya* (sour food items), *Lavana* (salt), *Tikta Dravya* (bitter food staples), *Katu Dravya* (spicy food items) and *Kashaya Dravya* (astringent food items) in diet.

### In context of *Guna and Dravya*

- use of very *Ushna* (hot) food substances in diet in abundance such as *Ragi* (Millet), *Suran* (elephant foot yam), fenugreek, ginger, brinjal, tea, coffee, chocolate, egg, meat and fish etc.
- use of very *Shita* (cold food items) in diet in abundance such as cold drinks, cold water from the fridge, ice, ice cream etc.
- use of lot of *Tikshna* (pungent and alkaline) food substances in diet in abundance like spinach, *Bathua* (lamb's quarters) and food rich in excessive spices, baking soda, MSG (aji-no-moto), vinegar, soya sauce, oregano, pickles, soda water and cold drinks etc
- use of lot of *Ruksha* (dry and roasted food items) in diet in abundance like *Bajra* (pigeon pea), maize, oats, ragi, roasted barley, highly roasted foods (like toast, papad, puffed

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rice, *laja*, Popcorn, *Makkhana*, *Khakhra* etc.), Baked Food (Biscuits, Bread, Pav, Rusk, Cookie etc.

- use of lot of *Vidhahi* (food items cause burning) in my diet like Mustard oil, *Rai* (mustard seeds), Radish, Mustard sauce, Chilli sauce, Tabasco sauce etc.

### **In context of *Matra***

- keep on eating till stomach is completely filled.

### **In context of *Ahar Prayog Vidhi***

- use milk in diet along with *Amla Dravya* (sour items) and *Lavan Dravya* (salty items).
- eat food only in solitude without sharing it with anyone.

***Tamsik Ahara***: On basis of principle of Ayurveda dietary, *Tamsik Ahara* can further defined in term of *Rasa* (taste), *Guna* (properties), *Dravya* (specific items), *Matra* (amount) and *Prayog Vidhi* (method of consumption).

### **In context of *Rasa***

- use *Katu* (spicy) and *Kashay* (astringent) food items in abundance.
- use such dietary substances in diet in abundance which are distorted in their *Prakrut Rasa* (natural taste) due to any reason like a naturally sweet fruit becomes acidic or bitter in taste.

### **In context of *Guna***

- use lot of such food substances in diet which are naturally *Durgandhi* (odorous) like onion, garlic, radish, cauliflower, fish, meat etc.

### **In context of *Dravya***

- regularly use eggs, meat and fish in diet in abundance.
- consume alcohol and hard drinks regularly in diet.
- Include food items like packaged food, frozen food and processed food items like bread, pav, biscuit, chips, tomato ketch up, soy sauce, instant food, junk food and use them extensively in diet.

### **In context of *Matra***

eat more food than need.

### **In context of *Ahar Prayog Vidhi***

- usually consume any food item only after 3 hours of cooking it
- consume once cooked food material by heating it again and again.
- consume food made in the last night on next day also i.e. I also consume stale food.
- often eat someone's leftovers food too.

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### Ausadh sanskarit Ahara (medicated food) in mental health promotion

According to Ayurveda, food has a wide impact on different aspects of human life apart from being considered as a fuel for human body. Food is believed to be a complete medicine and evidences supporting this statement are present in various classical texts of Ayurveda amongst which *Charak Samhita* is the most relevant. In *Charak Samhita*, medicated food preparations involve *Ahara kalpna* (food preparations) like *Yavagu* (portidge), *Yusha* (gruel), etc., processed with *Ausadh dravya* (Ayurveda Herbs) which are described in respect to the management of different diseases. For mental health promotion *Ahara Kalpna* which are processed with *Medhya Rasayana* can be used. *Medhya Rasayana* includes the Ayurveda herbs like *Brahmi* (*Bacopa monnieri*), *Guduchi* (*Tinospora cordifolia*), *Jyotishmati* (*Celastrus paniculatus*) and *Yasthimadhu* (*Glycyrrhiza glabra*) and *Shatavari* (*Asparagus racemosus*).

### SPECIAL DIET REGIME IN PSYCHIATRIC DISORDERS AS PER AYURVEDA

In Ayurveda special diet regime is indicated in psychiatric disorders that should be followed along with medication. The *Pathyas* mentioned in *Unmada* includes:

- *Sakavarga* (vegetables), *Patola*, *Bramhi* (*Bacopa monnieri*), *Shobhanjanam* (*Moringa olifera*), *Kakamaci* (*Solanum nigrum* Linn), *Vastuka* (*Chenopodium album* Linn.), *Tanduliyaka* (*Amarantus viridis* Linn.).
- *Dhanyavarga* (cereals/pulses): *Raktha/Aruna-Shali* (red rice), *Godhuma*, *Yava*, *Mudga*.
- *Phalavarga* (fruits): *Draksa*, *Panasa* (jack fruit), *Matulunga* (*Citrus medica* Linn), *Narikela* (coconut), *Kapittha* (wood apple), *Kusmanda* (ash gourd, Amla, *Haritaki* (*terminalia chebula*))
- *Gorasavarga* (Milk and Milk products): *Ksira* (Milk), *Navanita* (Butter), *Ghrita* (*Ghee*)
- *Paniyavarga* (drinks/beverages): *Gangambu* (Rain water), *Rasala*, *Kulmasatarpana*, (Gruel of *Kulmasa*).

As food is the basic and most valuable factor in promotion of health, objective of healthy life in all domains can be achieved only by healthy food practices and same is true for mental health. In COVID-19 and even after it by adapting Ayurveda dietary principles we can cope many psychological issues. In Ayurveda the food is not considered just as fuel for human body as it nurtured every component of human body including our mind or *Manas*. By following principles of *Hittama* and *Ahittama Ahara Dravya*, *AsthaAharavidhi Visheshayatna*, *Ahara Prayog Vidhan*, *Dwadashashan Pravichar*, *Mitahara*, *Ritucharya* and *Vairodhik Ahara* and most important *Satvik*, *Rajsik* and *Tamsik Ahara* by increasing our *Satva* we can attain goal of positive mental health. In patients of psychiatric disorders *Ausadh sanskarit Ahara* with *Medharasayana* and *Pathya Vicharana* (Special diet regime) can be used along with medication.

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**AN AYURVEDIC APPROACH FOR MANAGEMENT OF MENTAL HEALTH  
AILMENT IN COVID 19 CRISIS**

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## **INTRODUCTION**

Global emergency like Covid-19 has brought the whole world to stand still. Today humankind is suffering from the physical, mental, and economical damages due to the pandemic.

Infectious or communicable disease can be defined as an illness caused by another living agent, or its products, that can be spread from one person to another.

Pandemics are the large- scale outbreaks of infectious disease that can greatly increase morbidity and mortality over a wide geographic area and cause significant economic, social and political disruption.

Corona virus disease (Covid-19) poses a major threat to global public mental and physical health. It is caused by SARS-COV2 and represents the causative agent of potentially fatal disease that is of great global health concern. It was first detected in the Wuhan, China in December 2019 and get spread rapidly in China as well as in other countries reaching epidemic proportions. It has been declared a pandemic by the World Health Organization (WHO) on March 2020.

Due to lack of specific therapeutic, increasing number of deaths due to Covid-19 to stop/control further spread of disease strategies of government like complete lockdown, travel restrictions, social distancing, patients' isolation has greatly affected the mental status of people.

Studied showed that after the outbreak of Covid-19 number of people whose mental health is affected has increased. Mental Health problems like anxiety, insomnia, depression, post-traumatic stress disorder etc. have increased.

## **CAUSES FOR MENTAL HEALTH DISORDERS DURING COVID -19**

- Loss of jobs
- Loss of family
- Social constraint
- Uncertainty
- Worry about the future
- Financial loss
- Isolation and loneliness

All these factors have led to various mental disorders like- insomnia (disturbed sleep), anxiety, depression etc. Covid-19 has affected mental health of children, adult and young people.

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Cause Of Mental Stress		
Children	Young	Elderly
<ul style="list-style-type: none"> <li>• Closing of schools</li> <li>• Away from friends</li> <li>• Restrictions</li> <li>• Excessive use of electronic gadgets</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of jobs</li> <li>• Financial stress</li> <li>• Worry about future</li> <li>• Isolation</li> <li>• Loss of family</li> </ul>	<ul style="list-style-type: none"> <li>• Dependency on young ones</li> <li>• Fear about future\</li> <li>• Isolation and loneliness</li> <li>• Fear of the disease prognosis</li> <li>• Loss of family</li> </ul>
Symptoms		
<ul style="list-style-type: none"> <li>• Excessive crying</li> <li>• Increased sadness</li> <li>• Irritable behavior</li> <li>• Lack of concentration</li> <li>• Annoying behavior</li> </ul>	<ul style="list-style-type: none"> <li>• Depression</li> <li>• Anxiety</li> <li>• Insomnia</li> <li>• Stress</li> <li>• Irritating and shouting behavior</li> <li>• Emotional outburst</li> </ul>	<ul style="list-style-type: none"> <li>• Restlessness</li> <li>• Anxiety</li> <li>• Changes in behavior and daily habits</li> <li>• Emotional outbursts</li> </ul>

## MANAGEMENT ACCORDING TO AYURVEDA

*Ayurveda* is one of the most ancient medicinal systems. *Ayurveda* aims at prevention and promotion of health and curing the disease and maintain the healthy state of body. In *Ayurveda* mental health of person is affected by factors like *Rajas*, *Tamas* and *Satva*. These are the mansik doshas which when are in equilibrium leads to healthy mind. Mental disorders are generally caused due to – *alpa satva* (weak mind), *dushti/vitiation of Manovahsrotas and Manas dosha* i.e., *Rajas*, *Tamas* and vitiation of *Sharirik doshai*.e., *Vata*, *Pitta* and *Kapha*.

*Ayurveda* has mentioned many treatment modalities for mental diseases which includes-, *Yuktivyaprashaya chikitsa* (logical therapy), *Daivyaprashaya chikitsa* (spiritual therapy) and *Satvavjaya chikitsa* (psychotherapy).

*Yuktivyaprashaya chikitsa* focus on use of medicines (*Aushad*) internal and external, proper diet (*Ahara*) which helps in pacifying *Sharirik* and *Mansik doshas*.

*Daivyaprashaya chikitsa* focus on use of *Mantras* (incantation), wearing sacred herbs, *Mani* (wearing gems), *Homa* (sacrifice), *Mangala* (proprietary rites), *Niyama* (vows), *Upvasa* (fasting) etc.

*Satvavjaya chikitsa* focuses on to restrain mind from desire for unwholesome products this includes behavioural, occupational therapies.

Thus, a holistic approach can be used all together to treat mental ailment.

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**MEDICINAL HERBS USED IN MENTAL AILMENTS**

<b>Name</b>	<b>Botanical name</b>	<b>Chemical constituent</b>	<b>Properties</b>
<b>Shankhapushpi</b>	<i>Convolvulus microphyllus</i>	Microphylllic acid, shankhapushpin, convoline	Neuroprotective effect, increases Acquisition efficiency, Anti-oxidant, Anti depressive action, anti- stress activity, acetyl cholinesterase inhibitory property. Effective in anxiety, neurosis, insomnia, cerebral abnormalities
<b>Mandukaparni<sup>8</sup></b>	<i>Centalla asiatica</i>	Medacoside, Asiatic acid, triterpenic acid	Neuro protective, Brain growth promoter Anti-seizure activity Anti-stress activity, Anti-oxidant, Anti-apoptotic property, improves learning and memory
<b>Aindri</b>	<i>Bacopa monnieri</i>	Saponin, Bacosides	Tranquilizing property, sedative action, cognitive enhancer, Anti-oxidant, Neuroprotective action
<b>Vacha</b>	<i>Acorus calamus</i>	$\beta$ - asarone, $\alpha$ asarone	Anticonvulsant, Anti-oxidant, sedative, neuroprotective activity, improves cognitive functions, Monoamine oxidase inhibiting activity, effects on neurotransmitters, analgesic, clears speech in children, memory enhancer
<b>Jatamansi</b>	<i>Nordostachys jatamansi</i>	Jatamansone, Terenoids	Neuroprotective activity, improvement of learning and memory, Sedative and tranquilizing action
<b>Yashtimadhu</b>	<i>Glycyrrhiza glabra</i>	Glycyrrhizine, phenolics, glabridin	Anti-oxidant, Memory enhancing properties, improves circulation into CNS

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<b>Jyotishmati</b>	<i>Celastrus panniculata</i>	Paniculatadiol, pristimerin, sesquiterpenoids	Anti-oxidant, Memory enhancer
<b>Rudraksh</b>	<i>Elaeocarpus sphaericus</i>	Glucosyloxyflavan, diffutin	Anxiolytic effect, mild sedative action Effective in Neuralgia, epileptic fits, maniac disorder, mental disorders and insomnia
<b>Guduchi</b>	<i>Tinospora cordifolia</i>	Furanoid diterene 10-hydroxycolumbin, clerodane, tinosporidine	anti-oxidant, anti-stress, immunomodulatory and intellect promoting activity

### ADMINISTRATION OF RASAYANA

*Acharya Charaka* says procedure which helps in production of dhatus of optimum qualities is called *Rasayana*. *Rasayana* provides strength and immunity to healthy person. *Acharya Shadranghdhar* explains *Rasayana* as a drug which helps in delaying aging process, increases longevity, intelligence and increases immunity power of individual to fight against disease.

As we are focusing on preventive measures so in today modern lifestyle and due to its minimal provision *Rasayana* like *Chyanprasha*, *Giloy juice*, *Amala*, *Tulsi*, *Ashwaganda*, regular intake of *Ghrita* and milk, intake of a balanced diet etc can be used on regular basis for the attainment of best results. These *Rasayana* helps in boosting the immunity of the individual, increasing body strength, maintaining mental health and providing longevity. Various research work has been done on establishing the properties of the *Rasayana dravyas* and their effect on body. *Rasayana dravya* can be used on regular basis are mentioned below-

<b>Rasayana Dravya</b>	<b>Established Properties</b>
<i>Chyavanprash</i>	Adaptogenic, antistress, immunopotentiating, memory facilitating, Respiratory functions
<i>Amalaki</i> ( <i>Embelica officinalis</i> )	immunomodulatory, free radical scavenging, antioxidant, anti-inflammatory, anti-mutagenic Activities. Helpful in Memory loss, mental fatigue, anxiety, depression, insomnia, enhances intellect
<i>Ashwaganda</i> ( <i>Withania somnifera</i> )	Immunoregulator, memory enhancing property, sleep inducing property,

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	neuroprotective property, anti-oxidant property, adaptogenic property
<i>Tulsi (Ocimum sanctum)</i>	Antioxidant, anti-inflammatory properties. Anti-stress, Ant convulsions, anti-depressant activity, improves memory & cognitive function Adaptogenic property. Relaxing and calming effect
<i>Ghrit and Ksheera</i>	antioxidant activity, ant cancerous properties, works on neurotransmitter, enhances memory, improves growth

**ADMINISTRATION OF PANCHAKARMA THERAPIES –**

Therapeutic procedure of panchakarma which initiates bio-cleansing of body like Abhyanga, Shiroverachana (Nasya), Shirodhara, Shiro pichu, Shiro talam... They help in enabling/encouraging better bioavailability of body-humors, eliminating bio-toxins causing disease out of the body, cleansing the body and also prevents the progression and recurrence of the disease.

<b>Procedure</b>	<b>Ayurvedic aspect</b>	<b>Action</b>
<i>Abhyanga</i> (Body massage with medicated oils) <sup>22</sup>	<ul style="list-style-type: none"> <li>• Paccify Vata dosha</li> <li>• Reduces Stiffness and moisturize body</li> <li>• Preetikar (Generates pleasure)</li> <li>• Nidrakar (induces sleep)</li> <li>• Shramhar (Relieves Fatigue)</li> <li>• Relieves Pain</li> <li>• Chittashanti (Generates Calmness)</li> <li>• Manoudveghar(reduces exertion)</li> </ul>	<p>a) Physical- Rubbing (massage) produces heat in body and increases blood circulation which affects the lymphatic system.</p> <p>b) Psychological – Massage works on nervous and helps in circulation of Growth hormones.</p>
<i>Shirodhara and Shiro Basti</i>	<ul style="list-style-type: none"> <li>• Increases stability in speech</li> <li>• Improves Mental stability</li> <li>• Improves concentration</li> <li>• Increases strength</li> <li>• Prevent eye disorders</li> <li>• Nourishes shukra and rakta dhatu</li> </ul>	It works on HPA axis and reduces the level of stress hormone such as glucocorticoids and cortisol which results in stress and tension. It induces autonomic reflex through thermosensors in the skin via trigeminal cranial nerve as result it relaxes and maintain psychophysiological balance.

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<i>Shiroabhyang</i>	<ul style="list-style-type: none"> <li>• It pacifies Vata dosha</li> <li>• Improves Vitality</li> <li>• Reduces Fatigue</li> <li>• Improves Eyesight</li> <li>• Prevent disturbed sleep</li> <li>• Improves physical strength</li> </ul>	Scalp massage stimulates the circulatory system and nervous system by exciting the fine capillaries. It primarily effects the lymphatic drainage. Abhyanga is found to be responsible for increasing serotonin level, as serotonin depletion is mainly involved in psychiatric diseases.
<i>Shiropichu</i>	<ul style="list-style-type: none"> <li>• Effective in scalp disorders like falling of hair</li> <li>• Strengthen the eye ball movement</li> <li>• Calming and soothing effect</li> <li>• Pacify Vata dosha</li> </ul>	It effects on CNS mainly due to cellular absorption. It increases blood circulation in the brain thus resulting in reducing intracranial vasoconstriction. Atrophy and degeneration in the temporal lobe, parietal lobes and parts of frontal cortex is also improved by shiropichu
<i>Nasya</i>	Nose is the doorway to Shira, reaches to Shringatak marma of head which can be considered as middle cephalic fossa which is connected to ethmoid and sphenoidal sinus and consist of meningeal vessels and cranial nerves. Sphenoidal sinus is inferiorly connected with naso pharynx and posteriorly to brain stem.	Nose is connected to- a) vascular system b) olfactory nerve c) Trigeminal nerve and its branches. Olfactory nerve is connected with the limbic system of the brain including hypothalamus. Limbic system is also related with behavioral aspects, besides control over endocrine system as a result drugs administered through nasal route have direct impact on psychological functions by acting on limbic system through olfactory nerves.

**Lifestyle Modification-** Acquiring a lifestyle which encourages us to remove negativity out of our life, to take care of our body and to promote mental and spiritual wellbeing. In Ayurveda it can be achieved by Achar Rasayana sevan, Sadvritapaalan and yoga.

### **AACHAR RASAYANA AND SADVRITAPAALAN**

These include the rules and regulation one should follow in daily conduct that is why it is called Achar Rasayana. This helps in strengthen mental and spiritual health of an individual. It includes Honesty, respecting elderly persons, philanthropy, taking care of body by following dietary regimen, dincharya (daily routine), abstinent from anger, violence, alcohol etc. If this is followed properly on regular basis it will be equally beneficial as the other rasayana.

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### **Yoga –**

Yoga is an essential part of Ayurveda; it not only promotes physical health but also gives mental health benefits. Yoga is central to dincharya “an Ayurvedic routine”. It is an ideal exercise which helps in maintain mental health, rejuvenating body, maintaining all three doshas of the body. Yoga postures tone every area of the body and cleanses the internal organs by removing toxins, which is one of the goals of Ayurveda.

Pranayama means “control of prana”- isn’t just breathing Exercises. Through pranayama, one can use the breath to affect the constellation of energy that is in our body-mind. Rising numbers of COVID-19 cases and deaths has raised stress and anxiety, loneliness and depressive feelings due to social distancing and lock down among the folks. Thus, yoga and pranayama can help in promoting mental health as well as physical benefits. Pranayama has been proved to improve the lung functions. Pranayama improves respiratory breathing capacity by increasing chest wall expansion and forced expiratory lung volumes. It also helps in maintaining harmony between sympathetic and parasympathetic nervous system and it regulates heart beat and blood pressure. Due to proper working of the organs, vital energy flow maintains the normal homeostasis of the body.

Meditation enhances melatonin levels precursors of melatonin i.e., serotonin and noradrenaline. It regulates HPA index, reduces stress, prolactin and TSH level. It helps in maintaining hypo metabolic state with parasympathetic predominance. The Penial Gland can be considered as Ajana chakra. Ajana chakra is situated in the mid brain behind eyebrow center at the top of the spine. Ajana Charkra is responsible for transmission of thoughts, stimulation of this chakara develops functioning of the mind as intelligence memory and concentration. Chanting of “Om Mantra” stimulates ajanya Chakra. Anjali Namskara has gained quiet a fame now a days. Anjali mudra is one of the hand gestures of yoga and is a common way of greeting in most Asian countries. It not only helps in maintain social distancing but it has other health benefits too. Practicing Anjali mudra promotes flexibility of wrist and arm joints. It stimulates Anahata chakra of body. It connects the right hemisphere of the brain to left hemisphere, increases concentration power relieves stress, promotes mindfulness and calm mind. It balances the Prana vayu, Sadhaka pitta, tarpak kapha, udana vayu and avlambak kapha. By this, it would keep the brain, heart and related glandular functions balanced.

We can conclude that use of Medicinal herbs, Rasayana and following healthy life style along with Yoga-pranayama can be significantly helpful in fighting restoration of immune homeostasis and restoring mental wellbeing. It is the need of the hour that we should implement Ayurveda in our life style as preventive and curative measure so that we can live a healthy life.

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**AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH  
DURING COVID -19**

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## **INTRODUCTION**

India has given two precious gems to the world i.e., Yoga & Ayurveda. The ongoing health crisis due to COVID-19 pandemic has affected millions of lives, with mental and psychological impact being as grave as the physical ailment. In such times, having strong immunity and sound mental health is the key to fighting the rapidly spreading disease.

Yoga and Ayurveda helps to maintaining the immunity and helping to fight against covid -19 pandemic. Yoga including pranayama, asanas helping to improve lung health, and practising yoga along with healthy life style and diet will help to improve our immune system, and improve blood circulation. Immunity is the most needed thing during the present era (covid pandemic era) we can avoid the chance of infection or we can fight with infection.

## **WHAT IS THE AYURVEDIC DEFINITION OF HEALTH?**

- The Ayurvedic definition of health states, ‘balance at every aspect of physiology and bliss at the level of the senses- Mann (mind) and Atman (soul).’ Thus, as per Ayurvedic practices, both physical and mental health are equally important if one is attempting to battle COVID-19.
- To achieve a right balance between a healthy mind and body, Ayurveda recommends a combination of healthy habits as well as regular consumption of organic items to make sure that the body is strong enough to fight off harmful viruses like COVID-19.
- Some of these recommendations include **Transcendental Meditation**, consuming a healthy diet, and getting adequate sleep. Apart from these, the rich Ayurvedic wisdom suggests making use of **Rasayanas**, which help in eliminating excessive mental and physical stress and striking a much-needed physiological balance.
- Another recommendation that is bound to work is the ‘**Nasya Treatment**’ (putting medicated oil drops in the nostrils), under which the individual has the flexibility of training either under an expert or on their own at home. Utilising the qualitative aspects of herbal oils, Nasya Treatment helps in cleansing and soothing the respiratory tract.
- Another ‘**fumigation process**’ for one’s surroundings which has proved to be quite useful is the ‘**Dhoopana**’, under which the microbial load from one’s closed surroundings is reduced.
- These recommendations under Ayurveda are bound to make one’s atmosphere more congenial and immune system relatively more substantial, which will help in protecting ourselves from COVID-19.

## **IMMUNE SYSTEM**

### **Ayurveda and Immunity**

Every individual possesses inherent strength which opposes the manifestation and prevents the re-occurrence of disease. This innate strength is called *Vyādhikṣhamatva* in *Āyurveda*. Genetic, epigenetic and lifestyle of an individual determine this innate strength. *Ojus* (essence of seven tissue elements) is the chief contributor in sustaining *vyādhikṣhamatva*. Ayurveda concept of immunity is classified as *Sahaja* (constitutional), *Kālaaja* (chronobiologic) or *Yuktikṛta* (acquired strength). Optimum immunity plays a vital role in preventing/minimizing the chances of infection in pandemic like situations. *Āyurvedic* approach towards promoting immunity includes the use of *Rasāyana* that comprises of proper daily regimens, seasonal regimens and consumption of medicinal herbs that enhance tissue regeneration. Among *Rasāyana* specially *Kāmya Rasāyana* is taken to increase the longevity and intelligence and *Ajsrika rasāyana* taken on the daily basis helps in optimizing the immune system. Herbs such as *Tinospora Cordifolia*, *Embelia Officinale*, *Bacopa Monnieri*, *Curcuma Longa*, *Ocimum Tenuiflorum*, *Terminalia chebula*, *Withania somnifera* and *Asparagus racemosus* are potential immunomodulators. Regular use of these herbs either alone or in form of preparations such as *Chavyanprash* and *Bramha rasāyana* helps in immune strengthening and serve as an effective prophylaxis in the management of SARS-COV-2 infection. *Swarna bindu prashana* (SBP) improves the immunity in infants and children.

### **Yoga and Immunity**

Out of the literature available on yoga for COVID-19, there are no experimental studies that have demonstrated improvement in immune parameters of patients with COVID-19. However, there are ancillary evidences that point towards probable role of add-on yoga therapy in increasing the anti-inflammatory neuro-hormonal substances and thereby reducing in the severity of infection. A randomised controlled trial compared the effects of 8-week yoga program and matched moderate intensity exercise and no intervention on the acute respiratory illness severity in individuals above 50 years of age during single flu season. Mean global severity [measured on Wisconsin Upper Respiratory Symptom Survey (WURSS-24)] was lesser in in meditation group than the exercise group and was significantly lower when compared to control group. Another study demonstrated that regular practice of integrated yoga program (joint loosening, sun salutations, breathing practices, *prāṇayāma* and relaxation techniques) for a month could boost the immunity and psychological health in patients with HIV. Yoga has also been found beneficial as an adjunct to anti-tuberculosis treatment (ATT) in patients with pulmonary tuberculosis by reducing the symptom scores, sputum conversion on microscopy, improvement in the lung capacity and radiographic pictures

### **Yoga and Respiratory health**

Currently, there are no experimental studies that demonstrated improvement in lung functions in patients with COVID-19. Thereby, we have aimed at drawing evidences from synonymous non-infectious conditions with respiratory distress. Consistent practice of yogic breathing techniques (*Prāṇayāma*) improves lung functions and capacity by strengthening the inspiratory and expiratory muscles. In a controlled study, the practice of *Bhastrika* (Bellow's breath) *Prāṇayāma* significantly increased the maximum inspiratory and expiratory pressures in comparison to the stretching exercises in the elderly participants. Chair based yoga

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breathing practices have been found useful in acute airway obstruction in patients with bronchial asthma

### **CHILDREN AND TEENS**

Children, away from their school, friends, and colleagues, staying at home can have many questions about the outbreak and they look toward their parents or caregivers to get the answer. Not all children and parents respond to stress in the same way. Kids can experience anxiety, distress, social isolation, and an abusive environment that can have short- or long-term effects on their mental health. Some common changes in children's behavior can be\_:

- Excessive crying and annoying behavior
- Increased sadness, depression, or worry
- Difficulties with concentration and attention
- Changes in, or avoiding, activities that they enjoyed in the past
- Unexpected headaches and pain throughout their bodies
- Changes in eating habits

To help offset negative behaviors, requires parents to remain calm, deal with the situation wisely, and answer all of the child's questions to the best of their abilities. Parents can take some time to talk to their children about the COVID-19 outbreak and share some positive facts, figures, and information. Parents can help to reassure them that they are safe at home and encourage them to engage in some healthy activities including indoor sports and some physical and mental exercises. Parents can also develop a home schedule that can help their children to keep up with their studies. Parents should show less stress or anxiety at their home as children perceive and feel negative energy from their parents. The involvement of parents in healthy activities with their children can help to reduce stress and anxiety and bring relief to the overall situation.

### **HEALTH WORKERS ARE AT RISK**

Doctors, nurses, and paramedics working as a front-line force to fight the COVID-19 outbreak may be more susceptible to develop mental health symptoms. Fear of catching a disease, long working hours, unavailability of protective gear and supplies, patient load, unavailability of effective COVID-19 medication, death of their colleagues after exposure to COVID-19, social distancing and isolation from their family and friends, and the dire situation of their patients may take a negative toll of the mental health of health workers. The working efficiency of health professionals may decrease gradually as the pandemic prevails. Health workers should take short breaks between their working hours and deal with the situation calmly and in a relaxed manner

### **ELDERS AND PEOPLE WITH DISABILITIES AT RISK**

Physical distancing due to the COVID-19 outbreak can have drastic negative effects on the mental health of the elderly and disabled individuals. Physical isolation at home among family members can put the elderly and disabled person at serious mental health risk. It can cause anxiety, distress, and induce a traumatic situation for them. Elderly people depend on young ones for their daily needs, and self-isolation can critically damage a family system. Younger family members should take some time to talk to older members of the family and

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become involved in some of their daily routines if possible. Some kinds of yoga and pranayama will help to reduce their depression and loneliness.

### **IMPORTANCE OF PRANAYAMA. WHY PRANAYAMA?**

Pranayama, the practice of breath control in yoga, is considered as one of the best exercises for your lungs. Pranayamas (breathing exercises) such as Kapalabhati or skull shining breath, can benefit your health in many ways, including improving weight loss and dealing with stress-related disorders. Perhaps, the current novel coronavirus pandemic has somehow motivated most of us to get healthier to some extent. In fact, Delhi's first coronavirus survivor recommended 'pranayama' for people suffering from COVID-19, adding that it was very effective for him while being treated for the respiratory illness.

#### **Why you should include Pranayama in your daily routine**

While the popularity of this ancient healing technique began long before the COVID-19 pandemic, more and more people seem to be turning to the practice of yoga to relax, boost the immune system to help fight off infections, including the one caused by the SARS-CoV-2 virus. A number of studies back up the idea that regular practice of yoga and meditation can help increase lung capacity, manage health conditions that put you at risk of contracting COVID-19. According to yoga experts, regular practice of pranayamas or breathing techniques make your lungs more efficient among several benefits. And here's a powerful breathing exercise you can do to boost your lung and overall health - Kapalabhati Pranayama.

#### **How to do Kapalabhati Pranayama – Steps**

- Start by sitting in a comfortable position.
- Keep your spine straight and close your eyes.
- Place your palms on your knees, facing up.
- Exhale completely.
- Inhale normally through the nostrils and exhale sharply, pulling your navel in toward your spine - allowing your belly to forcefully expel all the air from the diaphragm and lungs by compressing it.
- As you relax the navel and abdomen, your breath will flow into your lungs automatically.
- Try taking such 20 breaths to complete one round and relax without opening your eyes and feel the sensations in your body.
- You may do two more rounds of Kapalabhati Pranayama.
- Beginners may start with just 2 minutes a day and gradually increase the practice with time.

#### **When to do Kapalabhati Pranayama**

Kapalabhati is best done in the morning on an empty stomach before breakfast; however, you can also do this breathing exercise 2 hours after your last meal.

### **What are the health benefits of Kapalabhati Pranayama?**

Some of the health benefits of Kapalabhati Pranayama include:

- It helps to improve lung capacity.
- It clears mucus in the air passages and relieves congestion.
- It reduces bloating.
- It clears the *nadis* (subtle energy channels)
- It aids in weight loss.
- It stimulates abdominal organs, resulting in a flat and toned belly.
- It promotes digestion.
- It improves blood circulation and helps you get glowing, radiant skin.
- It refreshes the brain and calms the mind.

### **RECOVERED PATIENTS MUST ENSURE THE FOLLOWING (DO'S AND DO NOT)**

Have a balanced healthy diet, exercise regularly, minimise stress and maintain a positive attitude

Eat healthy homemade snacks but avoid deep fried, processed food and sweets  
Eat well-cooked natural proteins and vitamins, and consume artificial supplements and tablets only under medical advice

Do not immediately hit the gym for strenuous exercises or weight lifting, but exercise at a slow and steady pace

Stay hydrated and monitor their oxygen saturation levels daily especially after workouts  
Opt for yoga and pranayama, or breathing exercises, under expert guidance for rejuvenating, de-stressing and improving the lung capacity

### **HERBS FOR MENTAL HEALTH CARE**

#### **1. Ashwagandha**

Ashwagandha is commonly known as Indian ginseng. The herb is full of adaptogens that help the body to regulate stress. It also helps in boosting brain function and improves cortisol levels, and at the same time, lowers blood sugar. By promoting healthy brain functionality, it elevates your temper, eventually subsiding your mood swings. This helps to keep depression and anxiety at bay

#### **2. Brahmi**

“Brahmi is a powerful herb for treating clinical mental health diseases, and dealing with daily life stressors. Bacosides, a bio-chemical present in Brahmi, helps to rebuild brain tissues and hence has a positive effect on memory, concentration and intelligence. Brahmi targets cortisol, widely known as the “stress hormone,” which helps manage stress and mild anxiety.

#### **3. Guduchi**

Guduchi is commonly known as Giloy. In Sanskrit, it means “that which protects the body from diseases”. It is quite helpful in treating depression, and also helps in balancing stress and enhancing memory power.

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## 4. Turmeric

Turmeric, widely known as haldi in India, is a key ingredient in several food recipes and home remedies. The spice is rich in anti-inflammatory properties, while also being an antioxidant. Turmeric contains curcumin, and it helps in increasing blood flow which prevents heart diseases. It also helps in boosting the brain-derived neurotrophic factor (BDNF)

## 5. Mandukaparni

Mandukaparni or khulakudi is an Indian aromatic herb that is highly beneficial for mental alertness and good memory. The herb can be used on a regular basis to attain sharp memory power. Mandukaparni helps in boosting and regulating the immune system

## CONCLUSION

To conclude, there is an immediate need to identify the long-term mental health consequences of the COVID-19 pandemic. Clinicians, researchers and policymakers are expected to be prepared for these mental health issues in terms of assessment, interventions and the model of care in the post pandemic era. As of now, several case studies, both from India and abroad, have established that Ayurveda has effectively protected or even cured patients of COVID-19. Since no antibiotic treatment or vaccine has yet been found to be useful in medicine, these Ayurvedic practices are sure to keep one healthy and protected from the deadly virus which has taken the world by storm. We can successfully win over the current pandemic if we follow Ayurvedic recommendations in a disciplined manner.

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# **INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS**

## **AYURVEDA & YOGA APPROACHES TO COMBAT MENTAL ILLNESS IN COVID-19 PATIENTS IN DIFFERENT POPULATIONS**

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### **INTRODUCTION**

Globally, mental health is being challenged like never before by COVID-19. The COVID-19 pandemic and the resulting economic recession have negatively affected many people's mental health and created new barriers for people already suffering from mental illness. The World Health Organisation (WHO) declared COVID-19 as a Public Health Emergency of International Concern (PHEIC) on 30 January 2020. COVID-19 Pandemic has reached a level of a humanitarian crisis with over 242,846,770 confirmed cases and 4,938,355 deaths reported globally to date (Up to 21<sup>st</sup> October 2021).

### **WHAT IS MENTAL HEALTH ACCORDING TO WHO?**

Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community.

The major mental health issues reported among the COVID-19 population were stress, anxiety, depression insomnia, denial, anger and fear. Children, adults, older people, females, health care workers, frontline workers, people with existing mental health illnesses were among the vulnerable in this context. COVID-19 related suicides have also been increasingly common. Globally, measures have been taken to address mental health issues through the use of guidelines and intervention strategies.

The impact of COVID-19 on mental health has created a rise in global concern as emerging statistics compare pre-pandemic data to the devastating impacts that COVID-19 has on mental health. The drivers of this decline include social isolation, financial loss, reduced access to mental health services, housing insecurity, and loss of coping mechanisms. The impacts of COVID-19 may worsen pre-existing mental health conditions while also affecting people who have not previously experienced poor mental health.

Prior to the pandemic, more than 70% of persons who were in need of mental health services lacked access to care. As the crises surrounding the pandemic grow, the demand for mental health treatment is also increasing, yet critical services in 93% of countries surveyed by WHO have been halted or disrupted due to the pandemic. This decrease in the availability of mental health services is concerning, as countries were already struggling to meet the mental health care needs of their populations.

## **IMPACT OF COVID 19 ON MENTAL HEALTH OF DIFFERENT POPULATIONS**

### **Impact on young children**

In young children and adolescents, the pandemic and lockdown have a greater impact on emotional and social development compared to that in the grown-ups. Closure of schools, combined with restrictions on movement are limiting chances for children to interact and access learning opportunities all of which are taking a toll on their mental health. In one of the preliminary studies during the on-going pandemic, it was found younger children (3-6years old) were more likely to manifest symptoms of fear of family members being infected than older children (6-18 years old). Whereas, the older children were more likely to experience inattention and were persistently inquiring regarding COVID-19. Although, severe psychological conditions of increased irritability, inattention and clinging behaviour were revealed by all children irrespective of their age groups. Based on the questionnaires completed by the parents, findings reveal that children felt uncertain, fearful and isolated during current times. It was also shown that children experienced disturbed sleep, nightmares, poor appetite, agitation, inattention and separation related anxiety.

A study among Italian and Spanish parents showed that 85.7% of parents perceived changes in their children's emotional state and behaviour during confinement at home.<sup>5</sup> Children were struggling to concentrate (76.6%), were irritable (39%), restless (38.8%), nervous (38%) and experiencing feelings of loneliness (31.1%). Stress and social isolation are likely to affect brain health and development, with young children at risk of developing lifelong challenges by periods of prolonged exposure to toxic stress and by deprivation in nutrition, stimulation and health care which can affect brain health and development. Parents and carers need to make sure their children feel loved and secure. There should be discussion around COVID-19 in an honest and age-appropriate way, whilst staying socially well connected with family and friends.

### **Impact on older people**

Mental health problems are common in older adults with the prevalent depressive symptoms. The rapid transmission of COVID-19 pandemic outbreak, higher mortality rate, self-isolation, social-distancing and quarantine could exacerbate the risk of mental health problems. Mental health problems (new or existing) could worsen and further impair cognitive and emotional function. Unlike young segment of population efficiently equipped with the modern contraptions and internet services, most of the older adults have limited access and cognizance of internet and smart phones. A small fraction of older adults familiar with the online services might have decline in the physical activity, or dependence on others. The impact of mental health on older adults varies around the world and the factors impacting geriatric mental health could differ from low-middle income to developed countries.

The elderly is at high risk of mental ill health - especially those with dementia - due to the anticipated long periods of social distancing and the accompanying isolation and loneliness. There may be a worsening of cognitive decline in older populations, who may be one of the last groups for whom lockdown measures are lifted. Social isolation, reduced physical activity and reduced cognitive stimulation all increase the risk of cognitive decline and dementia, and for some there is an inability to understand and follow public health advice.

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Despite the particular risks facing older people in the context of COVID-19, they are traditionally neglected in emergency responses. Measures that are currently used to contain COVID-19 have an impact on access, treatment and care for older adults. Older people fear infection so are no longer accessing services. Italy has seen a 50% reduction in hospital admissions for stroke, while in Argentina visits to memory clinics almost completely stopped. There has also been a reduction in the workforce taking care of older people, as carers are diverted to work on COVID-19, and border closures - particularly in Europe - are preventing migrant workers who provide a large proportion of care for the elderly, from entering host countries.

### **Impact on women**

Women are reporting greater levels of increased anxiety and depression than men in many cases. Women who are pregnant, postpartum, miscarrying, or experiencing intimate partner violence are at especially high risk for developing mental health problems during the pandemic. Proactive outreach to these groups of women and enhancement of social supports could lead to prevention, early detection, and prompt treatment. Social support is a key protective factor. Similarly, parenting may be substantially more stressful during a pandemic.

A survey on stress levels in the Indian population during the COVID-19 pandemic showed that 66% of women reported being stressed, compared to 34% of men. Similarly, in China a study saw women report symptoms of anxiety and depression more commonly than men during the outbreak.

Increased stressful situations and lockdown can also result in increases in violence against women, with estimates that globally 31 million. Such domestic violence has mental health consequences including depression, anxiety and post-traumatic stress disorder (PTSD). Governments need to prevent any violence as a key part of response plans for COVID-19, including creating safe ways for victims and survivors to report violence safely or seek support.

### **Impact on frontline workers**

The frontline workers including doctors, nurses, community health workers, sanitation workers, policemen, and other volunteers across the world are in an entirely unprecedented situation, having to make impossible decisions and work under extreme pressures. Working under stressful conditions with scarce resources affect not just their personal and family life, but also place them in a situation of moral injury, causing mental health problems. These symptoms can contribute to the development of mental health difficulties, including depression, post-traumatic stress disorder, and even suicidal ideation. Apart from being at high risk of infection, front line healthcare workers including doctors are subject to stigma by community and neighbourhoods. Many instances of eviction and harassment from house owners, violence on duties against doctors at the workplace, social isolation, and discrimination have been reported.

### **Impact on health care workers (HCWs)**

Several risk factors were identified; long duty hours, working in the high-risk department, lack of PPE, diagnosed family member, unqualified hand-washing, and improper infection control. Battling COVID-19 on the frontline makes HCWs vulnerable to psychological distress. Finding shows high levels of depression, stress, anxiety, distress, anger, fear, insomnia, and post-traumatic stress disorder in the HCWs. Females and nurses were disproportionately

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affected more from mental health consequences. Frontline nurses work in close contact with patients for longer working hours, which may result in fatigue, stress, and anxiety. However, this finding warrants for further research to better prepare for the future. Frontline workers are playing a crucial role in fighting the outbreak and saving lives. But they are under exceptional stress and while deaths of health workers are rising, the mental ill health rates are rising faster still. HCWs are at particularly high risk of mental ill health, including suicide attempts, the risk of burnout and stigmatisation. Without support they will be unable to fulfil their vital role in stopping the outbreak. Ensuring the good mental health of health workers is essential. Research from the 2003 SARS outbreak indicated that 89% of healthcare workers in high-risk situations reported psychological effects.

A study among healthcare workers in China during the COVID-19 pandemic showed the frequency of depression (50.4%), anxiety (44.6%), insomnia (34%), and distress (71.5%).<sup>8</sup> Preliminary data from Pakistan also indicated that among health professionals working during this pandemic, 42% were likely to experience moderate psychological distress, with some 26% showing severe psychological distress.

In Canada a survey reported that among health workers dealing with the COVID-19 crisis, 47% said they needed psychological support. There have also been reports of stigmatisation toward those working with people with COVID-19, and the self-care and social support of staff is being compromised.

### AYURVEDA AND IMMUNITY

Ayurvedic approach towards promoting immunity that includes the use of *Rasayana* that comprises of proper daily regimens, seasonal regimens and consumption of medicinal herbs that enhance tissue regeneration. Among *Rasayana* specially *Kamya Rasayana* is taken to increase the longevity and intelligence and *Ajsrikarasayana* taken on the daily basis helps in optimizing the immune system. Herbs such as *Guduchi* (*Tinospora Cordifolia* Willd.) Hook. f. and Thoms.), *Amalaki* (*Embelia Officinale* Gaertn.), *Brahmi* (*Bacopa Monnieri* Linn.), *Haridra* (*Curcuma Longa* Linn.), *Tulsi* (*Ocimum Tenuiflorum* Linn.), *Haritaki* (*Terminalia chebula* Retz.), *Ashwagandha* (*Withania somnifera* Linn.) and *Shatavari* (*Asparagus racemosus* Wild.) are potential immunomodulators. Regular use of these herbs either alone or in form of preparations such as *Chavyanprash* and *Bramha rasayana* helps in immune strengthening and serve as an effective prophylaxis in the management of SARS-COV-2 infection. *Swarna bindu prashana* (SBP) improves the immunity in infants and children.

### AYURVEDA AND MENTAL HEALTH

During the current pandemic, Rajkumar et al reported that 28% of the screened subjects (general public and healthcare professionals) reported stress, symptoms of anxiety and depression. A meta-analysis of 300 studies concluded that chronic stressors reduce both cell mediated and humoral immunity of the host.

On the other hand, reduction in stress hormones, psychological stress, anxiety and depression are associated with better functioning of the immune system. This emphasizes the need for addressing mental health issues during the current pandemic. Both Physical and psychological disorders have the capacity to exert mutual effects on each other.

ते च विकाराः परस्परमनुवर्तमानाः कदाचिदनुबध्नन्ति कामादयो ज्वरादयश्च॥ ( Ch. Vi. 6/8)

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Conditions like fever can exert its effect over mind and can lead to psychological manifestations and on other hand psychological conditions can lead the physical manifestations

समदोषःसमाग्निश्च समधातुमलक्रियाः।  
प्रसन्नात्मेन्द्रियमनाःस्वस्थःइत्यभिधीयते ॥ (Su. Su. 15/18)

The one whose *doshas* are balanced, whose metabolism is balanced, whose tissues and eliminations are normal, and whose senses and mind are centered in the Self, is considered to be healthy and remains full of bliss

Charaka has advocated *Achara rasayana* (code of behavioural conduct) for perfect mental, physical, social, spiritual health of human beings. It includes moral, ethical, and benevolent conduct: truth, nonviolence, personal and public cleanliness, mental and personal hygiene, devotion, compassion, and a yogic lifestyle.

A study suggested that individual who strongly follow *Achara rasayana* were good at academics, enjoying good physical and mental health and friendly reputation among peers. Further *acharyas* advocated intake of *Medhya rasayana* (psychotropic Ayurvedic pharmacological interventions) for maintenance of mental health. *Medhya rasayana* include drugs which help in cognition enhancement and act as brain tonics or rejuvenators e.g., *Mandukaparni* (*Centella asiatica* Linn.), *Yastimadhu* (*Glycerrhiza glabra* Linn.), *Guduchi* (*Tinospora Cordifolia* Willd.) and *Sankhapushpi* (*Convolvulus pluricaulis* Choisy.) These drugs promote *Dhi* (Intellect) *Dhruti* (power of self-control), and *Smruti* (memory). Further, *Medhya rasayanas* balance *Manodoṣhas* (humours that control the mind) viz., *rajas* and *tamas* thereby regulating and promoting healthy mental functions. Another study revealed that consumption of *Ashwagandha* 600 mg/day for 12 weeks led to overall improvement in the general wellbeing, sleep quality and mental alertness of healthy subjects. Meta-analyses on *Mandukparni* suggested improvement in alertness and reduction in anger outbursts. Similarly, a study on *Sankhapushpi* demonstrated its memory-enhancing, anxiolytic, antidepressant and memory-enhancing activity. Hence psychotropic Ayurvedic pharmacological interventions may benefit in managing stress, anxiety and depression.

## YOGA AND MENTAL HEALTH

Mental health plays a pivotal role in regulation of proper immune responses and homeostasis. However, mental health has taken a greater toll in all the sections of the society due to the COVID-19 pandemic. This has resulted in increased incidences of anxiety, depression and leaving the vulnerable population such as healthcare worker at the risk of Post-Traumatic Stress Disorder.

Yoga has been included as one of the home-based activities to improve mental health during the current pandemic. There are evidences on the efficacy of yoga in previous similar natural disasters. There are two studies that have reported improvement in mental health during the current pandemic period. A cross sectional study has reported that higher percentage of non-practitioners (33%) of *Sudarshankriya* yoga (SKY) have reported anxiety and negative effects on their mental health that SKY practitioners (17.7%) during the current pandemic. Another, a pre-post single group study investigated the effect of tele-yoga intervention on perceived stress. To meet the norms of social distancing during the present pandemic, a tele-yoga module was designed and was offered to the general public during the national lockdown period. The participants were assessed on perceived stress scale (PSS-10), yoga performance assessment

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(YPA) and visual analog scale (VAS) at the baseline and after 4-week yoga program. Their YPA scores indicated that yoga practices were learnt properly and efficiently. At the end of 4-weeks, a significant reduction in perceived stress on PSS-10 and improvement in wellbeing on VAS was noted, suggesting usefulness of the tele-yoga module in reducing stress and improving mental wellbeing.

Prodigious amount of evidence suggests usefulness of yoga to induce mental tranquillity and equilibrium. Yoga is known to regulate hypothalamo-pituitary-adrenal (HPA) axis and bring balance in autonomic nervous system functions. Practice of yoga increases the Gamma Amino Butyric Acid (GABA) levels and reduces the levels of cortisol (stress hormone) and catecholamines leading to reduction in stress, anxiety and depression. Further, a systematic review that studied 7 RCTs with 240 participants with major depressive disorder reported positive effects of yoga beyond placebo and concluded that yoga intervention was comparable to other evidence-based conventional interventions. Similarly, systematic review including RCTs on anxiety disorders and individuals with elevated levels of anxiety reveals that yoga is safe and effective for elevated levels of anxiety and warrants further studies to conclude its efficacy for anxiety disorders. Recent systematic reviews studying the effects of yoga in stress in healthy individuals and healthcare workers suggested positive effects of yoga on reducing stress.

### **CONCLUSION**

Conclusive evidences on role of Yoga and Ayurveda on COVID-19 are lacking. Current available literature in Yoga and Ayurveda has lucid theoretical framework that could be used as foundation for the experimental studies to examine their effects for COVID-19 infection in the domains of improving immunity and improving mental health. Some case-studies and small pilot experimental studies have been published, experimental studies with robust methodology and validated intervention protocols on humans are lacking and are warranted in future. Scientific rigour should be followed to ascertain the efficacy of such interventions. Though the available ancillary evidences point towards the potential role of Yoga and Ayurveda in preventing and mitigating the infection through modulating our immune system and mental health. This suggests an urgent need for conducting systematic clinical trials to investigate the add-on efficacy of Yoga and Ayurveda lifestyle interventions with current conventional treatment approaches in different populations.

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**AYURVEDIYA VIVECHANA OF INCREASED SCREEN TIME AS AN ETIOLOGICAL  
FACTOR FOR MENTAL HEALTH ISSUES IN COVID 19 PANDEMIC**

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## **INTRODUCTION**

With the global societies under lockdown, we are only connected with digital media platforms. So, the screen time has also increased drastically during covid-19 crisis. While this digital connection kept most of the population virtually connected and hence stable, it also has some negative impact. Increased screen time is most worrisome factor. Screen time and deteriorated health conditions like obesity, overweight and lack of exercise are well documented.

But exact calculation about impact of screen time on mental health is still not established.

This corona pandemic has increased the screen time of all age groups, be it online school going kids, work from home youth or strictly home isolated elder population. Willingly or unwillingly, we have to sit in front of screen for hours and has to bear its harmful effects. This review will analyze the pathological potency of increased screen time for mental health in Covid-19 scenario with Ayurvedic perspective.

**Screen time** is the amount of time spent using a device with a screen such as a smartphone, computer, television, or video game console

Green time- in the reference of screen time green time means time spent in exposure of natural environment and surroundings.

In India and worldwide before the outbreak of Corona Virus various mental health issues were on rise. This Pandemic, lockdown and quarantine imposed more threat to increased the data of mental illness. Including isolation from all social contacts, financial crisis, no green time were already frustrated the common man. In this scenario whole mankind was clinging on internet connection through different screens for their work. Everyone from young to elder are fighting the battle of staying indoors. So, everyone is compelled to use different screens for increased time. In this review we tried to analyze the different factors responsible for increased screen time. Every financial strata is facing the issue of increased screen time. Not only young members but elderly population is also having to be more involvement in social media platform. Various famous social media platforms are reason of oil.

“Kids these days are always looking at their screens.”, It’s a common refrain from adults, but data shows kids aren’t the only ones racking up hours staring at screens. According to a [2019 Pew Survey](#), 28 percent of American adults said they were “almost constantly” online, up from 21 percent in 2015. About half of young adults ages 18 to 29 said they go online “almost constantly.” This is 9 percentage points higher than it was in 2018.

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While we know too much screen time can [harm a child's brain](#), there's not a ton of data on what it does or doesn't do to adults. Still, there are some studies on the short-term effects of screens on adults.

### MATERIAL AND METHODS

The available research data is analyzed and summarized for all pathophysiological effects of increased screen time. Along with that Ayurvedic perspective is also synthesized and correlated with all ill effects. Research journal and ayurved samhitas are resources for analysis.

The studies associated with impact of increased screen time are often earlier to Covid-1

**Observation-** Significant health impacts are caused by Covid-19 Pandemic. Almost 45.5 lac death occurred because of it. Total 21.9 crore population got covid-19 infection till date. This corona pandemic has affected all aspects of life like professional field, personal relations, financial stability, social isolation specifically lockdown. This lockdown made people stay indoors for days to months. Very unique and much required experiment of lockdown kept people safe during this bad phase but it also has several negative impacts. Several studies have been shown to increase in anxiety, irritability, depression and psychological distress during

According to study carried out by [Jean M Twenge](#) and [W Keith Campbell](#) on adolescent population . There is 3.2 hrs is average screen time and it increases with growing age. This study shows high user of screen time are twice prone to the risk of developing depression, anxiety, low wellbeing including not staying calm, not finishing task and being less curious.

Similarly in a follow up study Also **indicates that increased screen time is associated with risk of various mental health conditions such as increased irritability, anxiety, depression, social withdrawal.**

**In Ayurveda mental health is given utmost importance, along with samyata of dosh, dhatu and mala, equilibrium of manasik gunas is also said to be mandatory.**

*“Samdoshah samagnishcha, samadhatu malakriya,*

*Prasannatmanendriya manh, swasth ity abhidyuchyate.”*

*And also, Acharya Charak says*

*“Sammans pramanstu sam sanhano narah,*

*Dridhendriyao vikaranam na balen abhibhuyate,*

*Kshut pipasa atapsah shityayam samsah,*

*Sampaktasamjarah sammansachayo narah.”*

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In Ayurveda not only physical but mental attributes are also given cordinal importance. In both the above verse Acharya Sushrut and Acharya Charak are emphasized the role of psychological sound features like endurance, patience, acceptance, contentment and optimistic attitude.

### **Concept of mental health in Ayurveda is composite of several factors –**

1. **Triguna-** Sattva, Rajas and Tama are three different faces of human psychological actions. Sattva is associated with harmony, balance, stability, contentment and enlightenment. Rajas is responsible for action, change, fluctuations, victory, turbulence. Tamas is associated with inertia, dullness, ignorance, doubt, obstruction.  
All these three attributes are very cordial in maintenance of good mental health.
2. **Oja-** Par Oja is an important factor while keeping ones wellbeing sound. Vitiation of Oja causes many symptoms like lack of enthusiasm, fear, delirium etc.
3. **Dhi, Dhrti and Smrti-** ability to comprehend and learn ( Dhi), ability to process and store the information( Dhrti) and ability to remember and recall ( Smrti) are tools for proper functioning of Mana i.e., Psyche of a person.
4. **Tridosha-** Vata, Pitta and Kapha are equally important in mental well-being as they are in physical health. While Vata is responsible for all the movement, dispersal and change, it's vitiation is associated with manic disorders, personality disorders and anxiety. Pitta is directive of all intense activities, reactions, hormonal changes so associated with intense emotional states like anger and hatred. Kapha is causative for slow reaction, heaviness, smooth, immobile, gross and interia hence associated with depression, over thinking, inactivity.

### **Hetu of mental health issues-**

Various factors are mentioned by Acharyas for the vitiation of mental health. Vitiating factors of mana includes diet, lifestyle and behavioral patterns.

Few of them are following-

1. Vitiation of Buddhi (intellect)
2. Vitiation of Chetana ( orientation)
3. Vitiation of Gyan (knowledge)
4. Vitiation of Smarna Shakti ( memory)
5. Vitiation of Bhakti ( love)
6. Vitiation of Sheel ( etiquettes)
7. Vitiation of sharirik Chesta (Motion)
8. Vitiation of Aachar (ethics)
9. Pragyaparadha ( doing misdid knowingly)
10. Asatmyaindriyarth Samyog ( when a sense organ is overused, underused or misused)
11. Viruddh-dushta-ashuchi bhojan ( impure- unhygienic food)
12. Pragharshan Dev-Guru-Dwija (humiliation of elders and respected people)
13. Manoabhighat (Psychological blow)
14. Vishmansh chesta (improper actions)

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### **Role of Screen time as a hetu for mental health issues-**

It is confirmed through various studies that excess screen time is harmful for mental well being. Excess screen time is Atiyog and Mithyayog of chakshu indriya and pragyaparadha.

### **Atiyog and Mithyayog of chakshu indriya-**

Lockdown was a very new and compelling safety measure the societies were made to follow during novel Corona virus outbreak. Quarantine was also very demanding . Staying indoor for number of days was very challenging for everyone. Everyone was trying their best to exacting this new scenario. Everything was at halt as no movement was allowed. All trades, services, facilities, entertainment were at pause.

In those difficult times Internet connectivity become our savior. Through internet connectivity all were able to get many essential services done. From medical help to grocery delivery and from online presentations to online schooling everything was managed through internet. Everyone was using their screens for increased time than earlier. Be it their professional commitment, online studies, online gaming, entertainment, shopping or family gatherings. The average time of screen time is almost doubled in moderate users and more than twice in excessive users.

This use of screen is very harmful for eyes as well as the cognitive function of brain.

In the last decade, the use of electronic media devices has dramatically increased among youth. Screen time (ST) exposure is highly popular and pervasive among young people. Evidence remains inconsistent regarding the impact of ST and media exposure on mental health issues. Although a majority of previous researches on the effects of media has been on its negative impact, as described in detail elsewhere, high ST is a significant predictor of a higher probability of anxiety, depression and psychopathological symptoms among college students.

The increased screen time hampers cognitive activity of brain as it decreases the routine contact with natural environment and their surroundings. Decreased physical activity too contributes to destructive effects on mental well being. Green time always restore the cognitive function and attention span. Better self-regulation, executive function, working memory and enthusiasm are associated with lesser screen time. Different screen such as laptop, mobile, TV, play station radiate harmful rays which damages the eyes too. So Atiyog of chakshu-indiya becomes a hetu of vitiated health. Excess screen time is also a Pragyaparadh which is root cause of all diseases. This Pragyaparadh initiates tridosha vitiation and Triguna disequilibrium.

## **DISCUSSION**

### **Hetutva of screentime in mental health issues-**

Excessive screentime causes prolonged and sedentary sitting at one place which vitiates Vata and Kapha both dosas. Vitiated Vata causes instability and disturbed sensory functions which results in lack of interest, diminished attention span, anxiety. Vitiated Kapha deviates working memory and executive function which turns out to be inertia, lack of interest in any learning and

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detachment from social circles. Atiyog and Mithyayog of chakshurendriya leads to vitiation of Pitta too which causes aggression in behavior, decrease in learning capacity.

Pragyaparadh is also here as people use excess screen time knowingly its demerits. It causes Dhi-Dhruti-Smruti Vibransh. This too contribute to altered cognitive function of brain leading to issues with memory, comprehension and recalling.

So now the mental well being is deteriorated resulting in progression of various mental issues.

### CONCLUSION

In Ayurveda every function has its standard operating procedure be it use of any body part or our diet and lifestyle. Deviations from this protocol always leads to various kind of diseases. This corona pandemic was already vitiating our Doshas and Gunas. Increased screen time become a new etiological factor in for various diseases. Ophthalmic pathologies as well as mental health issues are increasing in number. While understanding the pathophysiology of effect of increased screen time , we can choose preventive measures to balance the vitiated Doshas and Gunas like netra tarpan, anjan, tratak, various ayurveda medicines, dhyan and yogic practices.

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## **AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19**

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### **INTRODUCTION**

The COVID-19 pandemic has posed an immense challenge to health care systems around the globe in terms of limited health care facilities and proven medical therapeutics to address the symptoms of the infection. The current health care strategies have primarily focused on either the pathogen or the environmental factors. However, efforts towards strengthening the host immunity are important from public health perspective to prevent the spread of infection and downregulate the potency of the agent. While a vaccine can induce specific immunity in the host, non-specific ways of improving overall host immunity are the need. This scenario has paved the way for the use of traditional Indian therapies such as Ayurveda and Yoga.

The ongoing coronavirus pandemic is caused by severe acute respiratory syndrome coronavirus 2 (SARS CoV 2) and unique in various facets. The earlier experience from the past severe acute respiratory syndrome (SARS) epidemics seems to be insufficient and there is need for better strategies in public health and medical care.

Ayurveda consider 'Ayu' a four-dimensional unit comprising of physical body, senses, psyche and the soul. Ayurvedic classics consider ayoga, atiyoga and mithyayoga of kala (time rhythm), buddhi(intellect) and indriyarth (sensorial objects) as the three fundamental cause of ill health.

Ayurveda highlighted there is short quotations like 'visada roga vardhananam' i.e., emotional trauma leads to aggravation of disease; 'shoka soshanam' i.e., grief leads to emaciation.

The disease is not only shareerika or somatic but also psychic or mental suffering. There is interaction between shareera and mansik doshas making it impossible to separate the mental health from physical health.

Ayurveda views mind and body as two aspects of one unity.

The shareer or somatic doshas perform certain mental functions in addition to their somatic functions e.g., vata produces enthusiasm, pitta provides medha (intelligence), kapha provides tolerance, dhruiti etc.

In 1973, L.E HINKLE noted that it is evident that any disease process might be influenced by reaction of the individual to his social environment or to other people.

### **MATERIAL & METHODS**

AYURVEDA through comprehensive holistic approach can provide all the pharmacological and non -pharmacological modalities for stabilities of mind and body.

This chapter aims at collating available evidence on Ayurveda, Yoga and COVID-19. Further, it draws inferences from recent studies on Yoga and Ayurveda on immunity and mental health respectively to approximate its probable role in prophylaxis and as an add-on management option for the current pandemic.

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## **DESCRIPTION OF THE CHAPTER**

Ayurvedic treatment for mental health ailments basically depends on knowledge, science, memory and the calmness of mind. All these can be attained by reading, writing, yoga and pranayama, healthy diet and indulge our mind in positive things.

## **MENTAL HEALTH ISSUES IN CHILDREN DURING COVID-19**

Due to the global pandemic caused by the Coronavirus, regular schedules of children have been disrupted, with no clear idea of when it will be restored. Children may experience a range of psychological issues such as anxiety, fear, worry, depression, difficulty sleeping, and loss of appetite. Quarantine and isolation may also lead to acute stress disorder, PTSD and grief in many children. Children with various physical and mental disabilities – and especially mental health disorders – are more vulnerable during this trying time. Social isolation may worsen the living situation of children in abusive environments as well as children with special needs. Economic hardships and the potential worsening of parental physical or psychological illnesses, including substance use disorders, may take a toll on all children.

### **Mental health issues in older adults**

Older adults can develop depression, anxiety disorders, hypochondriasis, post-traumatic stress disorder, substance abuse/withdrawal and related psychiatric disorders in these stressful situations important as the covid related news can impart bad effect on the mind.

### **Mental health issues in older adults with pre-existing mental illness**

The common mental illnesses in older adults are depression, delirium, and dementia. Older adults with a prior history of depression are at risk of relapse or worsening of depressive symptoms. This could be due to psychological stress, poor coping as well as difficulty in ensuring adherence to the routine treatment.

In older adults with pre-existing cognitive impairment, there are few unique challenges. They have challenges in understanding the COVID-19 pandemic related preventive measures and related information. It is difficult for caregivers to restrict mobility in older adults with dementia. It is also difficult for older adults with dementia to be compliant with frequent hand cleaning, social distancing and use of the protective facial mask.

### **Psychological Issues of Frontline Personnel Combating COVID-19**

COVID-19 presents the front-line of a new uncertain battle for the human race. Thousands of health care personnel, police and government officials are working round the clock to confront it head-on. While this has recently been highlighted across the world, little has been offered to ensure their mental health and well-being.

The commonest disabling mental health issue experienced by personnel in the front-line of any pandemic is a triad of emotional exhaustion, depersonalization (loss of one's empathy, caring, and compassion), and a decreased sense of accomplishment. These may exist in varying degree or one symptom can predominate.



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Risk factors for bad mental health are;

- Long working hours
- Worry about risk to self and family
- Concerns about inadequate personal protection materials
- Separation from family/loved ones
- Pre-existing mental health & addiction issues.

### **Medical personnel in Quarantine**

There is an increased risk of health-care workers themselves being infected or quarantined. In addition to stress-related to quarantine, most experience increased concern that their absence will create more understaffing issues. They may also experience guilt and fear that they may have infected their team, family and other patients. A sudden separation from their team also means an increased likelihood of experiencing more social isolation.

### **Life and death decisions**

Doctors and team heads working in the frontline of pandemics often have to make difficult and consequential choices.

### **Stigma**

Personnel working in hospitals in times of pandemic often experience stigmatising attitudes from the general public. Most may experience hurtful social distancing at their place of residence, local groceries or place of worship. Friends and relatives may show reluctance to interact with them.

### **Ayurveda/Yoga approaches during to combat mental health ailments in COVID-19**

Yoga is an ancient way of right living that is to live in harmony with oneself (body, emotion and intellect) and nature. According to yoga philosophy, the word 'hatha' comes from roots 'ha' which means the sun and 'tha' meaning the moon. Basically, all yogic practices aim at aligning an individuals' bio-rhythm with that of nature, thereby improving overall health.

Yoga advocates a lifestyle based on the principles of 'yamas' and 'niyamas' which are fundamental ethical precepts.

There are **five yamas**:

Ahimsa (non- violence), satya (non- falsehood, truthfulness), asteya (non- stealing), mitahara (non- excess in food, moderation in food), ksama (non-agitation about suffering, forgiveness), and daya (non- prejudgement, compassion).

**Five niyamas**: saucha (cleanliness), Santosh (contentment), tapas (austerity), svadhyaya (self-introspection) and ishvara pranidhana (surrender to a higher principle in life), respectively.

Apart from these behavioural components, yoga lifestyle also involves practice of physical postures (asanas), breath regulation (pranayama), control of senses (pratyahara) and meditative techniques (dharana, dhyana and samadhi). Yoga-derived breathing and postures have also been reported to improve gas exchange in patients with cardiac disorders and in participants exposed to high-altitude hypoxia. These techniques may also be useful for COVID-19 patients as the primary organ system affected is the respiratory system.

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### Yoga module for improving mental and physical well-being

- i. *Hands in and out breathing*: Breath in and spread your hands wide; breath out and close. Synchronize hand movements with your breath. Perform 10 rounds.
- ii. *Hand-stretch breathing*: Interlock your fingers and keep them on your chest. Breath in stretch the hands out with keeping the fingers interlocked, breath-out and come back. Do the same practice again at 135 degrees and 180 degrees above the head. Repeat each for 10 counts.
- iii. **Vibhagiya pranayama (Sectional or Square breathing; 3:3:3:3):also called ujjayi pranayam** Deep breathing with awareness on the natural respiratory movements of the lower, middle and upper chest. Inhale deeply for 3 counts, hold the breath for 3 counts. Now, slowly exhale or 3 counts and retain emptiness of breath for 3 counts. Repeat this cycle for 9 rounds.
- iv. **KapalabhatiPranayama** (Skull shining breath): Flapping of abdomen with active exhalation and passive inhalation (those with blocked nose should perform with mouth wide open); 80-120 strokes per minute for 2 minutes followed by gap of 1 minute and repeat the cycle one more time.
- v. **BhastrikaPranayama** (Bellows breath): Forceful and rapid inhalation and exhalation. This has to be practiced for 3 cycles, each of 20 strokes. One inhalation and exhalation make one stroke. 20 strokes followed by gap of 30 seconds. A. Breathing techniques- Sitting Position (Prānāyāma; total of around 30 minutes)

### BENEFITS OF PRANAYAM

Different areas of lungs get abundant oxygen supply through deep breathing, thus energizing the lungs and improving their health.

More blood supply to lungs implies more oxygenated blood to each cell of the body and each cell will get more energy and vitality.

Deep breaths have a very calming effect on the nerves and the mind.

oxygenates the blood increasing the vitality of all organs and tissues

Calms the mind and energizes the whole body and mind, also benefits by helping with mood swings and minor anxiety. It also activates the chakras in our body.

### Other non-pharmacological modalities in Ayurveda for mental health in covid 19

**SATVAVAJYA** or psychiatry measures

The 'satvavajya' implies to therapeutics for emotional or mental stresses. It restrains the mind from desire for unwholesome objects and enables one to have control over himself.

**DAIVA VYAPASRAYA (ch.su.11/54)**

Ayurveda advocates another non -pharmacological remedies i.e., daivavyapasraya or spiritual therapy for diseases where psychic factors play a role in addition to somatic causes.

It involves the use of 'mantras or incantations aushadhis or sacred herbs, mani or precious gems, mangal or propitiatory rites including obligations – bali or offerings and home or sacrifices. Niyama or vows prasyachitta or ceremonial patience, upvas or fasts.

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### **AACHARA RASAYANA**

Ayurveda laid the importance of code and conduct not only at personal level but on social level too for promotion of healthy and disease -free society certain regimens are described which one should follow in daily life and these measures prevent psychosomatic illness and recovery from various somatic diseases too. Total tranquility for mind and body can be achieved if these measures described in aachara rasayan are coupled along with yoga and pranayama.

### **MEDITATION**

Meditation or ‘dhyana’ is a simple most popular natural process that can produce results in healthy state and can also be used for treatment of diseases.

One cannot relax the body or calm the mind if brain is bombarded by stimulation from tense muscles and other active glands.

Meditation slows the body activities to a point where mind would also become quiet.

### **VYAYAYAMA (Exercise)**

It strengthens the heart muscles, increases the blood’s oxygen carrying capacity by stimulating the production of RBC, increases the strength of breathing muscles so that a person can inhale more oxygen and expel out more carbon dioxide.

Most importantly, exercise causes decrease in ‘Resting Stress Rate’ or reactivity in any individual and it gives the ability to face the dukkha or unhappiness with courage and zeal.

### **SAMVAHANA OR THERAPEUTIC MASSAGE**

Samvahana or therapeutic massage has both psychological as well as physiological benefits of relaxation of the body, reduces stress, increases circulation and promotes cardiovascular efficiency, toning muscles and internal organs.

### **Role of healthy diet (pathya ahaara) in covid 19 for mental health**

While a clean and wholesome diet impacts every aspect of our body, mind, and spirit. Many people have reported how their anger, frustration, mood, focus, or concentration improved the moment they shifted to clean eating.”

There is a direct link between **food and mood** too. Something as simple as increasing Vitamin D intake can help treat anxiety. Our body relies on nutrition to manufacture the right number of neurotransmitters and hormones that make us feel good.

“Amino acids (found in food) are the building blocks of neurotransmitters like endorphins, dopamine, serotonin, GABA, oxytocin etc. Any **imbalances** in these **neurotransmitters**, due to a faulty lifestyle, can lead us to behave unusually – have **mood swings**, respond to things differently and have cravings.”

Since neurotransmitters play such a huge role in dictating our mood and emotions, there’s also listed down some foods that can help boost them:

**Serotonin:** Banana, pineapple, all types of nuts, kiwi, tofu, whole egg and fresh cheese

**Dopamine:** Avocados, chocolate, spinach, almonds, all types of seeds and yoghurt.

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**GABA:** Non-GMO soy, rice, mushrooms, potatoes and fermented foods

**Acetylcholine:** Beans, rajma, chana, green peas, radish, spinach, strawberries and whole eggs

**Endorphins:** Chocolate and spicy foods

### **Diet as per AYURVEDA**

There are six rasas or tastes **Madhur, Amla, Lavana, Katu, Tikta and Kashay.**

All the five mahabhutas are present in all six rasas but the manifestation of the various rasas depends on the predominance of mahabhutas.

Drugs and diets having sweet taste (Madhura rasa) are wholesome to the body and they add to the growth of rasa (body fluids) blood, muscle, fat, bone, marrow, ojas (immunity), semen and longevity. They are soothing to the six sense organs.

Drugs and diets having sour taste (Amla Rasa) add to the deliciousness of food, stimulate appetite, nourish and energise the body, enlighten the mind, strengthen the sense organs, promote strength and nourish the heart.

According to Ayurveda, such diets and drinks whose colour, smell, taste and touch are pleasing to the senses and conducive to the health, if taken in accordance with the rules. They provide fuel to the fire of digestion, they promote mental as well physical strength, strength of tissue elements and complexion and they are pleasing to the senses.

Foodstuff that is rich in 'snigdha', 'sheeta' and 'hridya' qualities are the best source of satvika ansh.

Ksheer (milk), ghrith, takra (butter milk), navneeta (butter), honey, shali dhanya, fruits, sweets, godhuma (wheat), vegetables constitute this group.

### **Concept of rasayan and mental health during covid 19**

“**Rasayana**” in Ayurveda is a comprehensive term which refers to a group of herbs, formulations and therapies for enhancing body resistance by attaining optimal level of Rasadi Dhatu. This is attained through specific medicinal herbs, formulations and some specific codes of conduct. Rasayana promotes strength, vitality, longevity, memory, intelligence, perseverance of youthfulness and the maintenance of optimum strength of the body and senses.

**In Ayurveda, immunity** is referred to as **vyadhikshamatva**. Ayurveda has a comprehensive approach of immunity encompassing two-fold management, respectively of health and disease. **Vyadhikshamatva** is the resistance of the body to fight a disease by either of the following two ways:

- a. **Vyadhi-Bala-Virodhitvam** – The resisting power of the body to restrain or withstand the strength or severity or progression of a disease, or
- b. **Vyadhi-Utpada-Pratibandhakatvam** – The resisting power of the body to prevent the manifestation of a disease.

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Significantly, various modifiable factors have been enlisted in Ayurveda that influence the host defense responses (Bala/Vyadhikshamatva). These factors include a healthy diet (**Pathyaahara**), condition of biological humors (dosha) and the state of physical and mental health (Sareera)

### **Medya rasayan**

Four rejuvenating recipes which enhances the intellectual properties and acts as nervine tonic are as mentioned in Ayurveda are;

1. Juice of mandukaparni.
2. Powder of yastimadhu mixed with milk.
3. Juice of guduchi along with its root and flowers;
4. Paste of sankhapuspi

These recipes increase longevity, cure diseases, and promote strength, agni (power of digestion), varna (complexion) and svara (voice). These rejuvenating recipes are medya (wholesome for intellect). Among them, shankhpuspi is the drug par excellence for the promotion of intellect.

#### **Shilajatu rasayan**

Processed shilajatu mixed with powder of iron should be administered with milk. It prevents ageing and diseases. It is an excellent drug for producing sturdiness of the body. It also promotes medha (intellect), smriti (memory) and dhana (wealth). While taking this rasayana, the person should live on milk diet.

### **Compound preparation to be used for mental health promotion and restoration in Covid 19**

#### **Rasa aushadhis (Herbo mineral preparations) advised for mental health in covid 19**

- Chaturbhujra rasa (rasa tantra)
- Chaturmukha rasa (bhaishajya ratnavali)
- Chintamani chaturmukha rasa (B.R)
- Brihat vatachintamani rasa
- Vatakulantaka rasa

#### **ASAVA ARISTA**

- Ashwagandharista (bhaishajya ratnavali)
- Draksharista (sharangdhara)
- Saraswatarista (ark Prakash)
- Jatamansi ark

#### **Leha**

- Agastya haritaki (astanga hridya)
- Brahm rasayana(astanga hridya)
- Shiva gutika(astanga sangraha)

#### **Ghrita (astangahridya)**

- Kalyanak ghrita

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- Panchgavya ghrita
- Mahakalyanak ghrita
- Brahmi ghrita
- Saraswata ghrita

### Vati / pills (sahastrayogam)

- Mritsanjeevni gutika
- Manasmitravatak

### Pisti preparations

- Praval pisti (ayurveda sara sangraha)
- Manikya pisti (rasamrita)
- Mukta pisti (Ayurveda sara sangraha)

### Single Herbs for mental health in covid patients

1. **Achyranthes aspera** (Apamarga) – when inhaled the powder of the seeds, it gives relief from stiffness and headache of migraine.
2. **Albizia lebbek** (Shirish) –
  - a) its seeds and black pepper powder when applied near eyes, cures unconsciousness.
  - b) its seed powder is one of the constituents for treating anxiety.
3. **Allium cepa** (Plandu) – tea from its seeds is beneficial in sleeplessness.
4. **Bacopa monnieri** (Brahmi)- it is very useful in recovery of memory power and to cure anxiety.
5. **Brassica nigra** (Rae) – it helps relieves migraine. Its fresh oil when massaged, reduces fatigue and laziness.
6. **Cannabis sativa linn.**(Bhanga) – it is useful in treating sleeplessness.
7. **Centella asiatica** (Mandukaparni) – its powder when mixed with unboiled cow milk, and taken, shows relief in insomnia. Its powder is mixed with honey or pepper or cow's "ghee" (purified butter) and taken to ease in anxiety.
8. **Citrus aurantifolia** (Neembu) – seeds and juice are beneficial in insanity related disorders. it is also used in anxiety to regularize the heartbeat.
9. **Convolvulus microphyllus** (Shankhpushpi)- taken with milk or ghee to improve memory. Shade dried powder alone or with vacha strengthens the mind.
10. **Coriandrum sativum** (Dhanyak) -when its extract is regularly taken, the vertigo and headache is relieved.
11. **Lawsonia inermis** (Mehendi)- seeds in honey or decoction of flowers are given to cure giddiness.
12. **Mucuna pruriens** (Kapikachhu)- useful in several diseases and improves overall body strength. Scientifically, it has also been found effective in Parkinson's disease.
13. **Nardostachys jatamansi** (Jatamansi) – Jatamansi, Vacha and Brahmi juice are mixed in honey and given in mental problems.
14. **Punica granatum** (Dadhim) – leaves after boiling with water and concentrating, the extract is given in warm milk to cure fatigue, tiredness and insomnia.
15. **Piper longum** (Peepal)- its roots in jaggery are given to overcome sleeplessness.

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16. **Sida cordifolia** (Bala) – to control the excessive anxiety, the plant and apamarga are boiled in milk until concentration and given.
17. **Vitis vinifera** (Draksha)- draksha and amla are boiled together and crushed and ginger powder is added. Draksha is roasted and given for dizziness.
18. **Withania somnifera** (Ashwagandha)- useful in stress and anxiety. It gives strength to overall body.

These medicines have immune-modulatory effect i.e., they tend to strengthen the immunity of a person in a natural way. In present times when altered lifestyles, diet and stress are a common, maintaining a natural immune system is challenging, and this renders a person prone to infections and diseases.

### **DISCUSSION AND CONCLUSION**

The COVID-19 pandemic has caused significant psychological distress worldwide. Ayurveda describes in detail the unique therapies of daivavyapasraya chikitsa and sattvavajaya including psychotherapy and counselling etc.

Ayurveda system of healthcare takes holistic approach towards disease management and preservation of health in which salutogenesis (maintaining optimum health and immune status) is a major aspect.

The immuno modulatory interventions of Ayurveda which are included under the broad term 'Rasayana' are very helpful in preserving optimum health of a person. They also help in preventing disease and in controlling disease progression. There is a substantial scientific information on the rasayana herbs and their phytoconstituents in public domain regarding the various activities viz; immunomodulation, antioxidant activities, neurodegenerative disorders, rejuvenators and nutritional supplements.

Yoga based lifestyle appears to be a suitable strategy for enhancing wellness in these unusual times where there is reduced physical activity and increased emotional distress. In addition, a number of studies have demonstrated usefulness of yoga-based lifestyle modification in improving disease-related outcomes in common non-communicable disorders such as type 2 diabetes and hypertension, which also contribute towards mortality related to COVID-19 infection. Yoga training can achieve a stable autonomic balance, oxygen consumption decreases drastically along with carbon dioxide elimination. A relative hypometabolic state and improvement in physical efficacy. Various researches have shown that there is decrease in heart rate, increase in intensity of alpha brain waves, a sharp decrease in amount of lactic acid in blood and a characteristic highly relaxed state of mind is achieved. Ayurveda & Yoga are well known for their preventive and therapeutic aspect, but not getting utilized properly for prevention of Covid 19 crisis which may also be helpful as supportive therapy along with current line of management. Ayurveda consider a patient not only physical being but advocates psychological and humanistic approach with healing touch during the treatment.

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**AYURVEDA APPROACH TO COMBAT MENTAL HEALTH AILMENT DURING  
COVID 19 CRISIS**

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Coronavirus which causes serious illness such as pneumonia, acute respiratory distress syndrome; was first time reported in Wuhan city, capital of Hubei in China. World health organization officially named the diseases as coronavirus disease (COVID 19) in 11 February 2020. First Spread of SARS COVID 2 infection started from Huanan seafood wholesale market in Wuhan China.

There mainly two clinical phases of coronavirus disease 2019 that are viral infection and immune or inflammatory response. Therapeutic approach needs to stop viral replication and to attenuate inflammatory state. Coronavirus disease 2019 is a predominantly respiratory illness. It can also affect brain kidneys, heart and liver COVID-19 pandemic is bad for mental health. On Mental health status of children, old age people, adults, health care professional, covid 19 affects badly

Health is determined from quality of sleep. Previous studies that survivors of severe acute respiratory infection such as sars can lead to anxiety, depression, posttraumatic stress disorder

Disturbances in sleep increases the susceptibility for viral infection. Sleep and immune system are inversely proportional to each other. The immune markers tumour necrosis factor alpha, prostaglandins and interleukin are responsible for proper physiological sleep. Some study shows the impact of sleep on the anti-inflammatory cytokine IL-10 and the Th2 cytokine IL-4. Studies shows the sleep dependant drop in production of interleukin 10 by monocytes and production of interleukin 4 by cd8 t cell

Disturbances in sleep is major problem found in this all-age group. Stress anxiety level in population is increases due to outbreak of covid 19. Which affect the normal sleep in all age causing aggravation of sleep problems. Sleep comprises various immune responses. Mental health status depends on quality of sleep.

In Ayurveda word Epidemic synonym with *Janapadodhawansa*. Covid 19 is an epidemic that starts in 2019. A physician who studies any one science only will not be able to arrive at a correct decision, hence physician should be in know of many sciences. *Aacharya Charaka* said that if a physician is not able to name a particular disease, he should not feel ashamed on an account because it is not always possible to name all types of diseases on definite terms, when aggravated, one and same *Dosha* may cause manifold diseases depending upon the various etiological factors and the sites of manifestation. In *Ayurveda* every diseased condition cannot be named but can be managed by based on causative factors and *Awastha* of *Doshas*. So, the physician should try to comprehend the nature of the diseases (*Manas Dosha-Rajas, Tamas*), site of manifestation and etiological factors and then initiate treatment

So, by using modern knowledge we can understand the covid 19 through Ayurveda perspective. In Ayurveda SARS CoV2 can understand by concept *Vyadhi Hetu*. A specific causative factors causing a specific Disease. SARS CoV2 can be correlated with *Jwar*. Based on *Samuthan* there are 8 types of *Jwara*. It also is divided into types *Sharir Jwar* and *ManasJwara*. *SharirJwar* leads into *Manas Jwara* and vice versa. Covid 19 falls under the category of *AgantujJwara*. On

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the basis of causative factors *AgantujJwara* divided into 4 subtypes. Out of these 4 subtypes Sars cov 2 is considered as *AbhishangajJwara*

*Abhishangaj* means state of being possessed by evil spirit or microbes which are not seen by naked eyes. In ayurved causative factors of *Abhishangaj Jwara* in relation to sars cov2 can be considered as *JangamVish*. In Ayurveda classics it is said that *Abhishangaj Jwara* caused by contact with poisonous air (air with infectious organism). fever aggravates by *Kam, Krodh, Bhaya*. These are *Manas Bhawa*

There are 16 places of *Jangam Visha* where causative factor stays and spread. There are *Drushti* (eyes), *Nishwas* (respiration), *Danshtra*, *Nakh* (nails), *Mutra* (urine), *Purish* (stool), *Shukra*, *Lala* (saliva), *Aartav*, *Mukh* (mouth), *Sadansh*, *Vishardhit*, *Tundasthi*, *Pit*, *Shuk*, *Shava* (dead bodies) In relation to SARS CoV2 it is spread by *Drushti* (eyes), *Nishwas* (respiration), *Shava* (dead bodies), *Lala* (saliva), *Shava* (dead bodies).

According to Ayurveda classics *Abhishangaj Jwar* exhibits symptoms of predominance of *Vatpittaj Dosha* but Covid 19 shows symptoms with predominance of vat *Kaphaj Jwara*. By *Vikrutivisahm Samvet Siddhant* we can say that sars 2 is an *Abhishangaj Jwara* exhibiting *Vata Kapha Dosha* predominance symptoms: Exogenous fever is at first unstinted but later on shows combined symptoms with those innate factors. there are also specific in respect to etiology and therapeutics

Ayurveda is an Indian traditional system of medicine specifically there is personalized approach during management of any diseases. The concept of *Prakriti* plays individualized role while treating patient. It is a person centered medicine mainly deals with healthy lifestyle, diseases prevention, diagnosis and treatment. A holistic concept of Ayurveda mainly focuses on health promotion and disease prevention

*Aachar Rasayan* is useful in maintain the mental health during this covid pandemic. *Aachar Rasayan* includes the certain rules that individual must follow during his routine work. Diseases due to intrinsic and extrinsic factors, to prevent such diseases and also to treat diseases, one has to follow some instructions. They are staying away from *Pradhnyaparadh*(committing mistakes knowingly), *Indriyopshama*(controlling sensory urges), *Smriti*(recollecting and learning from previous experiences), Knowledge of *Desha* (place), *Kal*(time), *Atma*(spiritual knowledge), and adopting *Sadvritta*(best social custom)

Certain things are to be avoided, they are exposing directly to the flowing air, exposure to the sun light from the front side, dust, snow fall, and polluted air, Sneezing, expectoration, cough, sleep, food intake and sexual intercourse are to be performed only in the right postures. The shade of the river banks, enemy of the king, carnivorous animals, snakes, horned animals, like deer or buffalo, person of lower socioeconomic strata, cruel people and greedy people are to be maintained from the distance. Never to enmity with great people. Consuming food, sexual intercourse, sleep, study and discussion are prohibited at the junction periods of sunset or sun rise

As per *Aacharya Vagbhata*, *Langhan*(fasting) is contraindicated in *Agantuj Jwar*(exogenous fever): *Aacharya Charaka* said that when fever patient not responding to *Kashay* (decoction), *Vaman*(emesis), *Langhan*(fasting), *Laghu Aahar*(light diet) then patient should be treated by using *Ghrit* (medicated ghee of decoction used for fever). *Kashaya*(decoction) used in fever management mixed with *Ghrit*. Use of this *Kashaya* results into increased *Agni* (metabolic power) and *Jwarnash*: *Agni* is responsible for *Bal*, *Varna*, *Oja*, Enthusiasm, Strength, health,

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*Utsaha, Prabha.* Treatment of disturbed *Agni* is treatment of disturbed mental health in covid patients.

Gastrointestinal system plays important role in maintaining mental and physical health through gut microbiome. The importance of the commensal microbiota that colonizes the skin, gut, and mucosal surfaces of the human body is being increasingly recognized through a rapidly expanding body of science studying the human microbiome

**Table 1 showing examples of Kashaya which are mentioned in Charak Samhita for Jwara**

S.N	Kashaya name and Contents	Use
1	<b>Bruhatyadi kwath</b> ( <i>bruhati, Vastsak, Musta, Deodaru, Sunthi, gajpipalli</i> )	<i>Sannipatajjwar</i>
2	<b>Shatyadi kwath</b> ( <i>Shati, Pushkarmul, Vyaghri, Shrungi, Duralabha, Guduchi, Sunthi, Patha, Kirattikta, Katurohini</i> )	<i>Sannipatajjwar, Kas, Hurdgrah, Parshwshul, Shwas, Tandra</i>
3	<b>Bruhatyadi gana kwath</b> ( <i>Bruhati, Pushkarmul, Bharangi, Shati, Shrungi, Duralabha, Vatsak, Patol, Katurohini, )</i>	<i>Annipatajjwar, Kas, used in all types of complications</i>

**Table 2 showing Kashaya uses in various condition of Jwara**

Types Of Jwara	Indication	Contents	Anupan
<i>Vataj Jwa</i>	<i>Vataj Jwar</i>	<i>1.Duralabha, Amruta, Musta, Sunthi 2.Pippalimul, Guduchi, Sunthi</i>	
<i>Pittaj Jwar</i>	<i>Pittaj Jwar</i>	<i>1.indrayak, Nagarmotha, Kutaki 2.musta, Parpatak, Dhamasa, Bhunimba</i>	<i>Madhu</i>
<i>Kaphaj Jwar</i>		<i>1.Vatsakadi Gan 2.Vasa, Sunthi, Musta, Dhamasa</i>	
<i>Vatkaphaj Jwar</i>	<i>Shul, Vibandh</i>	<i>Haritaki, Pippalimul, Shamyak, Kutaki, Musta</i>	
<i>Vatkaphaj Jwar</i>	<i>Madatyay, Chhardi, Murchha, Daha, Shram, Bhram, Urdhwag Raktapitta, Pipasa, Kamla</i>	<i>Draksha, Madhook,</i>	<i>Madhu, Sita, Laja jal</i>
<i>Kaphavataj jwar</i>		<i>1.Vacha, Tikta, Patha, Aaragvadh, Vatsak, 2. guduchi kwath pippalichurna</i>	
<i>Vatkaphaj jwar</i>	<i>Shwas, Kas, Pinas, Shul</i>	<i>Vyaghri, Sunthi, Guduchikwath Pippalichurna</i>	
<i>Vatkaphaj jwar</i>	<i>Sthivan, kukshi, hruday, Parshwa vedana, kantharog, aasyashwayathu, shwas, kas</i>	<i>Haritaki, Dhanyak, musta, Sunthi, Parpatak, katfal, Vacha, Bharangi, Deodar</i>	<i>Madhu, hinga</i>
<i>Kaphavatajjwar</i>	<i>Kas, shwas, parshwashul</i>	<i>1.Sunthi, Pushkarmul, Guduchi, kantakari</i>	
<i>Kaphapittajjwa</i>		<i>1.Aargwadhadi Gana Kwath 2.Tikta, Amruta, Ushir, Trayamana, Triphala, Guduchi</i>	<i>Madhu</i>

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**Table 3 showing various medicated Ghrit indicated In Jwar**

<i>Pippalyadi Ghrit</i>	<i>Jirnajwar , Kshay, Kas, shirshul, Parshwashul, Halimak, Ansabhitap, Vishamagni</i>
<i>Vasadi Ghrit</i>	<i>Jirnajwar</i>

*Pratyatma Lakshana* of *Jwara* is myalgia including the *Mansantap* Treatment of *Jwara* includes treatment of disturbed mental status. Above mentioned treatment Protocol considering individualized approach towards treating diseases, one can have managed covid 19 diseases along with disturbed mental health or promote mental with this approach.

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**AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING  
COVID-19**

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## **INTRODUCTION**

Stress/Mental health of a person depends mainly on two factors-

1. *Prakriti* of individual
2. Environmental/Surrounding with which one deals

According to Ayurveda, every individual has a unique characteristic of personality called the *Prakriti*. *Sharirik prakriti* is the constitution of *tridosha*.i.e., *Vata*, *pita* and *kapha*. While *Manas prakriti* constitutes *satva*, *Raja* and *Tama* as *triguna*. Different ratio of *Vata-Pitta-Kapha* and *Satva-raja-Tama* is found in different persons. This specific ratio in a particular individual is responsible for *kleshsehta* of that individual. In modern science, we can relate this to the stress hormone and activity of the limbic system.

While *Prakriti* of individuals is the static or fixed factor. The environment or surroundings of an individual are different or dynamic factors. i.e., different for different persons. The environment is a triggering factor of stress.

The emotional burden due to the spread of covid-19 results in emotional responses characterized by fear, panic, anger and frustration.

The global pandemic of corona virus also termed as health emergency affecting nearly all the world has led to the negative emotions in general population. Although the mental health ailments are faced commonly by all, but different environment or different perspective of different groups of population leads to two different sets of mental health disorders.

Here we classify, general population into various groups of children, geriatric, adults, female, health care workers or front-line workers etc.

Ayurveda being a complete life science, emerged as a boon for all the health-related issues arises due to covid crisis with complete solution.

- 1) **Children** - During the crisis of covid-19, many governments in the world applied complete lockdown to control the increasing spread of coronavirus cases. Due to which total social cut-off happened. The norms of social distancing affect every group of population, but children are more affected. Due to lockdown, children could not play outside, schools were closed by which their education was hampered. Digital platforms take over playgrounds as well as schools. Due to overindulgence of children into such digital platforms leading to various health hazards, physically as well as mentally such as sleeplessness, headache, anxiety disorders etc.
- 2) **Adults** - Complete lockdown helps to control the covid crisis all over the globe but also gave a lot of side effects. Due to which many people lost their jobs and lives of loved ones. Adults, due to

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their mature understanding towards a scenario, are mentally prone to mental health disorders because of stress, fear to lose job, depression etc.

- 3) **Geriatric** - Just like children, the older ones being completely cut off socially, became depressed, stressful and suffered from anxiety. As well as suffering from many physical diseases in the old age, already affecting them physically and mentally, which makes them more susceptible for more damage.
  - 4) **Females** - This group of population which got affected during the Covid-19 crisis is most underrated group. It seems they are affected less but in actual scenario, females being the emotionally weak individuals, they suffered a lot during lockdown. Being all day at home, with no social connection to the outside world makes them prone to depression, anxiety, stress, fearfulness of getting infection etc.
  - 5) **Health care workers and frontline workers** - This particular group of population being the most exposed group of population to the dangerous covid-19 virus, but still fighting with it to overcome the spread and in order to save every single life, is the most affected mentally. These people are prone to various mental health disorders due to many factors like
    - a) Fear of getting infected, as they are the most exposed.
    - b) Responsibility to save lives and promote health.
    - c) Very hectic schedule resulted in no break time.
    - d) Complete mentally exhaustion.
- Ayurveda/yoga approaches to combat mental health ailments during the covid-19 crisis in different populations.

## DIET

Diet and lifestyle management are important integration in Ayurveda management. The guidelines of *Ahara* as mentioned in Ayurveda are detailed in terms of 12 *Ahara Varga*, *Ashta Ahara Vidhi Vishesha Ayatana*, *Ahara Vidhi Vidhana* and *Viruddha Ahara*. This broad description of *Ahara* includes what to eat, when to eat, where to eat, how to eat, how much to eat etc. The diet should be balanced not only in terms of its calorie value as well as in terms of carbohydrates, proteins, lipids, vitamins etc. But from Ayurveda's point of view, the balance should be in terms of *Shad Rasas*, *Panchabhautika Ahara*, *Chaturvidh Ahara* (four forms of *Ahara*) etc. On the subject of time to eat, the food chronobiology of nature's clock has to be followed i.e., the *Ahara* consumption should be in presence of the Sun, as the solar energy representing the Pitta component in the body, is responsible for digestion. Regarding the quantity of food, the patients may be advised to consume the amount of solids 50% of the capacity, liquids 25% of the capacity and 25% of the space to be kept empty for the circulation of *Doshas*. Further, the *Guru Ahara* should be consumed less than the satiety and *Laghu Ahara* also upto the satiety only. Generally, the *Ahara* quantity should be only that much which does not affect the routine physical activities after its intake.

According to Covid-19 norms, frequent warm liquids treated with medicinal herbs (preferably *Shunthi*, *Dalchini*, *Trikatu*) should be used as a regular drink to maintain hydration. *Laghusupachya Ahara* (light diet) should be consumed that is easily digestible.

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### DIET GUIDELINES IN COVID MANAGEMENT

- Chew a piece of *Ardraka* with a pinch of *Saindhav Lavana* 15 to 20 minutes before food to improve appetite.
- *Laghusupachya* food preparations like - Soups of *mung dal* or lentil.  
Soups of vegetables, Meat soup.  
*Khichadi* of rice and *mung dal*.  
Vegetables like *Gheya*, *Turai*, *Sitaphal*, capsicum etc.  
Use spices like *jeera*, black pepper, garlic, coriander, ginger, *Ajwayain*.
- Take 2 soaked *Anjeer* in the morning before a meal helps to maintain a good ecosystem of the stomach.
- Eat a half spoon of *Saunf* after having a meal for the freshness of mouth and proper digestion of food.
- Golden Milk:  
Ayurveda describes "*Kshira Ghrita Abhyasa*" i.e., routine intake of *ghee* and milk (preferably cow's milk & *ghee*) as best among the Rejuvenators. Turmeric is having a proven effect as an anti-microbial, anti-oxidative immune booster and is particularly useful for diseases of the Respiratory tract. It helps in co-morbid conditions like Diabetes Mellitus for which also it is a drug of choice. Thus, Golden milk/Turmeric milk is advised for prophylaxis as well as treatment of COVID 19. Half Teaspoon of *Haladi* powder in 150 ml of hot milk once or twice can be advised.

### YOGA

Yoga is the gateway to holistic wellbeing. In today's world yoga and Ayurveda have joined hands complementing each other. Ayurveda is the physical form of yoga and yoga is a spiritual form of Ayurveda. Yoga strengthens parts of the brain that play a key role in memory, awareness, attention and thoughts. Yoga helps to open up the *chakras* and enables the flow of energy in the body. When yoga and *mudras* are practiced, the *chakras* get balanced and make our system function in a stable or balanced manner, both physical and emotional.

*Chakras* interact with the physical body through two major vehicles - the endocrine system and the nervous system. Each of the seven *chakras* named below is associated with one of the seven endocrine glands and also with a particular group of nerves called the plexus.

The *chakras* located in the lower part of our body is instinctual part, the higher one our mental part, ideally all *chakras* would contribute to our well being.

The seven *chakras* are-

1. Crown chakra
2. Third eye chakra
3. Throat chakra
4. Heart chakra
5. Solar plexus chakra
6. Sacral chakra
7. Root chakra

Standard protocol is designed along with its standard operating procedures with the objectives to improve cardiac efficacy, respiratory, to reduce stress anxiety and to enhance immunity.

The standard protocol includes *sukshma vyayam* which includes joint movement, sitting postures, linedown postures in the supine position and prone position followed by relaxation postures, *pranayam* and medication.



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Here are some of the names of the *asanas* *ustrasana*, *makarasana*, *ardha asana*, *Padahasta asana*, *Tada asana*, *Vajra asana*, for mind peace - *kapala bhati pranayam*, *Anulom-vilom pranayam*, *Bharamari pranayam*.

### PANCHKARMA THERAPY

Ayurveda is an exclusive tradition of India that has been with us for thousands of years. Noted in various old scriptures, ayurvedic treatments are known for promoting physical health as well as mental health. The practices of Ayurveda using the various preparation of herbs, oils and other natural components heals an individual. *Rasayana* therapy and *Shirodhara* are such examples.

#### **Shirodhara -**

*Shirodharais* known as one of the most purifying and rejuvenating treatments. This therapy is designed in such a way that it not only removes the harmful toxins from the body but also relieves stress, gets rid of mental exhaustion, anxiety. Hence, promoting physical and mental health as well.

The word *Shirodhara* is derived from the Sanskrit language *Shiro* (head) + *Dhara* (to flow). *Shirodhara* is an independent *Snehana* procedure, wherein involves gently pouring liquids over the forehead. The selection of the drug and duration of the procedure depends upon various factors like characteristics of a disease, chronicity, doshas involved, patient *Prakriti* and environmental factors. There are various specialized forms of *Shirodhara*, some of them are *Tail Dhara*, *Ksheer Dhara*, *Jal Dhara*, *Takra Dhara* and *KwathDhara*.

#### Mode of action:

The infusion of oils (*Jatamansi*, *Brahmi*, *Tagar*, *Ashwagandha*, *Til tail*) when pouring on the head, produces a soothing sensation on the muscles of the head which in turn passes via the superficial peripheral nerves of the forehead to the brain. By soothing the hypothalamus, it regulates the activity of the pituitary gland and treats conditions like insomnia (which occurs as a symptom of various mental disorders) by inducing sleep. According to Ayurveda, an aggravated *Vata dosha* makes the nervous system sensitive which leads to *Anidra* (insomnia), anxiety, depression and other mental disorders. *Til tail*, *Ashwagandha* calms the nervous system due to its *Vatahara* property. *Jatamansi* helps in sound sleep because of its unique *Nidrajanana* property. *Tagar* is one of the best *Balya Dravya* for *Nadisansthan* (nervous system). *Brahmi* due to its *Medyajana* property works on *Dhi*, *Dhriti* and *Smriti*. *Shirodhara* also stimulates the various vital points all around the head known as *Marma* in ayurvedic science to improve blood circulation. Warm oils used for this procedure causes vasodilation of blood vessels of that area which also helps to improve blood circulation in the brain. It brings down elevated serotonin levels. Serotonin is a neurotransmitter that stabilizes our mood, feelings of well-being and happiness. This procedure also reduces the level of stress hormones i.e., adrenaline and noradrenaline and helps in relieving stress.

### RASAYANA THERAPY

Rasayan therapy has been used in Ayurveda for its immunomodulatory effects. The main principle of Rasayana therapy is to maintain the health of a healthy individual and cure the disease of the diseased one. Rasayan increases the essence of each *Dhaatu* starting from *rasa* and enrich *Ojas*. Thus, there is a regeneration of cells and body tissue leading to an increase *Vyadhikshamatav*(immunity).

Dearrangement of *Dhatu Agni* and *Jatharagani* is the major contributing factor for the production of Ama immuno-compromised conditions as well as the emergence of disease. Rasayan brings about *Dhaatu Pushti* and *Srotosudhi* , which play a key role in maintaining health and immunity. The commonly used *Rasayana* drugs include various *Kalp* of *Ashvagandha* (*Withania somnifera*), *Guduchi*

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*Swarasa (Tinospora cordifolia), Yastimadhu Churna (Glycyrrhiza glabra), Brahmi Swarasa (Bacopa monnieri), Shankhpushpi Kalka (convolvulus pluricaulis)* etc. prescribed in charak Samhita.

These drugs promote the *dhi ,dhriti, smriti*. This helps the patient to get relief from stress, anxiety and depression.

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**AYURVEDIC MANAGEMENT FOR BOOSTING MENTAL HEALTH DURING  
COVID-19 PANDEMIC**

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## **INTRODUCTION**

Mental health is also an important factor that contributes to the complete definition of a health of an individual. The pandemic started in 2019 has deeply affected the mental health of all the age group people in less or more way. The common manifestation of mental disease is seen as anxiety or depression. Sudden lockdown of general use public facilities including travel, groceries, health centers, shopping complexes, educational institutes etc. has caused increased, un predictive burden on mental status of maximum public for managing livelihood. The unprepared mindset for social isolation is the main cause of mental ailments caused during the pandemic period. In the condition of *janpadodhwansa* which is caused by *adharm* (sinful acts), main three measures of protection are indicated by *Acharya Charak* and *Acharya Sushruta*. Protection of body, mind and environment are mainly highlighted in these measures. The management mentioned in the literature also focuses on increasing the *satva guna* of *mann* or psych. Patience, donation, worship, self-study, talking truth are few of them. The *prakriti*, diet, lifestyle, season, age, environment and more factors have impact on our mental health. Body and mind are interconnected to each other and any disease in any one of them affects each other. The concept of psychosomatic diseases is based on this principle. The psychological constitution is mainly divided into 3 main divisions. *Satva*, *Raja* and *tama* are the three mental properties, which make the psychological constitution of an individual. Among these three *guna*, only *satva guna* is responsible for a good mental health. Certain mantra has been seen to have a good impact in recovery from the disease. The *guru*, *vyadhit* and *laghuvyadhit* concept is mainly based on this psychological constitution of the patient in which *satva bala* and *deha bala* play a vital role in prognosis of the disease. Also, it is seen that the patients infected with COVID-19 had psychological impact on their disease manifestation and recovery from the illness.

## **AYURVEDIC PRINCIPLE FOR THE MANAGEMENT OF MENTAL ILLNESS OF COVID-19**

COVID-19 that was caused by a virus became a cause of pandemic worldwide. Ayurvedic terminology for pandemic is *janpadodhvasa*, that is well described in *Charak* and *Sushrutsamhita*. It has shown to involve our whole immune system and occurred in all age group irrespective of diet, body or mental constitution, and immune power. It is seen that the time frame in which it effected the population was more or less in same period of time. *Swasthasyaswasthyarakshanam* and *aturasyavikarprashmanam* are the two aims of treatment. That is, a person who is healthy must be protected from the disease and those who are diseased must be treated to become healthy. Management of COVID-19 infection is divided into two parts that is Preventive management and Curative management.

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Mental protection is of importance in both preventive and management part of COVID 19. It is also for those who are not infected (General public), are healthy and are in contact with the patient (Health care workers, police and others on duty). As the disease has effect on body, mind and surroundings, it is necessary to protect them in stepwise manner. A detail of treatment given for the disease that cause pandemic has also been described in Ayurvedic literatures. It was also observed in the past that it is important to protect the mental status of the people and patient, for which a general principle is highlighted in table no.1. These are the general measures that are given in pandemic situations:

Table no.1: Measures for Mental protection

s. no.	<i>Maansiksuraksha (Figure 2)</i>	Indication for mental protection
1.	<i>Prayashchit (figure 1)</i>	Penance of bad deeds done in past
2.	<i>Satya</i>	To talk truth
3.	<i>Mangal</i>	Doing auspicious work, like <i>havan, yagya, path.</i>
4.	<i>Japa</i>	Chanting mantra: <i>Gayatri mantra, Mahamritunjay mantra</i>
5.	<i>Uphaar</i>	Donation
6.	<i>Badhanjali pranam</i>	Prostration to GOD and Deities
7.	<i>Devi devta, guru, Brahman, siddha sewa</i>	Worshiping of deities, <i>Brahmins</i> and teachers, experts
8.	<i>Dherya aur shanty</i>	Keeping patience and peace
9.	<i>Brahmachryapalan</i>	Avoiding sexual indulgence
10.	<i>Niyampalan (5) Sauch, Santosh, Tapa, Swadya, Eswarpranidhan</i>	Maintaining cleanliness, satisfaction, tenacity, self-study, praying to GOD.

It is seen that the bad deeds or *adharma* done by humans has always been the cause of diseases resulting in pandemic. This time also eating the flesh of bat and other animals became the cause of spread of COVID-19 disease. Cutting of trees in mass proportion, use of plastic and improper dispose of the waste material also comes under these bad deeds. Bribe, false talks, stealing habits and many other bad customs in society increase *adharma* in the society favoring pandemic like situations. So, penance of bad deeds is kept on the top to protect the mental health during pandemics. Talking truth gives an inner strength of wellbeing and helps in developing *satvikguna* in an individual that prevent the mental ailments caused by *raja* and *tama dosha*. *Mangal* or doing auspicious things like *havan, yagya, path* etc. develop a kind of mental wellbeing and spread a positive environmental effect in the surrounding and enhance the *satvaguna*. Certain researches have been done in recent past that chanting certain mantras has a positive effect on mind in mental illnesses and are helpful in overcoming the disease. As chanting *Gayatri mantra* has increased the attention in the subjects.

Donating the things that are needed to the needy individuals is also an important work to be done in this period of pandemic. Giving is a property of *satvaguna* and increasing *satvaguna* protect from disease. There are three *guna* of *mann* or psych. First is *satva* and has the property to

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take the individual to the work of *kalyana* or doing good works for others. Second *guna* is the *raja dosha* that has main manifestation of anger, and the third *guna* is *tamadasha* that is seen to have property of *agyanata*. *Satvaguna* is not considered as *dosha* of psych rather two others are the dosha of it. So, it's the aim of treatment to increase the *satvaguna* and reduce other two. All the mental ailments are caused by these two doshas. Offering food and shelter, giving books to needy students, giving free treatment to patients who can't afford the treatment, sharing knowledge in the society for its safe future etc. also comes under giving and sharing.

This world and universe are being governed by the cosmic energy called GOD, who is said to be the ultimate power of this world. Bowing in the feet of almighty and praying to them with folded hands develop a feel of devotion and respect to that power that ultimately dissolves the false ego inside the human mind. Our government of India has also taken initiatives to develop such devotion for GOD by increasing the frequency of devotional channels and episodes, like *Ramayan*, *Vighnaharta shri Ganesh*, *Devon ke dev Mahadev* etc. What you see and listen more has an impact on mind and psych. Distracting the mind from negative news and events has also become an important factor to prevent mental illness. And these initiatives of our government have played an effective role for it.

*Devi devta*, *Guru*, *Brahmans* are the strong pillars of our society, that have special powers and aura that protect us from harms in our lives. Also, when an individual comes in contact with a more powerful energy, it gives him a feel of protection and wellbeing. This is a psychological effect that the patient feels when a doctor treats the patient in his illness. Having faith on doctor gives a more positive effect and result of treatment.

Patience and peace are the two strong qualities of the psych that can help to overcome bad times like in pandemic lock down situations. It is seen that many of the deaths has occurred due to over thinking and losing hope for life due to lack of patience. These qualities of mind are developed over a period of time and events of life. Because our recent educational system has not much focused on developing such skills, it has become fatal for such people who lost their patience in this adverse situation.

Acharya Charak has said *Brahmacharya* to be the best cause to increase life span of an individual in *agrayavarnan*:

“*brahmachryamayushyanam*”. *Charaksamhita sutra sthan 25/40*

So, during pandemic time it was good to follow abstinence from sex. Yoga is the only cause to prevent the *chittavritti* as, “*Yogaschittavrittinirodhah*.” This yoga is the cause of *moksha* and cause ultimate liberation from *raja* and *tama dosha* of psych.

“*Yogomoksahpravartakah*”. *Charaksamhitashareersthan 1/137*

“*Mokshorajastamoabhavaatbalavatkarmasamkhsayat*,  
*viyogahsarvasamyogaerapunarbhavuchyate*” ... *Charaksamhitasahreer sthan 1/142*

There are eight parts of *astang yoga* which are the essential steps to attain *moksha*. They are *areyama*, *niyam*, *asan*, *pranayam*, *pratyahar*, *dharana*, *dhyan* and *Samadhi*.

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There are 5 steps of *niyam*. They are *sauch*, *santosh*, *tap*, *swadhyay* and *eswarpranidhan*. They can be defined as Maintaining cleanliness, satisfaction, tenacity, self-study and praying to GOD. It was seen that the disease that are infectious spread from one person to another by contact. Most of the time unhygienic conditions are the cause of spread of disease. So, maintaining cleanliness becomes very important. Satisfaction helps in keeping our mind and soul in peace. To attain some higher state in spirituality tenacity is necessary. Reading spiritual books and subject related books helps in gaining knowledge about that. It also engages the mind to distract from negativity. Worshipping to ultimate power with GOD is a method of uplifting the spiritual energy in the path of *moksha*.

Other than above measures for boosting mental health during covid, some more techniques that are being practiced during this pandemic were *dhupan* and *hawan* with *rakshoghna mantra* and specific medicinal plants *samidha* that effects and protects the respiratory system. The detail of *dhupan* is given in table no. 3. And *Hawan* in table no.4.

Table no 2: *Dhupan*(Medicated fumigation) is done by a mixture of following Medicinal plants:

S.no.	Ayu. Name	Latin Name	Part used	Method of preparation and use
1.	<i>Guggulu</i>	<i>Commiphoramukul</i>	Resin	Powder of <i>Guggulu</i> , <i>Aguru</i> , <i>Sarjras</i> , <i>vacha</i> and <i>sarshap</i> are mixed with salt, <i>neem</i> leaves and cow ghee. The mixture is put on fire and is extinguished for producing fumes.
2.	<i>Aguru</i>	<i>Aqualariaagallacha</i>	Resinous wood	
3.	<i>Sarjrasa</i>	<i>Shorearobusta</i>	Resin, wood	
4.	<i>Vacha</i>	<i>Acorus calamus</i>	Root	
5.	<i>Sweta sarshap</i>	<i>Brassica campeastris</i>	Seeds	
6.	<i>Lavan</i>	Salt	Salt	
7.	<i>Neem</i>	<i>Azadiracta indica</i>	Leaves	

*Hawan*: It is done for killing the germs, virus, Bacteria and increasing the *pranvayu* (oxygen) level in the environment. For specific disease there are different *hawan* ingredients to combat that disease. The fumes that come out from *hawan* has a positive impact on mind. Some of the researches have been done to see its effect even in epilepsy. There is a list if medicinal plants that are useful in respiratory ailment and associated symptoms. Material required: Medicinal plants -12, Cow ghee and *Samidha* ( mango wood).

Table no 4: Medicinal plants used for *hawan* are:

S. no.	Medicinal plant	Botanical name	Ayurvedic Property	Part used
1.	<i>Pippali</i>	<i>Piper longum</i>	<i>Kasahar</i>	Fruit
2.	<i>Kakadashringi</i>	<i>Pistacia integerrima</i>	<i>Kasahar</i>	Insect galls
3.	<i>Aguru</i>	<i>Aquilaria agallocha</i>	<i>Swashar</i>	Bark wood
4.	<i>Pushkarmool</i>	<i>Inula racemosa</i>	<i>Swashar</i>	Root
5.	<i>Neem</i>	<i>Azadirachta indica</i>	<i>Jwarhar</i>	Leaves
6.	<i>Manjistha</i>	<i>Rubia cordifolia</i>	<i>Jwarhar</i>	Root

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7.	<i>Haridra</i>	<i>Curcuma longa</i>	<i>Vishagna</i>	Rhizome
8.	<i>Shireesh</i>	<i>Albizia lebbek</i>	<i>Vishagna</i>	Flower
9.	<i>Maricha</i>	<i>Piper nigrum</i>	<i>Krimihar</i>	Fruits
10.	<i>Vayvidang</i>	<i>Embeliaribes</i>	<i>Krimihar</i>	Fruits
11.	<i>Guggulu</i>	<i>Commiphoramukul</i>	<i>Sangyasthapan</i>	Resin
12.	<i>Jatamansi</i>	<i>Nordostacustatamansi</i>	<i>Sangyasthapan</i>	Root

Method of *Hawan*: A cemented or metallic *hawankund* (Place for *Hawan*) is made. The wood of mango tree is arranged one above the other in such a manner that air circulation is not hampered for combustion. With *raksha mantra* the fire is light. Ghee and camphor are first put in fire. When the wood starts burning properly, the mixture prepared with multiple medicinal plants crushed into small pieces and mixed with ghee is put into fire.

## **PSYCHOLOGICAL PROPERTIES (MANSIKGUNA) AND IMMUNITY OF BODY**

Immune system is the most complex system in the body to understand. *Ojas* is the *saar* of all the tissue of the body which is formed by balanced diet. It protects the body from diseases and is present in all the tissues. There are 13 factors that increase this *oja* in the body. Among all there are two factors that are related to psych of an individual. They are: *satvasampaccha* and *sampraharsha*. It means that good quality of *satva* and happiness increases immune power of the body. It is also seen that grief and negativity increases the severity of the disease.

“*Vishadorogavardhanam*” *Charaksamhita, Sutra stahn 25/ 40.*

So, happiness and *satvikguna* are responsible for maintaining mental health of an individual.

*Rasayan* and mental health:

*Rasayan* are in two forms: Medicinal preparation and *achar rasayan*. Certain herbs like *Guduchi*, *Shankhapushpi* are commonly used *rasayan* for mental boosting. They have the property to enhance the immune power of the body. They increase the recall and retention power of the mind. They are very helpful in stress and depression caused by the disease.

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Figure 1: Deeds advocated in ancient literatures for saving Nature :



Figure 2: Measures of mental protection according to literature:





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# **INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS**

## **BIBLIOMETRIC ANALYSIS OF THE COVID-19 ASSOCIATED MENTAL HEALTH EFFECT**

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### **INTRODUCTION**

COVID-19 or Coronavirus is impacting all parts of human society across the globe (WHO, 2020). The consequences of this pandemic on human behaviour are also unclear. In this regard, many scholarly articles were designed with the intention to understand the general trend and attitudes of ‘humans’ on the impacts of COVID-19 on their behaviour and psychology. The studies try to address the underlying problems, fear, anxieties and perceptions of COVID-19 patients during the illness and also in post COVID period. However, there is no reported data on bibliometric analysis of published research on COVID -19 associated mental health effects. In the present chapter the bibliometric analysis of published researches on impacts of COVID-19 on their behaviour and psychology was done to look at the most cited scholarly publications on the impacts of the pandemic on human psychology globally, in order to gain a better understanding of the year of publication, citation of publications, research networks, specific aspects of outcomes, and so on. The findings of this analysis will raise awareness of present research trends on the effect of COVID-19 on mental health and guide future decisions that will promote and direct research for better management of COVID 19 associated mental health effects.

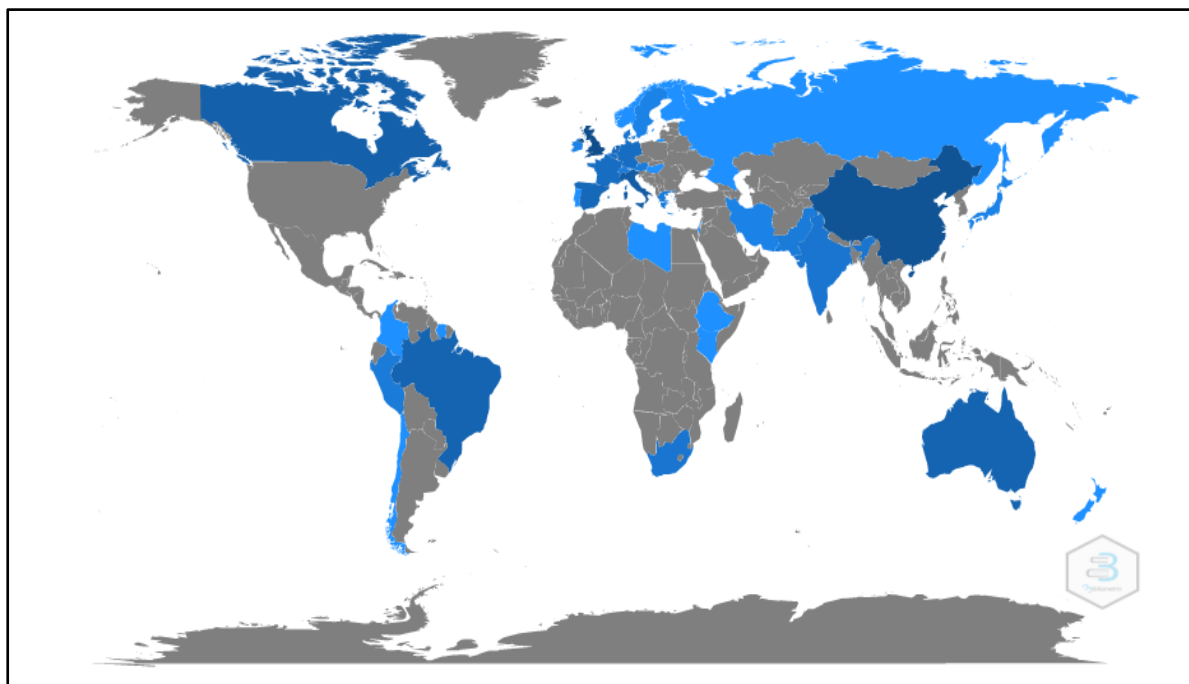
### **MATERIAL AND METHODS**

Keywords like “Mental Health AND COVID-19” were searched in the term “topic” that includes title, abstract and keywords were used to search the freely available database Google Scholar to retrieve clinical studies related to the mental health conditions during covid-19. The investigations on the mental health related effects during covid-19 conducted from 2020 to 13 October, 2021 using bibliometric analysis in R software.

### **OBSERVATIONS AND RESULTS**

The Google scholar database contains 1,670 publications out of which 1393 “ARTICLES” related to “Mental Health” and “COVID-19” from 2019 to 13 October 2021. The top 100 most cited publications published from 2020 to 2021 were taken. The total number of citations for the top-100 most cited clinical trials ranged from 16 to 151, with an average citations per documents is 125.8 and the average citations per year per document is 65.7.

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**Figure 1:** Scientific production of countries involved in studies related to mental health and COVID-19 (Different shades of blue represent different productivity rate: dark blue = high productivity; grey = no articles.)

It was observed that United Kingdom (33 articles), China (23 articles), Italy (15 articles) and Canada (12 articles) have given maximum research resulting into publication. If we observe the share of India in this research publication then it is only 4 articles. This India still needs to produce more survey data based on this topic.

**Table 1:** Showing top 10 cited papers on Mental Health and COVID globally

Paper	DOI	Total Citations	TC per Year	Normalized TC
LI S, 2020, INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH	10.3390/IJERPH17062032	610	305	4.621
LU W, 2020, PSYCHIATRY RESEARCH	10.1016/J.PSYCHRES.2020.112936	474	237	3.591
FIORILLO A, 2020, EUROPEAN PSYCHIATRY	10.1192/J.EURPSY.2020.35	412	206	3.121
FEGERT JM, 2020, CHILD AND ADOLESCENT PSYCHIATRY AND MENTAL HEALTH	10.1186/S13034-020-00329-3	408	204	3.091
LEE SA, 2020, DEATH STUDIES	10.1080/07481187.2020.1748481	389	194.5	2.947
MORENO C, 2020, THE LANCET PSYCHIATRY	10.1016/S2215-0366(20)30307-2	373	186.5	2.826

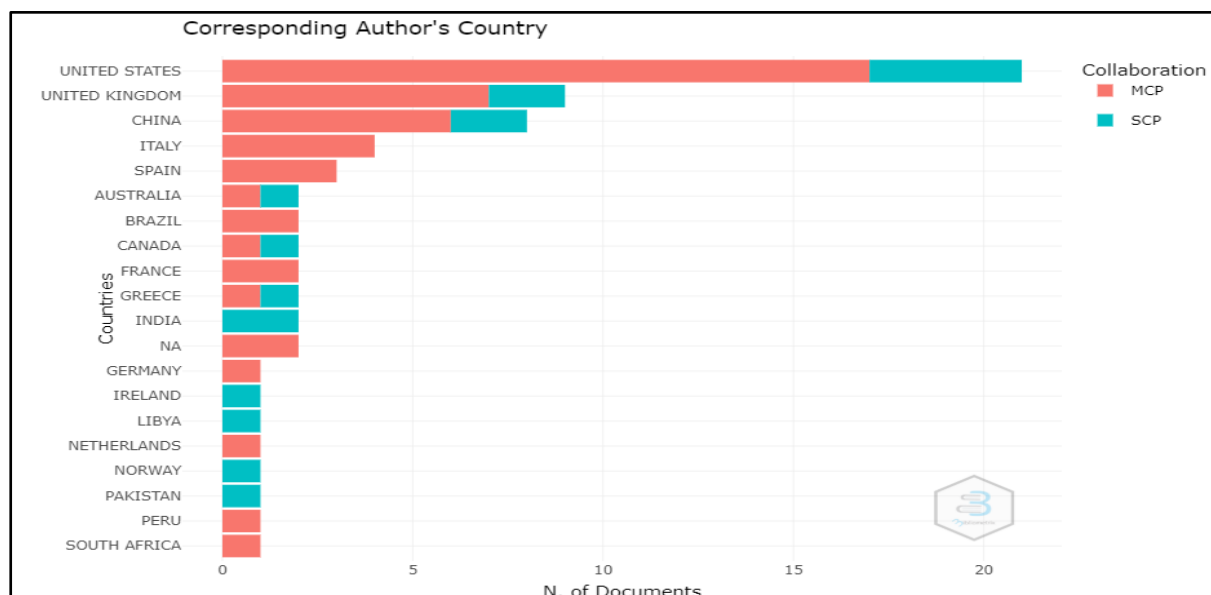
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PRIME H, 2020, AMERICAN PSYCHOLOGIST	10.1037/AMP0000660	361	180.5	2.735
TAQUET M, 2020, THE LANCET PSYCHIATRY	10.1016/S2215-0366(20)30462-4	356	178	2.697
MAZZA MG, 2020, BRAIN BEHAVIOR AND IMMUNITY	10.1016/J.BBI.2020.07.037	274	137	2.076
HUANG J, 2020, CHINESE JOURNAL OF INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASES	10.3760/CMA.J.CN121094-20200219-00063	273	136.5	2.068

Article of Li *et al.* (2020) paper entitled “The impact of COVID-19 epidemic declaration on psychological consequences: a study on active Weibo users” was the most cited article. The survey done by them has shown that negative emotions like anxiety, depression and indignation reached a large level during the COVID pandemic. All the attention of the people was only on ensuring their health and the safety of their family members. Psychological issues of medical workers were measured on different standard rating scales (Hamilton Anxiety Scale (HAMA), Hamilton Depression Scale (HAMD)).

In the second most cited articles stated by Lu *et al.* 2020. It was reported that the people working in the medical department of the hospital were suffering more from mental stress compared to the administrative department. Even inside the medical department, clinical staff working in the emergency unit is suffering more compared to non-clinical staff that have a less level of exposure with patients regularly.

In third most cited paper by Fiorillo and Gorwood (2020), it is shown how loneliness and social distancing lead to serious mental disorders like schizophrenia, while measures to get rid of them like taking updates from limited authentic sources, keeping in touch with your loved ones through video calls and group chats, maintenance of your daily routine including your sleeping schedule and diet plans, working on the advantages of isolation and if required seeking psychiatric consultations were mentioned.



**Figure 2**Country of corresponding authors of published studies related to mental health and COVID-19

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The authors of the retrieved studies are mostly located in western countries mainly in the United States and United Kingdom as compared to Asian countries. United States articles have been cited most because they almost surveyed all groups based on different criteria like including age (youth, children and old people), physical appearances (skin colour), socio-economic status (people who lost their jobs during this pandemic) and occupation (essential workers). It was found from the poll that 4 out of 10 adult citizens of the United States were suffering from mental trauma (Panchal *et al.* 2021). When the top productive nations were sorted by the number of citations per article, the US came out on top, followed by the UK and China. When compared to single-country publications, articles generated via international collaboration (MCP) had a higher number of citations per article (SCP). This suggests that raising the amount of citations requires worldwide collaboration. Countries with the lowest rate of international collaboration, such as India, Ireland, Libya, Norway, and Pakistan, had the fewest citations per publication.



**Figure 3:** Top authors' production over the time studies related to mental health and COVID-19

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J. Li, D.M. Ashcroft, M.J. Carr, N. Kapur, V. Vine, and R.T. Webb are among the most prolific authors who have published almost regularly on this issue. In 2020, the majority of publishers produced more scientific work (the figure can be understood by looking at the circumference of the circle for each individual author in Fig.3), which matches the prior trend found in the publications. P. Gorwood, with his works from 2020, is the most referenced author, and C. Liu is the second most cited author.

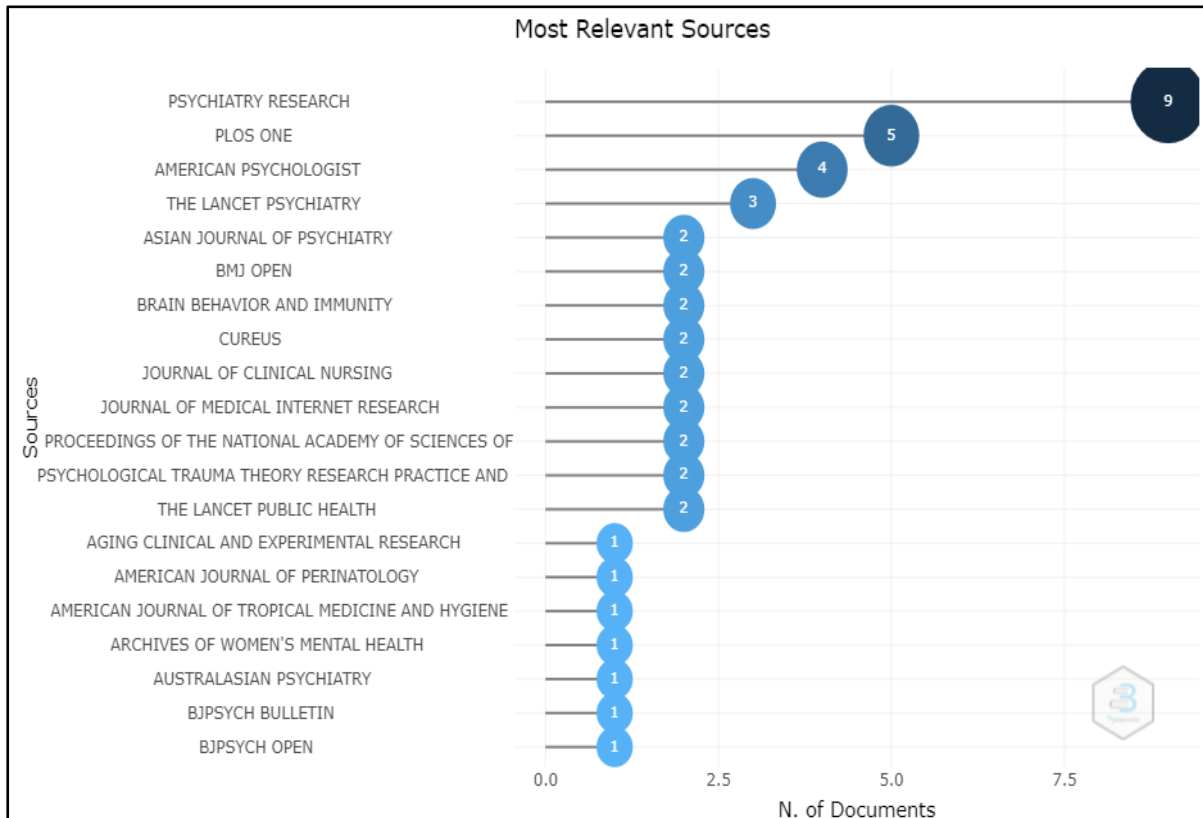
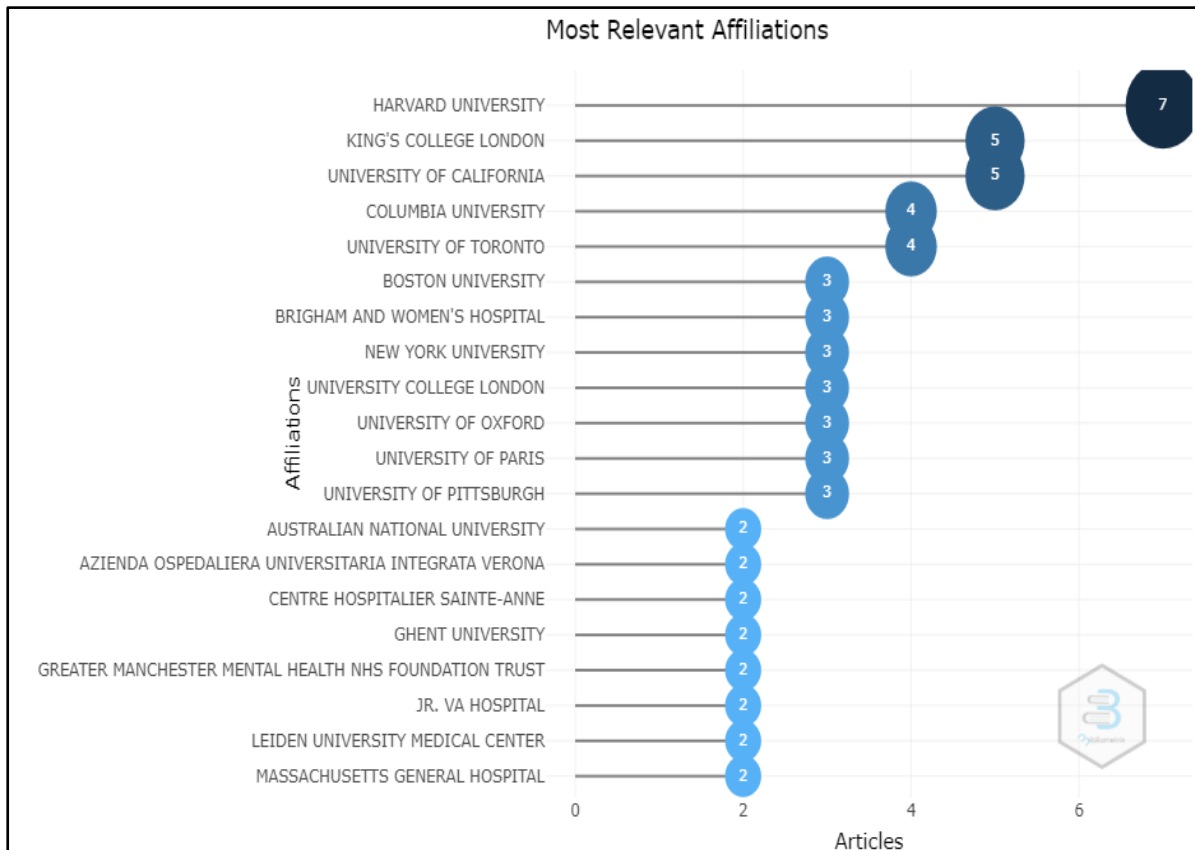


Figure 4 Most relevant journals

These articles are published in Psychiatry research, PLOS One, American Psychologists and other journals are very important in this field. Articles related to our topic are mostly published in Psychiatry research (Impact Factor: 3.222) journal, in which 166 publications are in the year of 2020 and 140 articles in the year of 2021 are published. The scholarly articles of PLOS ONE journal with almost the same impact factor (IF: 3.24) stood second position in 100 most cited publication in which 31, 256 relevant articles are found from our topic.

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**Figure 5:** Top organizations related to published studies on mental health and COVID-19

As shown in Figure 5, three US schools stood out among the top five in terms of research productivity in this field: Harvard University, University of California, and Columbia University. These institutions were represented by seven, five, and four of the first authors of the examined publications, respectively. Most of the publications are from Harvard University, which holds 5<sup>th</sup> rank in world's top universities based on QS world university ranking.

This kind of study shows the development of trends in research on mental health as a crucial illness mainly affecting human's psychology and thus enables researchers to rapidly understand the key information in the field of mental health research, comprehend the research directions, and improve their research efficiency (Rajkumar 2020; Xiong *et al.* 2020). Although some collaborative steps have been taken by India with Saudi Arabia, United States and South Korea to address COVID pandemic's impact on mental health. Users and policymakers can gain a better knowledge of the problems they address by assessing scientific outputs and the influence they have, and so plan and perform more efficient actions to seek relevant answers. More study is needed to better understand the influence of COVID on mental health (Torales *et al.* 2020).

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**INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE  
PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS**

**COMBATING MENTAL HEALTH AILMENTS IN COVID 19 WITH PRACTICE OF  
YOGA**

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## **INTRODUCTION**

During any outbreak of an infectious disease, the population's psychological reactions play a critical role in shaping both spread of the disease and the occurrence of emotional distress and social disorder during and after the outbreak. Despite this fact, sufficient resources are typically *not* provided to manage or attenuate pandemics' effects on mental health and wellbeing. There are many reasons for this. It is known that psychological factors play an important role in adherence to public health measures (such as vaccination) and in how people cope with the threat of infection and consequent losses. It has been noticed over the past few months that during this outbreak of COVID-19 infection there are increasing mental health issues among the general population, elderly, children, migrant workers and healthcare professionals other than the patients with COVID-19 infection.

In evaluating evidence on the nature and level of mental health burden from COVID-19, we will prioritize studies that compare symptom levels or diagnoses among study participants during COVID-19 to pre-COVID-19 data.

## **MATERIALS AND METHODS**

While the healthcare sector and government officials from all over the world is focusing on the control of the pandemic adopting various preventive strategies, there is little attention provided to the mental health status of the isolated, panicked and house-arrested people. Due to lack of regular social activities and staying at home for a longer time will impact their emotional well-being. Research has also shown that sudden outbreak can worsen the mental health conditions of those with pre-existing mental health illness.

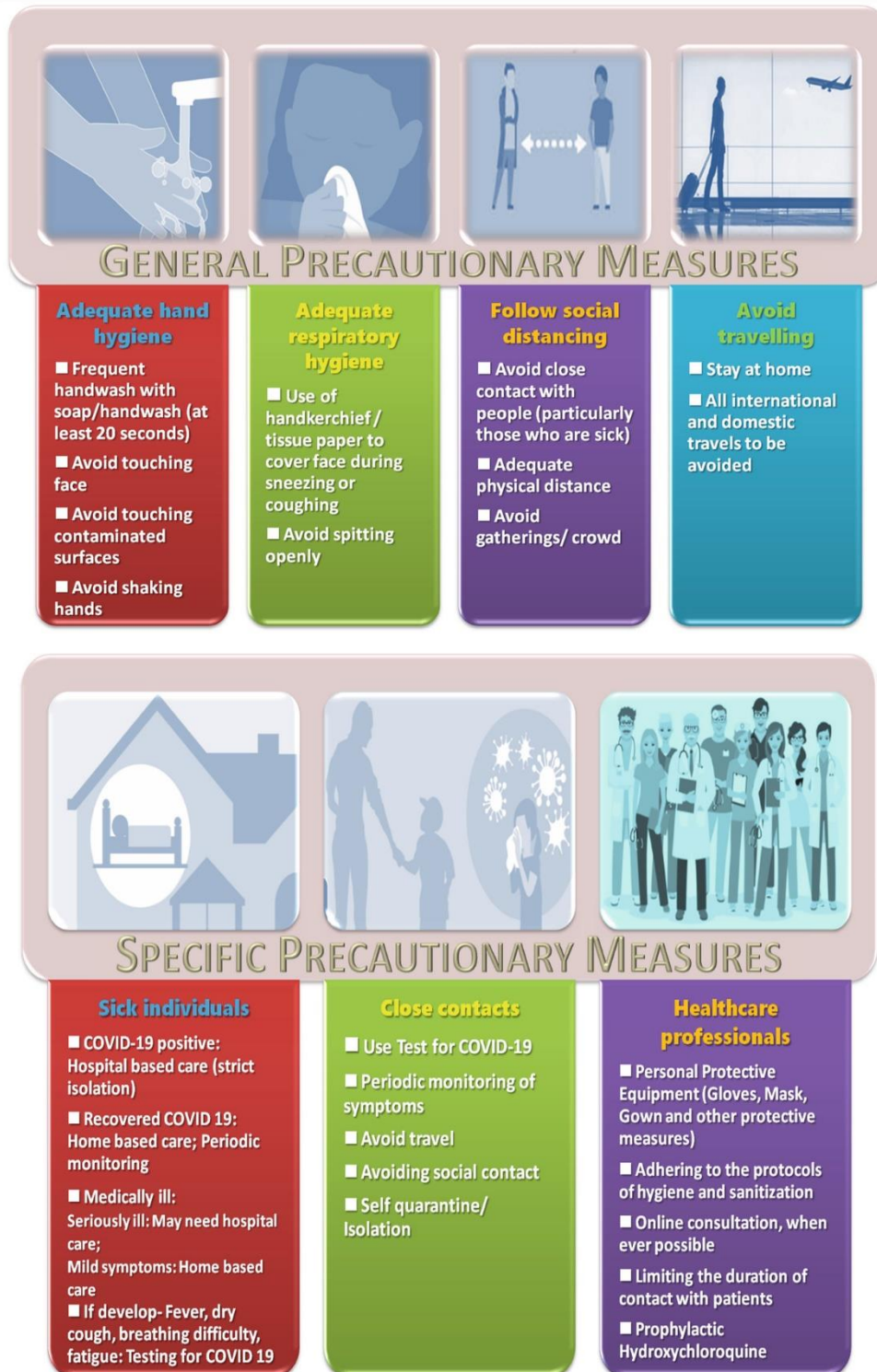
To avoid a distressing situation, individuals should not get exposed to media coverage too much, to maintain a healthy relationship, get in touch with friends and family members on a regular interval using social media and start thinking positively. If coronavirus anxiety shows up, try to share the fear with others, which will calm the fear, and also try to increase self-awareness by getting adequate sleep, exercising regularly and employing different relaxation techniques.

## **OBSERVATIONS**

No definite treatment is available for the treatment of the COVID-19 infection. Prevention is the best strategy to combat the COVID-19 pandemic. Prevention is not a difficult task as it is commonly thought to be. For the effective prevention of COVID-19, broadly two types of precautionary measures to be taken, as mentioned below:

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1. General precautionary measures: It is meant for everybody in the community.
2. Specific precautionary measures: It is meant for persons who are sick, close contacts of COVID-19, travellers and healthcare workers.



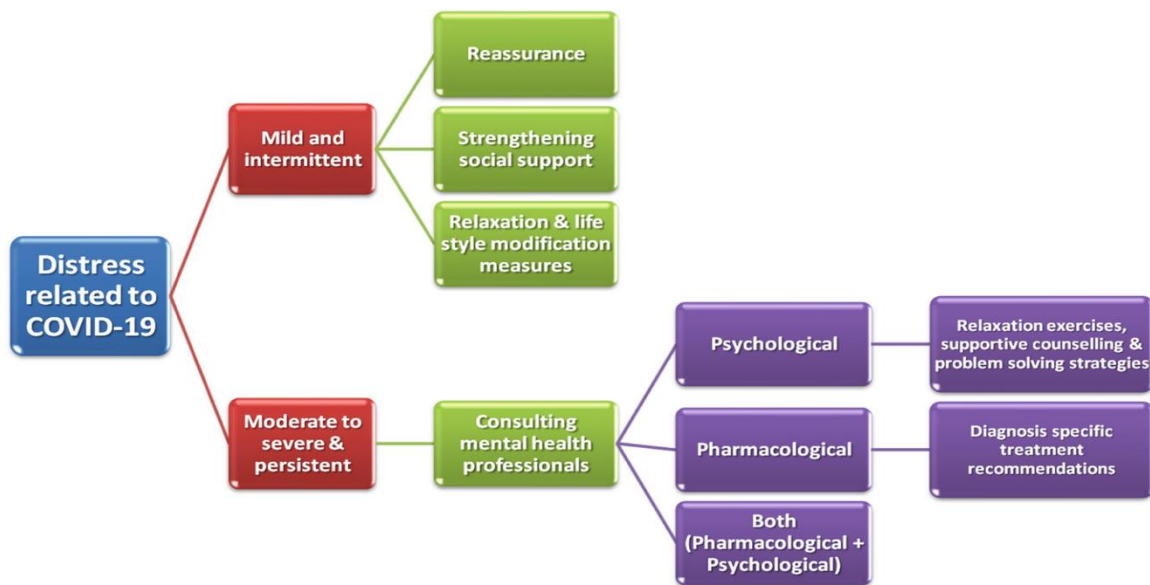
**Fig: Showing General and Specific precautionary measures**

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## DISCUSSION

Yoga has been proposed as a non-pharmacological intervention for mental issues (e.g., stress, fear) and disorders, either alone or in combination with other interventions. For example, significant improvement in people with post-traumatic stress disorder has been reported following Yoga interventions. Also, it has been found effective in reducing perceived stress, reducing fatigue in people with cancer, improving blood sugar regulation in people with diabetes mellitus, diastolic blood pressure, and symptoms of menopause, chronic bronchitis, and asthma. Yoga can enhance emotional control, and improve self-efficacy, self-confidence, and overall quality of life.

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



**Fig: Management of Covid 19**

Modern medical care and health systems are being tested to the hilt for effective management of COVID-19. However, there are several gaps. We must remember the basic principle in medicine that “prevention is better than cure.” The simple and feasible measures based on Ayurveda and Yoga could be quickly advertised in public-health campaigns through electronic and print media and information brochures for public distribution and display at prominent locations. The Ministry of AYUSH, Government of India, has already issued a very useful advisory in this context. People are overstressed by the compulsions of social distancing and physical barrier methods. They are likely to find comfort and support in some of the deeply rooted traditional practices that may protect them from the infection and its associated debilitating conditions. Noticeably, these interventions have the advantages of simplicity, affordability, and acceptability and appear promising as feasible measures for large-scale

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implementation. Ayurveda, Yoga, and meditation have a potential role to engage the community in creating a more positive health environment. Admittedly, there is need for more research. It was welcome news to learn that the United States National Institutes of Health, National Center for Complementary and Integrative Health has engaged a stress-related initiative and is reportedly considering others. Another timely initiative is the launch of the traditional, complementary, and integrative health and medicine COVID-19 support registry to document practices and products. The evidence presented here should draw the attention of stakeholders, including the World Health Organization, to the unexplored potential of traditional medicine systems and adopting integrative approaches in the search for solutions for the COVID 19 crisis. It is high time to embrace integration with an open mind.

### CONCLUSION

Taken together, while several reviews suggest positive benefits of yoga, various methodological limitations limit the generalizability of these promising study findings. It is quite likely that yoga may help to improve patient self-efficacy, self-competence, physical fitness, and group support, and may well be effective as a supportive adjunct to mitigate medical conditions, but not yet as a proven stand-alone, curative treatment. Confirmatory studies with higher methodological quality and adequate control interventions are needed.

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**CRITICAL APPRAISAL OF EFFECTIVE ROLE OF ASANA & PRANAYAMA  
AMONG ASHTANG YOGA TO COMBAT MENTAL AILMENTS DURING COVID-  
19 CRISIS**

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## **INTRODUCTION**

- **Current scenario of Covid-Pandemic & Need of the topic**

As the world faces a pandemic, the immune system plays a major role in combating such infection. The current luxuries but stressful modern life offers certain metabolic conditions, e.g., Obesity, hypertension, and cardiac problems, adversely affecting immunity and making such people more vulnerable. It becomes quite difficult to avoid such stressful, unhealthy, and unstable environments despite having high-tech medical facilities. In short, our mental stability is deteriorating day by day during the rush and bustle of modern life.

Moreover, the current Covid-crisis has adversely affected various mental health services in 93% of nations globally. Multiple psychological responses and mental health ailments were observed among all types of Indian and foreign populations irrespective of gender, profession, etc., in this global crisis of the COVID-19. Children and older people, frontline health workers, and people with pre-diagnosed mental health issues are more prone to getting such entities.

According to the study conducted by Anand V et al. 2021, there are multiple psychosocial factors responsible for affecting the mental health as a result of stress among the Indian population during the Pandemic of novel Covid-19 the travel restrictions, closure of educational institutions, offices, and commercial activities in India are some important causative factors among them. Therefore, the need to expand such services becomes imperative in this current era due to various mental illnesses worldwide while the demand for mental health is increasing, according to a new WHO survey. However, *Yoga* is one of a holistic way of natural healing that helps to establish harmony in all body, minds, and souls and offers more value to our existence in this scenario as it acts on all the systems and contributes to a healthier life. It also has deeper action, especially over the nervous system, and lowers stress. Therefore, the role of *Yoga* in the current scenario is undeniable. It is not only essential for maintaining good physical but also mental wellness. *Yoga* instructs about how to live a healthy lifestyle. It helps us focus, be more creative, and remember things better. Another benefit of *Yoga* in modern life is that it strengthens our muscles, increases stamina, enhances our immune system, and improves mental health. In this way, *Yoga* can offer a good efficacious role to enhance and maintain mental health in the current dreadful scenario.

This paper highlights the beneficial role of various Asanas, i.e., yogic postures and breathing exercises, i.e., *Pranayam* among *Ashtang Yoga*, over mental health based on *Ayurvedic* and contemporary findings.

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The related information pertaining to the above-said aim is compiled from various classical books of Ayurveda, Yoga and research articles from scientific databases. All this information is depicted under different subheads and heads.

### **GENERAL INTRODUCTION OF THE ASHTANG YOGA**

*Yoga* has its roots about 5000 years BC as described in *Vedic Philosophy* and *Tantras*. In traditional Indian books, types of *Yoga* are *Raja Yoga*, *Hatha Yoga*, *Laya Yoga*, *Karma Yoga*, *Jnana Yoga*, etc. *Hatha Yoga* and *Raja Yoga* are linked in a way. *Hatha Yoga* is the path for *Raja Yoga*. *Raja Yoga* is the supreme *Yoga*. *Ashtanga Yoga* is based on the *Yoga* philosophy of *Patanjali*. Here, “*Ashta+Anga*” means eight limbs of *Yoga*.

*Yama* and *Niyama* are the first steps of *Ashtang Yoga*. They are the most practical places to begin since they are immediately related to how you act in the world and inwardly toward yourself. There are five components of *Yama*, i.e., *Ahimsa* (concept of application of the ultimate non-violence especially in speech, work, and other areas), *Satya* (follow the principle of honesty), *Asteya* (the principle of non-stealing anything of which you are not the owner); *Brahmacharya* (the principle of self-control regarding own passions, avoiding extravagances, laxity, and impiety) *Aparigraha* (the principle of non-possessiveness).

*Niyama* can be elaborated under five subheads as follows as *Shaucha* (Both Internal and external cleanliness), *Santosha* (Feeling of happiness & Satisfaction), *Tapas* (Asceticism is a principle that states that to attain one's goals, one must reject something), *Svadyaya* – a commitment to the notion of self-research and self-understanding, as well as the study of spiritual literature regularly; *Ishvara-Pranidhana* – the practice of considering God (*Ishvara*) to be the only aim of one's existence.

Pranayama consists of specific breathing exercises or techniques. It is a simple but effective way to promote balanced systems. *Asanas* are pre-procedure to pranayama. *Prana* is the vital energy of the universe. Inhalation of breath also includes *Prana* and thus affects the functions of our body. It affects circulation and secretion functions. Therefore, it improves heart activity, digestion and enhances the function of the endocrine system and lymphatic systems.

*Pratyahara*, *Dharana*, *Dhyana*, and *Samadhi* are the measures for internal cleansing. It requires control over the mind. All these limbs of *Yoga* are interconnected with each other.

### **VARIOUS MENTAL ILLNESSES OCCURRED IN PANDEMIC**

Acute panic attack, anxiety, neurotic behaviours, obsession, depression, post-traumatic stress disorder, suicidal tendency are observed as adversely impacting the environment in the lockdown period during Pandemic. Similar symptoms are observed in all types of age groups, including children also.

As a result of depression, such mental issues are associated with specific symptoms such as lack of fresh mood, fatigue, negativity, Insomnia or lack of sound sleep, lack of appetite or unwillingness to take food, feeling helpless, guilty, and depressed, or lack of optimistic approach with a progressive deterioration in working capacity or gradual reduction in work output. As evidence shows, generally all age groups, Children, school-going children, teenagers, college-

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going students, adults, and geriatric populations are affected with such mental ailments. Khunti K et al. states that the horrible situation of COVID-19 has adversely affected the mental health and well-being of the children.

Moreover, persons with specific professions, e.g., Front line health workers, Businessman, housewives, lower social-economic groups, peddlers, are extensively vulnerable to getting such type of issues due to different reasons such as excess workload, lack of quality time, loss of income source due to lockdown and covid guidelines, etc. However, all above –said persons can become good beneficiaries for the advantages of regular practices of Yoga, mainly Asana and Pranayama.

### **PROBABLE MODE OF ACTION REGULAR PRACTICES OF ASANA AND PRANAYAMA OVER MENTAL HEALTH**

Yoga acts on all the systems and contributes to a healthier life. All limbs of Yoga are interconnected with each other. Among them, *Niyamas* play an important role in personal hygiene and enhancing mental well-being in the current scenario. At the same time, the combination of *Asanas & Pranayam* helps increase oxygen in cells and improves digestion. The application of both these practices has systemic & cellular action. Moreover, it also has deeper action over the nervous system to lower stress and keep the person's mental health intact.

- **Role of *Pranayam*, i.e., specific breathing exercises**

The available current researches show that regular practices of Asanas and Pranayama store both physical and mental health. As COVID-19 is one of the respiratory tract infections, Pranayam, i.e., specific breathing exercises, plays a crucial role in maintaining the competency of main organs involved in the respiratory system and boosting their efficiency. It is strongly supported by the evidence noted by a randomized controlled trial conducted by Dinesh T et al. 2015. This study concluded that regular sessions of slow and fast pranayama for consecutive 12 weeks improve pulmonary function in healthy persons. The cardio respiratory efficiency of different Yogic practices in Indian healthy populations is also justified by a study conducted by Akhiani P et al. 2019. The beneficial and effective role of the same in young females is also highlighted by Yadav RK et al. 2001.

The specific but regular application of *Asanas & Pranayam* in a scientific manner for optimum time maintains mental health by reducing anxiety, dyspnoea, shortness of breath that occurred as a result of anxiety & mental irritation. Ultimately, it becomes helpful to induce calmness & mental stability in the panic stage of the Covid Pandemic. According to *Ayurveda's* perspective, it eliminates *Strotorodha*, i.e., obstruction present in the circulatory, especially respiratory channels leading to the vital organs, e.g., heart, lungs, etc. It makes them competent to provide the oxygenated blood and energy to all over the body that helps other nutrition and builds their cellular level immunity. Moreover, both types of Yogic practices facilitate the downward movement of *Vata* (flatus), induce stimulation of Agni (digestive enzymes), improve digestion, avoid constipation, induce drying up of *Kapha*, and ultimately check over the further pathogenesis of *Vata-Kapha* related physical as well as mental disorders.

According to Nagarathna R et al. 2020 & Tanwar AK et al. 2020, such Yogic practices can become a nonpharmacological but good preventive strategy or approach for managing various mental ailments due to coronavirus disease. As per Tillu G et al. 2020, it can become a good option for prophylaxis of COVID-19 and maintaining public physical and mental health in this scenario.



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According to Domingues RB et al. 2018, Modern postural Yoga can become an excellent tool to promote mental health. Bhagat DS et al. also supported the above statement by quoting that regular Practices of various Yogic postures and techniques help sustain psychological and Physical Fitness in such a type of Pandemic.

The previous research conducted by Srivastava S et al.2017 stated that Bhramari *Pranayama* effectively combats various mental entities among teenagers & college students. On the other hand, *Bhastrika*, *Kapalbhati*, and *Anulom Vilom Pranayam* proved to be effective and safe to restore mental health during the crisis of Covid-19 as per a study conducted by Barmola KC et al. 2020. Among the different techniques of *Pranayam*, both *Bhramari Pranayama* and *Jyoti Dhyan* are also beneficial for such persons and same age group, which is proved and supported by Sahu KP et al. 2015 through their positive effects on contemporary parameters, i.e., alpha EEG and Hemoglobin. While the beneficial role of Yoga and mindfulness to tackle anxiety and depression, especially in health professionals those highly affected in this dreadful situation of Pandemic, is stated by a literary study done by Butterfield N et al.2017.

As we are already aware that compromised status of the immune system of the body is favorable for getting an infection of Covid-19, but; Kochupillai V et al.2005, justified the role of *Sudarshan Kriya* and *Pranayam*, i.e., rhythmic breathing exercises are helpful to strengthen the immune system of such people especially having addictions, e.g., tobacco.

According to Zope SA et al.2021, *Sudarshan Kriya Yogacan* serve as an excellent tool to improve breathing capacity & performance for persons affected during covid-19 and avoid other post-Covid complications. Along with that, such *Pranayam* techniques positively impact the individual's working capacity, family and social relationships, health, and spirituality .

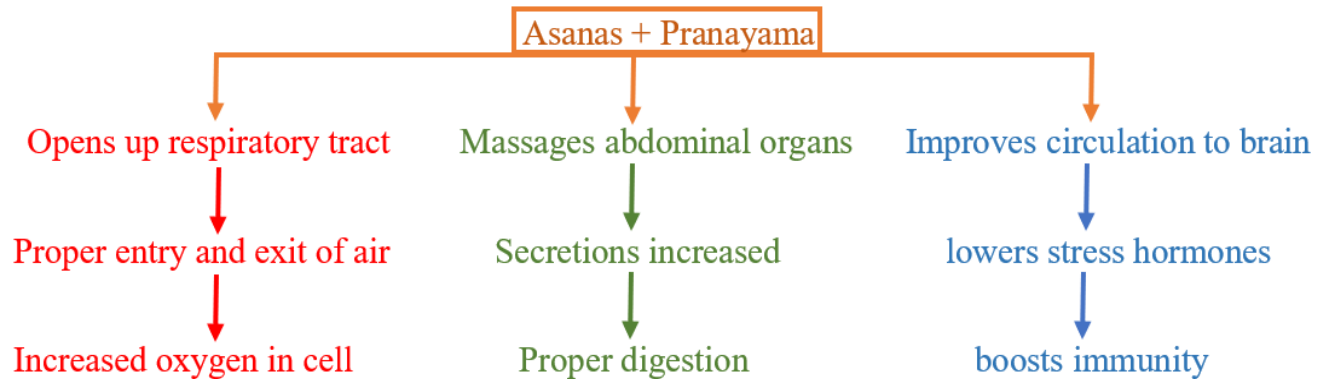
- **Role of Asanas**

Various Yogic postures, i.e., *Asanas*, are quite helpful and effective to maintain physical fitness in lockdown period, sustain the activeness of the mind and body, retain the flexibility of the body, avoid weight gain or various symptoms related to gastrointestinal symptoms that occurred due to sedentary lifestyle in the lockdown, & induce freshness of the mind. The effective role of different yogic exercises in maintaining the physical and mental health of the young population is proved by US RAY SM et al. 2001. It is also supported by Gururaja D et al. 2011. Through their study conducted in Japan.

According to Akhtar P et al. 2013, Yoga is also helpful to enhance the individual's functional capacity. On the other hand, as per findings noted by Kumar P et al. 2016, such practices and exercises are also useful for adolescents to restore their mental health.

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**Fig.1** Flowchart of the mode of action of *Yoga*



In a nutshell, the concise mode of action of Asana and *Pranayam* can be depicted in fig. no.1. These various breathing exercises might help people with their busy schedules by improving their coordination and reaction time. It also enables individuals to concentrate better and be less distracted by their thoughts. Regular breathing practices of Yoga aids relaxation and shift the sympathetic equilibrium of the nervous system to the parasympathetic nervous system. As a result, the heart rate, respiration, and blood pressure are all reduced. These practices are useful for enhancing the comprehensive skill for maintaining harmony between bidirectional feedback and inputs from and somatosensory, viscerosensory, and chemosensory. It also modulates signals from the autonomic nervous system, central nervous system (CNS), and afferent and re-afferent inputs from interoceptive processes in a synergistic manner.

One of the most important things is that all types of Yogic practices teach to be present at the moment. Regular practices of *Yoga* enhance both IQ and memory. Though there is the effectiveness of the above-said *Yoga* is narrated, there are certain contra-indications of each procedure; therefore, all such practices should be done under the supervision of the *Yoga* expert or should be implemented as per their advice, especially for their indications, contra-indications, scientific techniques, frequency and time.

## **CONCLUSION**

Our current lifestyle, which includes cell phones, laptops, televisions, and social media, stressful and panic stage of Covid Pandemic, bombards our focus and concentration every day. Thankfully, Yoga can help all global populations to stay focused and increase engagement by bringing our consciousness to the present moment. Especially, *Pranayam & Asanas*, i.e., various yogic postures, can play efficient preventative, main, and adjuvant roles to address mental health issues associated with Covid –Pandemic. It can become an integral part of lifestyle and treatment approach to develop and maintain a positive attitude, especially vulnerable persons. It can become a good nonpharmacological and holistic mind–body technique for preventive strategies to tackle this global crisis's mental ailments.

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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## DEPRIVATION OF SLEEP DUE TO COVID PANDEMIC LEADING TO MENTAL HEALTH ISSUES

Vd. Varnika Singh

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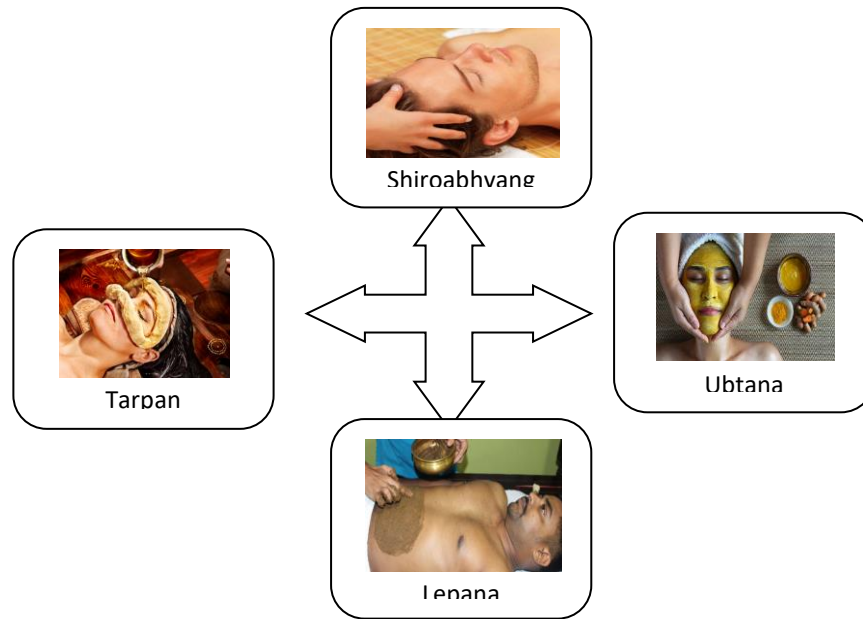
Whenever somebody hears the name of COVID they experience a devastating health condition, distress everywhere as far as can be seen and a huge burden on mental health with lots of anxiety. This pandemic creates a chaos in humans not only at the physical level but also at the level of mental health in which the factors, fear, stress, depression, and sleep disorders are on the top list in almost all the generations of humans and all the strata of society.

To maintain the proper health and peace of mind, *Nidra* (Sleep) seems to be inseparable part of it, but during this shattering phase of Covid pandemic, sleep which is considered as a vital part of life remains unnoticed. Most of the front-line health workers, parents of small children, and different kind of communities experienced lack of sleep, due to which emotional and mental health issues never stop to hover them. Humans undergo the uncertainty of life and forced to experienced unemployment, home isolations, schooling from home, work from home and apart from all this, the big mental torture was no contact to your loved ones, your close family members, friends in person. During this phase no one got the proper sleep which is an important part of mental peace as everyone was so scared about the situation that what could be the next.

*Nidra* (Sleep) is one among three sub pillars (*Trayoupstambha*) of health mentioned in the Ayurveda. Sleep is very much essential for one's life to be in healthy state, as sleep reactivates our energy which we lose in our daily work life. Intake of complete and incomplete sleep is responsible for prevention and production of various diseases respectively including life style disorders. Acharya Charaka has clearly stated, that a daily good quality sleep is not only helps to maintain present well-being but serves as a prophylactic against coming diseases and provides a superior quality of lifespan.

Through emotional and spiritual terms, communities have to make essential roles to improve mental health of the people. A recent study publicized that there are key relations between increased social support through the appearance of sympathy which helps in improving declining sleep quality, anxiety, and stress in health care workers. Likewise in Ayurvedic *Samhitas* a lot of non-pharmacological intervention has been given to combat the situation of Covid pandemic. Some non-pharmacological interventions are *Abhyang/Shiroabhyang* (Massage of the body or head with medicated oils), *Ubtan* application (Body scrubbing with medicated powders), shower with warm water, *Lepan Karma* (Coating of the body with medicated pastes), *Tarpana Kriya* (Rehydration therapy of eyes) have been mentioned. To make sleep undisturbed. Acharyas mentioned *Snighdha* (Ghee, oil), rice, curd, milk products to eat for good quality sleep. Apart from this Yoga and *Pranayama* (voluntarily regulated breathing) are also high-quality therapies to promote a better sleep and well being. Yoga is a way of life which brings peace of mind and healthy living. One of the studies was conducted to compare the effects of Yoga and Ayurveda on the self-rated sleep in a geriatric population. In which the Yoga group showed a significant decrease in the time taken to fall asleep with the value of  $P < 0.05$  which interpreted that Yoga practice improved the sleep pattern.

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**Fig. 1: Showing different kinds of non-Pharmacological interventions to improve the sleep in mental health condition.**

This pandemic has greatly affected nations globally due to which the entire human race is in the state of mental dilemma as sleep is detrimentally affected due to COVID-19. So this chapter highlights the impact of sleep with consideration of Ayurvedic non-pharmacological intervention mentioned in *Samhitas*. These therapies not only help in providing good quality of sleep even helps to maintain mental peace also which was affected due to Covid-19.

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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## FEW IMPORTANT HERBS FOR MENTAL HEALTH PROMOTION IN COVID 19 PANDEMIC

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### INTRODUCTION

In the wake of an unprecedented and deadly pandemic of Novel Corona Virus Disease (COVID-19), the entire mankind is drenched in miseries and deaths. Almost 185 countries have been trapped by the inexorable inter-continental spread of this infection which has massively afflicted the human health. There are currently 244,622,325 confirmed cases and 5006936 deaths in 221 countries and **territories**. Not only physical health but also the mental health has been jeopardized by this disease. The commonest triggers of mental health conditions in COVID 19 pandemic are bereavement for the lost ones, isolation, quarantines, loss of income causing financial stress, fear of illness and death, excessive influence of social media, relationship stress, marital conflicts and domestic violence. Most of the efforts made by the researchers and medical practitioners are focusing on the physical ailments caused by SARS-CoV-2 thereby nearly neglecting the mental issues emerging in COVID 19 patients. Also, a major portion of the country's national health budget is consumed in the management of physical health and only less than 2 **per cent** is spent on mental health even when 13% of the world population is affected by MNS (Mental, Neurological and Substance use) disorders as per **Mental Health Statistics 2021**. However, now it has been globally acknowledged that COVID 19 has been a potent disrupter of mental health as it has not only exacerbated stress and anxiety at an unprecedented scale reaching all strata and ages but it has also disrupted critical mental health services in 93% of countries **worldwide**. On 10<sup>th</sup> October 2020 (World Mental Health Day), Dr. Tedros Adhanom Ghebreyesus, Director General of World Health Organization admitted this and said, "Good mental health is absolutely fundamental to overall health and well-being. COVID-19 has interrupted essential mental health services around the world just when they're needed most. World leaders must move fast and decisively to invest more in life-saving mental health programmes – during the pandemic and **beyond**." According to a study conducted by American Psychiatric Association (APA), more than one-third of Americans (36%) say coronavirus is having a serious impact on their mental health and most (59%) feel coronavirus is having a serious impact on their day-to-day **lives**. In such trying times, China successfully included its Traditional Chinese medicine (TCM) system into its mainstream health **care** and eventually gained control **over it**. Realizing the need to include plural systems of knowledge within the domain of our consideration and in coherence with the success of TCM, it is logical and essential to explore how Ayurveda (science of life) can help in addressing the COVID-19 **challenge** especially the issue of mental health raised by COVID-19 so as to break the chain at the earliest.

Ayurveda, being the oldest indigenous and traditional medicine system of India has come a great way and been still not lost its popularity. House hold ayurvedic remedies are quite common in every family available as per the needs. People are fond of growing medicinal herbs especially neem, tulsi, turmeric, giloy etc. to supplement their health, build immunity and aid in common health ailments like fever, cold, cough etc. The consumption of decoctions (known as *Kadha* in Hindi) made up of

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medicinal herbs has been apparently evident as a common measure among the masses in this crisis of pandemic. Even for the variety of mental ailments, there are several Ayurvedic herbs available which can potentially curb it and help in sustaining a good and undisturbed mental status. As we all know that deteriorating mental health can exacerbate mental health can exacerbate the physical illness and can further worsen the condition, we should also put efforts to safeguard it because a complete healthy state cannot be achieved without this. The definition of “health” as per World Health Organization is the state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. William Sweetzer was the first one to coin the term mental health in 1843. ‘Mental Hygiene’ has come a long way since then. Ayurveda also advises the role of mental health in complete wellbeing of an individual which is completely evident by the shloka “*samdosha samagni cha sama dhatu malakriya prasanna atmendriya manah swatha iti abhidhiyate*”, which means that one who is established in self, who has balanced *doshas* (primary life force), balanced *agni* (fire of digestion), properly formed *dhatu*s (tissues), proper elimination of *malas* (waste products), well-functioning bodily processes, and whose mind, soul and senses are full of bliss is called a healthy person. There is general need for all of us to realize the eminent role of mental health and the crucial role of ayurvedic medicinal herbs in augmenting mental health care. *Medhya Rasayanas* are group of medicinal plants described in Ayurveda (Indian system of medicine) with multi-fold benefits, specifically to improve memory and intellect by *Prabhava* (specific action). *Medha* means intellect and/or retention and *Rasayana* means therapeutic procedure or preparation that on regular practice will boost nourishment, health, memory, intellect, immunity and hence longevity. *Medhya Rasayana* (Nootropic drugs) is a group of 4 medicinal plants that can be used singly or in combinations. They are *Mandukaparni* (*Centella asiatica*), *Yastimadhu* (*Glycyrrhiza glabra*), *Guduchi* (*Tinospora cordifolia*) and *Shankhapushpi* (*Convolvulus pleuricaulis*), specially mentioned with wide range of applications on different systems. Yet in practice few more handful drugs used with same aim are mentioned elsewhere in the Ayurveda classical textbooks. They are *Aindri* (*Bacopa monniera*), *Kushmanda* (*Benincasa hispida*), *Jyothishmati* (*Celastrus panniculata*), *Vacha* (*Acorus calamus*) and *Jatamamsi* (*Nardostachys jatamamsi*). *Medhya Rasayana* can be used either in polyherbal preparations or alone. Cognitive deficits that present with many of neuropsychiatric conditions and/or alone as developmental deficit symptoms demand the use of nootropic drugs to boost cognitive abilities. Recently, there has been a tremendous urge to explore medicinal plants globally to improve cognitive function owing to their less adverse effects. Ayurveda provides a list of medicinal herbs with nootropic activity along with multi-dimensional utility in various conditions. The plausible use of *Medhya Rasayana* (intellectual enhancer) can not only arrest mental health degradation due to reverberating effects of lockdown but can also abate the recurrence rates. *Sodhana* and *Rasayana* therapy can be explored as a reasonable option for rehabilitation. The Ministry of AYUSH, Government of India has issued several advisories like daily practice of *Yogasana* (balanced body postures), *Pranayama* (control of breathing), and meditation, consumption of *Rasayana drugs* with the main focus on immunomodulation, symptomatic treatment and self-care amidst this COVID-19 crisis. More and more use of medicinal herbs for mental health care can be practiced especially by Post-Covid patients so as to conserve mental equilibrium in concurrence with the restored physical health.



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## MATERIALS AND METHOD

A sincere and deep analysis of various classical Ayurveda textbooks and their available commentaries has been done. They were critically reviewed and interpreted for this study. Modern texts, websites, articles have also been explored for the same.

## DISCUSSION

Intense research is going on against this deadly Covid-19 disease across the globe since no specific drug against the virus is available at present. Although some drugs have been used empirically, the present emphasis is more on prevention of the spread of the infection. Ministry of AYUSH advises social distancing, wearing of masks, maintenance of hygiene, sanitization, home isolation for the suspected cases, quarantine of the positive cases, use of medicinal herbs and herbo-mineral formulations, therapeutic procedures like *Nasya* and steam in halation etc. and it has shown promising results. Since there is a huge impact of *Manas* (mental health) on the overall health of an individual, AYUSH ministry has laid special stress on following Yoga Protocols along with certain life style modifications like intake of proper sleep, meditation, Pranayama etc. According to Ayurveda, the communicable diseases are mentioned under *Janapadoddhvamsa* (~communicable diseases affecting an entire country or the whole world) impairment of *Vayu* (~air), *Udaka* (~water), *Desha* (~land) and *Kala* (~season) and are more lethal in their consecutively increasing order.<sup>[11]</sup> *Adharma* (~unrighteousness) is the root cause of vitiation of all factors and is led by *Pragyapradha* (~intellectual error). *Sansargaja* (~diseases transmitted directly through close contact or droplet infection) and *Upsragaja* (~diseases transmitted indirectly through contaminated surfaces), are also mentioned in **Ayurveda**. Ayurvedic management of these infectious diseases can be preventive and curative. Preventive care is based on the concepts of “*Dinacharya*” (~daily regimes) and “*Ritucharya*” (~seasonal regimes). These help in maintaining health, immunity and longevity. *Panchakarma* (~bio-purification) and *Rasayana* (~immunomodulators) can be properly planned for people in the risk-prone areas to improve immunity and minimize the risk of **infection**. It is noted that certain viral infections occur in a specific period of the year when either the weather is favorable for viral potency or there are potent vectors to primarily infect individuals with low immunity. Immunity has been seen playing a very decisive role in this pandemic. Enhancement of immunity (*Vyadhikshamatva*) plays an important role in maintaining optimum health and preventing such communicable diseases. It encompasses two-fold management, respectively of health and disease. *Vyadhikshamatva* is the resistance of the body to fight a disease by either of the following two ways: a. *Vyadhi-Bala-Virodhitvam* – The resisting power of the body to restrain or withstand the strength or severity or progression of a disease or b. *Vyadhi-Utpada-Pratibandhatvam* – The resisting power of the body to prevent the manifestation of a **disease**. Various modifiable factors have been enlisted in Ayurveda that influence the host defense responses (*Bala/Vyadhikshamatva*). These factors include a healthy diet (*Pathya ahara*), condition of biological humors (*dosha*) and the state of physical and mental health (*Shareera*). As most of the countries are busy tackling the peak of COVID-19, the long-term adverse effects of lockdown and information overload on mental and physical health is not worth ignoring. Use of *Medhya* and *Balya Rasayana* therapy for the prevention of recurrence in recovered patients and *Sodhana* and *Rasayana* therapy as a rehabilitation can be explored to help restore the original state. Invariably, Ayurveda advises proper *Ahara* (~diet) and *Nidra* (~sleep) to maintain the state of health. Complement with the advisory of *Nidra* (~sleep)

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and *Acharya Rasayana* (~behavioral therapy of Ayurveda) can be further prospective for managing Post-Covid non communicable **syndromes**.

In Ayurveda, *Medhya Rasayanas* are group of medicinal plants described with multi-fold benefits, specifically to improve memory and intellect by *Prabhava* (specific action). Memory is combination of power of acquisition of knowledge/ information (*Grahan*), retention (*Dharan*) and recollection (*Smaran*). *Vata*, *Pitta* and *Kapha* are the three psychobiological dimensions (energy) or biological rhythms regulating the entire functioning of the human body. *Pitta* is responsible for understanding and attaining knowledge due to its *Satva*, *Aashukari* and *Tikshna* property. *Vata* is responsible for association of ideas. *Kapha* provides stability which is necessary for retention of **memory**. *Medha* means intellect and/or retention and *Rasayana* means therapeutic procedure or preparation that on regular practice will boost nourishment, health, memory, intellect, immunity and hence longevity. *Medhya Rasayana* is a group of 4 medicinal plants that can be used singly or in combinations. They are *Mandukaparni* (*Centella asiatica* Linn.), *Yastimadhu* (*Glycyrrhiza glabra* Linn.), *Guduchi* (*Tinospora cordifolia* (Wild) Miers) and *Shankhapushpi* (*Convolvulus pleuricaulis* Choisy), specially mentioned with wide range of applications on different systems. A few more handful drugs used with same aim are mentioned elsewhere in the Ayurveda classical textbooks. They are *Aindri* (*Bacopa monniera*), *Jyothishmati* (*Celastrus panniculata*), *Kushmanda* (*Benincasa hispida*), *Vacha* (*Acorus calamus*) and *Jatamamsi* (*Nardostachys jatamamsi*). *Medhya Rasayana* are used either in polyherbal preparations or alone.

*Mandukaparni* (*Centella asiatica* Linn.) is a prostrate, stoloniferous perennial herb whose fresh juice is used for therapeutic purposes as *Medhya* (cognitive enhancer). Major constituents include saponins like medacoside, asiaticoside, medacassoside, **acetic acid etc.** These neuroprotective promote brain growth and act on **behavior**. Direct or indirect modulation of ATPase activity may account for Anti-seizure **activity**. *Centella asiatica* inhibits the memory impairment induced by scopolamine through the inhibition of **AChE**. BR-16A (Mentat), a formulation containing *Centella asiatica* proved for its antistress **effects**. Methanol extract of *Centella asiatica* show free radical scavenging and DNA damage protection activity.

*Yastimadhu* (*Glycyrrhiza glabra* Linn.) is a hardy herb or under shrub which belongs to Fabaceae family. Fine powder of dried root is used internally with milk for therapeutic purpose as *Medhya*. Active ingredients are glycyrrhizine, flavonones, isoflavones, glycyrrhetic acid, six phenolic compounds. Multidimensional activities of *Yastimadhu* may be attributed to glycyrrhizine and flavonones. The roots and rhizomes of *G. glabra* has been studied with respect to spatial learning and passive **avoidance** preliminary free radical **scavenging** cerebral **ischemia** and antioxidant **capacity**. *Glycyrrhiza glabra* aqueous extract markedly improves anti hypoxic **effects**. Its roots and rhizomes have an efficient brain tonic and have significant action on memory enhancing activity in **dementia**.

*Guduchi* (*Tinospora cordifolia*) is a large glabrous, deciduous, climbing shrub of Menispermaceae family whose juice is used therapeutically as *Medhya*. It is also used in the form of decoction, powder and *Satwa* (starch extract of stem). Its root is known for its anti-stress, anti-leprotic and anti-malarial **activities**. Chemical constituents' classes are alkaloids, diterpenoid lactones, glycosides, steroids, sesquiterpenoid, phenolics, aliphatic compounds and polysaccharides. Neuroprotective and ameliorative properties are due to their antioxidant and trace element **contents**. *Tinospora cordifolia* is known to be a rich source of trace elements (Zinc and Copper) which act as antioxidants

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and protects cells from the damaging effects of oxygen radicals generated during immune **activation**. It has been claimed to possess learning and memory enhancing, antioxidant, cognitive enhancement and anti-stress activity. .

*Shankhapushpi* (*Convolvulus pleuricaulis*) is a perennial, prostrate or sub erect spreading hairy herb. It is highly regarded as *Medhya* (intellect promoter). Important chemical principles are microphylllic acid, shankhapushpin, kaempferol-kaempferol-3-glucoside, 3, 4 dihydroxycinnamic acid, sitosterols. It possesses neuroprotective, intellect promoting activity, free radical scavenging, antioxidant **property** and anti-stress activity. Ayushman-8 (containing *Shankhapushpi*, *Brahmi* and *Vacha*) reported to be effective on *Manasa-mandata* (mental retardation). *Shankhapushpi* compound containing *Shankhapushpi*, *Sarpagandha*, and *Gokshura* in equal quantities studied to be effective in *Chittodvega* (anxiety disorders). Sanjay Parsaniareported *Shankhapushpi* to be effective in relieving signs and symptoms of *Chittodvega* (anxiety disorders). Herbalists believe that *Shankhapushpi* calms the nerves by regulating the body's production of the stress hormones, adrenaline and cortisol.

*Aindri* (*Bacopa monniera*) commonly called as *Brahmi* is a small, creeping marshy herb grown throughout India and it belongs to Scrophulariaceae family. Properties are said to be similar to that of *Mandukaparni*. *Bacopa monniera* is a well-known nootropic plant reported for its **tranquilizing, sedative action, cognitive enhancer, hepatoprotective, memory enhancer** and antioxidant **actions**. is a saponin rich plant. Bacosides are the main active nootropic principal present in the alcoholic extract of **the plant**. It is mainly utilized in the treatment of memory and attention **disorders**.

*Jyotishmati* (*Celastrus panniculata*) is a large, woody, climbing shrub with ovate leaves found all over India. Seed oil (*Jyotishmati Taila*) is known for **Medhya action**. This oil contains several terpenoids like paniculatadiol, b-sitosterol, celastrol, b-amyrin, pristimerin, but its most investigated components are its many sesquiterpenoids, dihydroagarofuran-type polyols or **esters**. It also exhibits antioxidant **activity**.

*Kushmanda* (*Benincasa hispida*) belonging to Cucurbitaceae an extensive trailing or climbing herb cultivated throughout the plains of India as a vegetable. The fruit, broadly cylindrical, is covered with a waxy bloom. Phytochemical analysis of *Benincasa hispida* shows presence of alkaloids, flavinoids, saponins and steroids. *Benincasa cerifera* serves as Reactive oxygen species scavenger and an antioxidant effective agent. It has a tissue protective preventive effect on colchicine induced Alzheimer's disease via direct and indirect antioxidant activity. *Kushmandadi Ghrita* showed significant results in the management *Chittodvega* (anxiety disorders).

*Vacha* (*Acorus calamus*) of Araceae family is a semiaquatic, perennial, aromatic herb grown all over India. Rhizome is useful part having *Medhya* quality. It has been used in Indian and Chinese system of medicine for hundreds of years to cure diseases especially the central nervous system (CNS) abnormalities. Active chemical principles are  $\alpha$ -asarone, elemicine, cis-isoelemicine, cis and trans isoeugenol and their methyl ethers, camphene, P-cymene, b-gurjunene, a-selinene, b-cadinene, camphor etc. It has been proved for its analgesic and anticonvulsant, hepatoprotective, antioxidant, antimutagenic, sedative and hypothermic effects. Good in clearing speech to the children and useful in schizophrenic psychosis.

*Jatamamsi* (*Nardostachys jatamamsi*) is an erect perennial aromatic herb with long, stout, woody, greyish, rhizomatous, tail-like rootstock covered with reddish-brown hairs or tufted fibrous remains

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of the petioles of withered radical leaves and belongs to Valerianaceae family. Rhizome is used for medicinal purposes as it is *Bhutaghna* or *Manasa Doshahara* (relieves of psychiatric problems) and *Medhya*. Roots and rhizomes of *N. jatamansi* are used to treat hysteria, epilepsy, and convulsions. The decoction of the drug is also used in neurological disorders and insomnia, Rhizomes contain a terpenoid ester, nardostachysin I which has been proven to be a learning and memory enhancer.

Ashwagandha (*Withania Somnifera*) belongs to Solanaceae family. It is commonly known as “Indian Winter cherry” or “Indian Ginseng. It is one of the most important herbs of Ayurveda (the traditional system of medicine in India) used for millennia as a Rasayana for its wide ranging health benefits. Rasayana is described as an herbal or metallic preparation that promotes a youthful state of physical and mental health and expands happiness. These types of remedies are given to small children as tonics, and are also taken by the middle-aged and elderly to increase longevity. Among the ayurvedic Rasayana herbs, Ashwagandha holds the most prominent place. It is also known as “Sattvic Kapha Rasayana” herb. Alkaloids (isopelletierine, anaferine etc.), steroidal lactones (withanolides, withaferins) and saponins are its main phytochemicals. It serves as a potent nervine tonic. It improves endurance and provides cell mediated immunity. It also has an adaptogenic / anti-stress, antioxidant properties, anxiolytic effect, cognition promoting effect, GABA mimetic effect and dendrite formation effect. It is useful in neurodegenerative diseases such as Parkinson's and Alzheimer's diseases. It improves energy levels and mitochondrial health. It has anti-inflammatory, anti-arthritis agent and anti-cancerous agent. It promotes a healthy sexual and reproductive balance. Ashwagandharishta prepared from it is used in hysteria, anxiety, memory loss, syncope, etc. It also acts as a stimulant and increases the sperm count.

Bhringraj (*Eclipta alba*) belongs to Asteraceae family. Its main phytoconstituents are Wedelolactone, demethylwedelolactone and demethylwedelolactone-7-glucoside. It detoxifies body, encourages oxygen supply to brain and makes it healthier and stronger. It is also a potent sedative, muscle relaxant, anxiolytic, nootropic and anti-stress agent. It also has hepato-protective, anti-diabetic, hair growth promoter, analgesic, anti-inflammatory properties. Its effects better when ingested orally in the form of Bhringraj herbal teas and powder dissolved in water.

Tulsi (*Ocimum sanctum*) is a sacred religious herb which belongs to Basil family Lamiaceae. It is a potent adaptogen and normalizes blood glucose, blood pressure and lipid levels. It has neuro-protective, anxiolytic, anti-depressant, memory enhancer, anti-oxidant and cognitive properties. It also detoxifies the body's cells and counters physical, chemical, metabolic and psychological stress. It also acts as a broad-spectrum antimicrobial agent with wound healing and anti-inflammatory effects. It also has chemopreventive, radioprotective, hepato-protective, cardio-protective, anti-carcinogenic, analgesic, anti-pyretic, anti-allergic, immunomodulatory, anti-asthmatic, anti-tussive, diaphoretic, anti-thyroid, anti-fertility, anti-ulcer, anti-emetic, anti-spasmodic, anti-arthritis, anti-cataract, anti-leukodermal and anti-coagulant activities. It can be consumed as Tulsi tea and coffee on a regular basis.

Turmeric (*Cucurma longa*) is a common spice producing herb which belongs to family Zingiberaceae. It is known as haldi in India and it is a key ingredient in several food recipes and home remedies. It possesses anti-inflammatory and antioxidant properties. Also, it is a potent inhibitor of

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**reactive astrocyte expression** and thus prevents cell death. Curcumin also modulates various neurotransmitter levels in the brain. It also helps in boosting the brain-derived neurotrophic factor (BDNF) that shields one from mental diseases like depression and Alzheimer's tardive dyskinesia, diabetic neuropathy, major depression, epilepsy, and other related neurodegenerative and neuropsychiatric disorders. Apart from all this, it also has antimicrobial, antihypertensive, antihyperlipidemic, antitumor, anticancer, antiphlogistic, antidiabetic, antipsoriasis, antithrombotic, antihepatotoxic actions etc.

### CONCLUSION

The promising insights of Ayurveda on preventive care and prognostic aspects of a disease can be implied to maintain optimum mental health. *Rasayana* drugs like *Guduchi* (*Tinospora cordifolia*) and *Ashwagandha* (*Withania somnifera*) can constitute the core of strategy as they act as antioxidant, anti-inflammatory, anti-microbial, anti-stress, vaccine adjuvant, immunomodulator and potent rejuvenator. As most of the countries are busy tackling the peak of COVID-19, the long term adverse effects of lockdown and information overload on mental and physical health amidst must not be ignored. Use of *Medhya* and *Balya Rasayana* therapy for the prevention of recurrence in recovered patients and *Sodhana* and *Rasayana* therapy as a rehabilitation can be explored to help restore the original state. Invariably, Ayurveda advises proper *Ahara* (~diet) and *Nidra* (~sleep) to maintain the state of health. Complement with the advisory, the use of medicinal herbs with nootropic action can further the prospective for managing Post-COVID non communicable syndromes especially mental health. Evidence on COVID-19 should be adopted by the AYUSH fraternity. Invariably a serious effort is needed in present time to prevent such pandemics in the near future which tend to devastate mental status along with the physical health. Meanwhile there are a lot of expectations from the world community from India to handle this critical situation by using its indigenous medical system of Ayurveda. It's high time to show the strength of Ayurveda to combat the issue of mental health ailments.

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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## HERBOMINERAL AND METALLIC PREPARATION FOR MENTAL HEALTH PROMOTION AND RESTORATION

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### INTRODUCTION

With the entire world fighting against COVID-19, we have all landed in an unexplored zone that needs to be traversed together to escape this calamity. Health is what needs to be preserved and nurtured throughout this phase to conquer the menace. It includes physical, emotional, mental and social wellbeing of individuals. *Ayurveda*, being the ancient life science, has given due importance to the up keeping of mental health and describes an ample of herb mineral and metallic preparations for the mental health promotion and restoration that is extremely required in these unprecedented times. This chapter deals with many such preparations which can prove to be excellent remedies for the maintenance, promotion and restoration of mental health.

### MATERIAL AND METHODS

Classical textbooks such as *Yogaratanakar*, *Bhaishajya Ratnavali* and *Sahasrayogam* were reviewed to collect the knowledge regarding the useful drugs in neurological conditions and their mode of action as per *ayurvedic* principles. Various databases like Google Scholar, PubMed and Scopus were searched using keywords like herbomineral preparation, *vatavyadhi*, *unmada*, *medhyarasayana*, anxiety, stress related mental disorders and mental health. Among them, the relevant articles containing data regarding ayurvedic formulations for various mental disorders were reviewed in detail.

### DESCRIPTION

Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community. The increased concern regarding mental health of population in our society today is attributed to the raising magnitude and prevalence of mental health problems.

Some of the stress related mental disorders of concern are as follows-

1. Phobic anxiety disorders- Social phobias, specific phobias, phobic anxiety disorders.
2. Other anxiety disorders- Panic disorders, generalized anxiety disorder, mixed anxiety and depressive disorders.
3. Obsessive compulsive disorder.
4. Reaction to severe stress and adjustment disorders- Acute stress reaction, post-traumatic stress disorder, adjustment disorders.
5. Dissociative (conversion) disorders.
6. Somatoform disorders- Somatoform autonomic dysfunction (includes any one organ system disorder), persistent somatoform pain disorders.
7. Other neurotic disorders.
8. Depressive disorders.



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These conditions can be dealt via a holistic approach of clubbing together the principles and formulations of *Ayurveda* with the measures of mental health promotion and restoration. Mental health promotion often refers to positive mental health, which is the desired outcome of mental health promotion interventions.

*Ayurveda*, one of the oldest systems of medicine, has become widely accepted and popular due to its individualistic and holistic approach that enables ayurvedic practitioners to offer personalized care for each and every patient based upon the dominance of *doshas* of *prakriti* and disease of particular individual. *Ayurvedic* formulations are comprised of substances of herbal, mineral/ metallic and/ or animal origin which have been processed to generate pharmaceutical medicaments possessing a broad spectrum of therapeutic effects. This is attributed to processes like *shodhana* (purification/ potentiation), *bhavana* (impregnation/ levigation) and *marana* (incineration/ calcination) which acclimatize the toxic metals/ minerals into effective remedies known as herbomineral formulations of *Ayurveda*.

Some of the herbomineral and metallic preparations have been described below to effectively manage various mental health conditions.

1. *SmritiSagaraRasa*- It is a herbomineral preparation containing *shuddha parada*, *gandhaka*, *hartala*, *manahshila*, *Tamra bhasma*, *vacha*, *brahmi* and *jyotishmati*. Its classical indication is in *apasmara chikitsa*. This can be used in treating post-covid seizures and can act as nervine tonic as it pacifies *vata dosha* which is primarily responsible for various neurological disorders.
2. *Manas mitra vatak*- It is a herbomineral preparation made by compounding as many as 73 drugs including *swarna bhasma*, *rajata bhasma*, *makshika*, *mukta pishti*, *hartala*, *shilajatu*, *shankhapushpi* and *vacha*. It has been found effective in the management of generalized anxiety disorders with co-morbid generalized social phobia. It exhibits neuroprotective effects against various hazardous chemicals.
3. *Vata gajankusha rasa*- It is prepared from ingredients like *shuddha parada*, *gandhaka*, *hartala*, *makshika bhasma*, *trikatu* and *nirgundi*. It has been mentioned to possess preventive, promotive, prophylactic and rejuvenative properties for management of various *vata vyadhis*. It may also be used in somatoform pain disorders.
4. *Unmad gajakeshari rasa*- This herbomineral composition consists of *shuddha parada*, *gandhaka*, *manahshila*, *brahmi*, *vacha*, *rasna* etc. It is indicated for use in *unmada*, *apasmara* and *jwara*. It has been used for effective treatment of depressive disorders.
5. *Saraswatarishta*- It is a herbomineral formulation consisting of 18 plants including medhya rasayanas like *brahmi* and *vacha* and is useful in treating CNS disorders. It has been shown to exhibit anti-depressant properties.

## DISCUSSION

All the neurological functions of the body are brought about by the *prakrit vata dosha* as per *Ayurveda*. If *vata dosha* gets vitiated due to any causative factors or ailments of body, then the patient suffers from various neurological conditions. The treatment of these conditions aims at pacifying *vata* and thereby, also normalizing other *doshas* in order to stabilize mental health of an individual. Changes in lifestyle, dietary modifications, and emotional support, psychological counseling along with appropriate ayurvedic herbomineral medicines given according to *dosha- dushya avastha* of patients can prove of immense help in treating all kinds of mental disorders. These herbomineral preparations pacify *vata dosha* and many of the herbs

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used as *bhavna dravya* in these medicines have neuroprotective function which, in turn, help in promotion and restoration of mental health, thereby, serving the greater purpose of health for all.

### CONCLUSION

*Ayurveda* and its principles along with its formulations can be utilized to their full potential for effective management of various mental conditions and for proper restoration of mental health. Supportive environment such as facilitating early access to professional psychological help and mental health services are actions that will also improve psychological well-being. This chapter aims to create better understanding of mental health and describe various ayurvedic medicaments that can be employed for boosting and restoring mental health which is an important determinant of health of an individual in general.

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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## HERBS FOR MENTAL HEALTH PROMOTION IN COVID PATIENTS

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### INTRODUCTION

The World Health Organisation (WHO) declared COVID-19 as a Public Health Emergency of International Concern (PHEIC) on 30 January 2020 (*Coronavirus (COVID-19) events as they happen*). The major mental health issues that have been reported to have been associated with the COVID-19 pandemic are stress, anxiety, depressive symptoms, insomnia, denial, anger and fear globally. ‘The great lockdown’ has created major economical fall outs along with sudden and drastic changes in day-to-day routine. Fear about risk of infection, increased working hours, working under stressful conditions with scarce resources etc started contributing to mental health issues like depression, suicidal tendencies and irritability in frontline workers including medical professionals, sanitation staffs, policemen and other volunteers etc. Closure of schools, recreational outdoor activities, not meeting their peers etc might affected mental health of the children. Social isolation, difficulty in availing online telemedicine consultation, fear and anxiety of consequences of getting infected could have badly affected the mental health of geriatric population. Isolation, Quarantine and being confined at home acted as a trigger factor for many mental illnesses in the population. Mental health promoting therapies, herbs and activities became the need of the hour and present study tries to list out some of the herbs which could be used for mental health promotion during this covid era.

### MATERIALS AND METHODS

A search of the Pub Med electronic database and google scholar were done using the search terms ‘novel coronavirus’, ‘COVID-19’, ‘nCoV’, SARS-CoV-2, ‘mental health’, ‘anxiety’, ‘depression’, ‘stress’, and ‘herbs for mental health promotion’ in various permutations and combinations. Published journals, magazines and newspaper articles, official webpages and independent websites of various institutions and non-government organizations, verified social media portals, interview with physicians were compiled.

### HERBS FOR MENTAL HEALTH PROMOTION

#### 1. *Withania somnifera* (Ashwagandha)

*Ashwagandha* (*Withania somnifera*, fam. Solanaceae) is commonly known as “Indian Winter cherry” or “Indian Ginseng. It’s used as a *rasayana* drug according to *Ayurveda system of medicine*. *Ashwagandha* is commonly available as a *churna*, a fine sieved powder that can be mixed with water, ghee (clarified butter) or honey. It enhances the function of the brain and nervous system and improves the memory.

The biologically active chemical constituents of *Withania somnifera* (WS) include alkaloids (isopelletierine, anaferine, cuseohygrine, anahygrine, etc.), steroidal lactones (withanolides, withaferins) and saponins. Sioindosides and acylsterylglucosides in *Ashwagandha* are anti-stress agents.

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The leaves are bitter and are recommended in fever, painful swellings. . *Ashwagandharishta* prepared from it is used in hysteria, anxiety, memory loss, syncope, etc. It also acts as a stimulant. Evidences support the use of *Ashwagandha* as a mood stabilizer in clinical conditions of anxiety and depression. There was experimental evidence showing anti-stress activity of *Ashwagandha* in rats. *Ashwagandha* could be used as a protective mind tonic and mood stabilizer in persons having depression, anxiety or such mental ailments in covid patients and also in frontline workers lock down effectors etc.

### 2. *Ocimum sanctum* Linn (Tulsi)

*Tulsi* is an aromatic shrub in the basil family Lamiaceae that is thought to have originated in north central India and now grows native throughout the eastern world tropics. Among herbs, *Tulsi* is known as “The Incomparable One,” “Mother Medicine of Nature” and “The Queen of Herbs,” and is revered as an “elixir of life” that is without equal for both its medicinal and spiritual properties. The psychotherapeutic properties of tulsi have been explored in various animal experiments that reveal that tulsi has anti-anxiety and anti-depressant properties. In human studies, *tulsi* has been observed to reduce stress, anxiety and depression, with a 6-week, randomized, double-blind, placebo-controlled study reporting that *tulsi* significantly improves general stress scores, sexual and sleep problems and symptoms such as forgetfulness and exhaustion. *Tulsi* also has a calming effect that leads to clarity of thought, along with a more relaxed and calm disposition. *Tulsi* could be used extensively as a stress relieving mental tonic in covid sufferers. *Tulsi* has anti-bacterial, anti-viral and anti-fungal activity that includes activity against many pathogens responsible for human infections. So *Tulsi* was widely used for preparing hand washes and sanitizers too during covid era.

### Medhya rasayanas

*Medhya Rasayana* is a group of 4 medicinal plants that can be used singly or in combinations. They are *Mandukaparni* (*Centella asiatica* Linn.), *Yastimadhu* (*Glycyrrhiza glabra* Linn.), *Guduchi* (*Tinospora cordifolia* (Wild) Miers) and *Shankhapushpi* (*Convolvulus pleuricaulis* Choisy), specially mentioned with wide range of applications on different systems.

### 3. *Centella asiatica* Linn. (*Mandukaparni* )

*Mandukaparni* is a prostrate, stoloniferous perennial herb rooting at nodes. Major constituents present in the plant are saponin (medacoside, asiaticoside, medacassoside, acetic acid, a new triterpenic acid. Fresh whole plant juice is used for therapeutic purposes as *Medhya* (cognitive enhancer). *Mandukaparni* has brain growth promoting and neuroprotective activities. Formulation containing *Centella asiatica* is proved for its antistress effects and there for it can be used widely for stress related to covid era.

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### 4. *Glycyrrhiza glabra* Linn (Yashtimadhu)

*Yastimadhu* (*Glycyrrhiza glabra* Linn.) is a hardy herb or under shrub belonging to Fabaceae family. Active ingredients of plant include glycyrrhizine, flavanones, isoflavones, glycyrrhetic acid, six phenolic compounds. Fine powder of dried root is used internally with milk for therapeutic purpose as *Medhya*. The roots and rhizomes of *Glycyrrhiza glabra* is an efficient brain tonic; it increases the circulation into the CNS system and balances the sugar levels in the blood. It also has significant action on memory enhancing activity in dementia So it would be a good drug of choice in memory issues and concentration difficulties seen in covid patients.

### 5. *Tinospora cordifolia* (Guduchi)

*Guduchi* (*Tinospora cordifolia* (Wild) Miers) is a large glabrous, deciduous, climbing shrub of Menispermaceae family found throughout tropical India. Juice of whole plant is used therapeutically as *Medhya*. It is also used in the form of decoction, powder and *Satwa* (starch extract of stem). Its root is known for its anti-stress, anti-leptrotic and anti-malarial activities. The plant also has a proven anti stress activity.

### 6. *Convolvulus pleuricaulis* Chois (Sankhapushpi)

*Sankhapushpi* is a perennial, prostrate or sub erect spreading hairy herb, found throughout India. There are various protective effects by *Sankhapushpi* and its combinations in mental ailments. BR-16A (Mentat), a poly herbal combination containing *Shankhapushpi* significantly reversed the social isolation stress-induced prolongation of onset and decrease in pentobarbitone-induced sleep, increased total motor activity and stress-induced antinociception in experimental model. We could use this property of herb for reducing the stressful effects of lockdown and social isolation during covid era. Herbalists believe that *Shankhapushpi* calms the nerves by regulating the body's production of the stress hormones, adrenaline and cortisol.

### 7. *Bacopa monnieri* (brahmi )

*Brahmi* belongs to Scrophulariaceae family. It is a small, creeping marshy herb grown throughout India. The herb is proven to be memory enhancer and can be used to cure concentration and memory related issues in covid patients.

### 8. *Benincasa hispida* (kushmanda)

*Kushmanda* belongs to Cucurbitaceae family. It is an extensive trailing or climbing herb cultivated throughout the plains of India as a vegetable. It is a main ingredient of *kushmanda ghritha*, a *medhya ghritha*. *Kushmandadi Ghritha* showed significant results in the management *Chittodvega* (anxiety disorders) and there for could be used in stressed and anxious patients of covid.

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### 9. *Acorus calamus (vacha)*

*Vacha* is a mid-term, perennial, fragrant herb which is practiced in the Ayurvedic system of medicine. *Vacha* Rhizome is useful part having *Medhya* quality. The active principles in *vacha* have neuroprotective, antidepressant and anticonvulsant effects which could be used effectively in managing mental ailments caused by covid 19 disease.

### 10. *Nardostachys jatamansi (Jatamamsi)*

The roots and the rhizomes of *N. jatamansi*, as mentioned in Ayurveda, have been used in various herbal formulations including dietary supplements. This important traditional drug is also used to treat epilepsy, hysteria, syncope, convulsions, and mental weakness. The decoction of the drug is also used in neurological disorders, insomnia, and disorders of cardiovascular system. It has been reported to exhibit antidepressant, anticonvulsant and antiarrhythmic activities as well as to possess antioxidant and lipid peroxidation activities. According to classics, Rhizome is used for medicinal purposes as it is *Bhutaghna* or *Manasa Doshahara* (relieves of psychiatric problems) and *Medhya*. And it could also be used as a protective drug of choice in Covid patients.

## CONCLUSION

Due to physical discomfort, fear of infection, loneliness and depression from quarantine, and instability of employment and income, COVID-19 survivors are more likely to suffer a high incidence of psychological distress, including post-traumatic stress disorder (PTSD), anxiety, and depression etc. So, to handle the after effects of the COVID-19 pandemic, the mental health of the people needs to be handled hand in hand and given equal importance along with other strategies to manage and control the disease and the pandemic at large. The above discussed ten drugs will help in managing the mental ailments and stress issues to a greater extent.

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**HERBS FOR MENTAL HEALTH IN COVID – 19 PATIENTS**

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**INTRODUCTION OF COVID – 19**

In December 2019 a new respiratory tract infecting agent emerged in Wuhan city of China, known as the coronavirus. It was later named Covid-19. Full-genome sequencing and phylogenetic analysis indicated that 2019-nCoV is a form of beta coronaviruses associated with human severe acute respiratory syndrome (SARS) and Middle East Respiratory Syndrome (MERS). The 2019-nCoV has close similarity to bat coronaviruses, and it has been postulated that bats are the primary source. It was declared as a pandemic by WHO on March 11, 2020. As we all know Covid-19 has evolved itself into a pandemic, affecting a large population irrespective of their physical features, dietary patterns, psychological attributes etc., in view of Ayurveda we can consider it as a *Janapada-udhwamsa vikara* and can be grouped it under the class of *aagantuja vikara* with special reference to the class of *Bhuutabhishangajam* (microbiological etiology).

The clinical features of COVID -19 includes fever (*Jwara*), fatigue (*tandra*), dry cough (*Vatik kaasa*) or productive cough (*Kaphaja kaasa*), anorexia (*aruchi*), myalgia (*anga mardam*), dyspnoea(*swasa*). If the situation aggravated, there will be laboured breathing (*shram swasa*), persistent pain or pressure in the chest (*uro vedana*), mental confusion (*moha*), diarrhoea (*atisara*) and nausea (*chardi*). Considering all these factors, COVID-19 can be considered as a *kapha-vaata samsargaja jwara* along with association of pitta. As the condition progresses sometimes it acquires the status of a full *Sannipataja jwaram*.

**COVID – 19 EMERGING AS A MENTAL HEALTH PANDEMIC**

As we all know COVID – 19 has created a global crisis for which whole world is not prepared for. Lack of strategies for controlling the spread of infection, nationwide lockdown which leads to loss of jobs & shelters to many people, sudden overflow of patients in hospitals, shutting down of educational institutions and many other kinds of such disruptions leads to huge impact on human life in every aspect like degradation of level of work, education, physical and mental health of the people.

This pandemic gives huge impact on the mental health of the peoples, which includes both positive and negative impact. If we are talking about the positive impacts, we can find that the work from home during lockdown gives some people a good opportunity to spend more time with their loved ones and family members which in turn enhance their psychological wellbeing. But for most of the peoples the story is reversed, most of the population during the crisis time faces the strong negative impact on their mental health.

In the midst of the acute phase of the COVID-19 crisis peoples were terrified of the virus, of dying or of loved ones contacting to this disease. Peoples were feeling scared of being quarantined, being in isolation and maintaining of physical distance and constantly changing of

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the rules regarding COVID-19.

An internet-based surveys conducted between March-May 2020 show high rates of depression and anxiety in the general population. For example, the 'FEEL-COVID' survey conducted in February – March 2020 with 1,106 people across 64 cities reported that a third of respondents faced significant psychological impact because of COVID-19.

This pandemic affects different categories of people in different ways which are as follows –

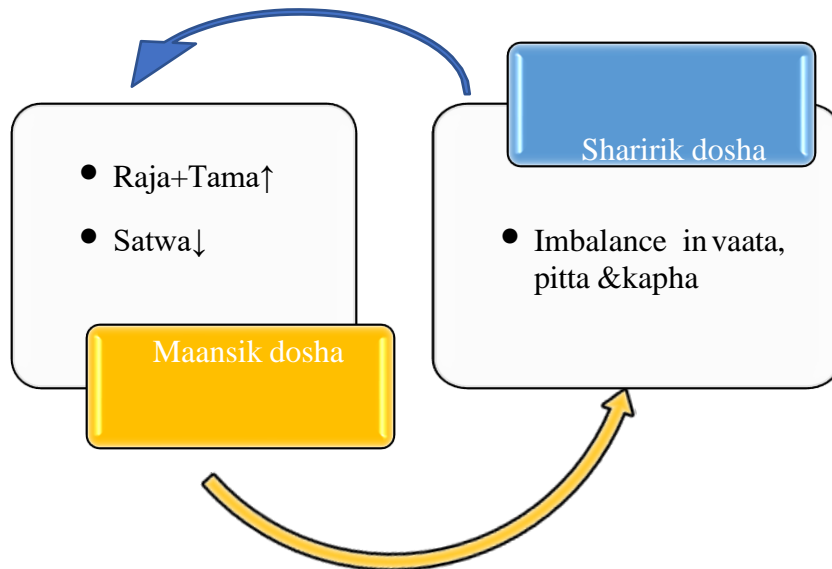
1. **Children** – Due to shutting of educational institutes, the burden of online classes and home-schooling increases over both students & parents. Lack of access to reliable computer hardware and internet connections in rural areas creates a new class of division among the children. Children becomes deprived from co-curricular activities and sports which is essential for their holistic development. Due to overuse of internet children becomes the victim of cyber bullying at the tender age. Due to increased fear of virus, inability to go out and over access of online classes creates irritability in their mind and they become agitated and anxious, due to this some of the children's faced violence at their homes.
2. **Adults** – Due to closing of educational institutes and postponed of exams to an unknown period of time creates anxiety and stress in the young generations, as the exams get postponed the hope of getting a good job is also lost. Not only this those who have already working in private firms faces the problem of losing of job due to recession. Young generations also feel lonely during the lockdown period as most of the adults are living without their family in other cities.
3. **Geriatric** – Due to isolation elderly people starts feeling neglected and lonely this will lead to emotional breakdown for them.
4. **Female** – Due to increased burden of household responsibilities and facing of domestic violence during the lockdown leads to disturbance in mental status of the women.
5. **Health care workers** – Due to increased burden over the health system causes over work for the health care workers due to this they start experiencing depression. They always feel anxious about the contact with virus, not only this they will also have to experience the social stigma for being the suspected carrier of the COVID-19 and have to face the changed behaviour of their family and loved ones.
6. **COVID – 19 Patients** – They are the peoples who highly suffers from this disease not only on physical level but also at mental level. Every day they live with the fear of getting die from the disease, faces the isolation from the family which creates panic in them and feeling of helplessness. This will all creates depression, anxiety and stress which in turn causes suicidal tendency in some patients.
7. **Daily wages & Migrant workers** – Lockdown period is the hard time for the workers because many of them lose their jobs, doesn't have any earning source for the bread of their family. Many of them wants to go back to their village but doesn't find any mode of transportation this will all cause panic situation and depression in the workers.

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8. **Patients with chronic disease & mental illness** – Due to disruption in the health care system for the general population and difficulty in travel system leads to worsening of the condition of the patients this will all create stress and anxiety in the patients and the family members.

### HERBS FOR MENTAL HEALTH IN COVID – 19 PATIENTS

In ayurveda the one who poses both physical and mental status in a balanced state is termed as healthy person. Ayurveda also mention that both physical and mental illness are related to each other.



This clearly shows that ayurveda is concerned about both physical and mental wellbeing of the person. Different types of Chikitsa Siddhant's and uses of herbs are mentioned in our samhitas for curing the mental illness.

Here are lists of some herbs which we can use in boosting the mental health in COVID -19 patients –

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**1. BRAHMI**

**Scientific Name** – *Bacopa monnieri*

**Family**– Scrophularaceae

**Rasa** – Tikta, Kashaya

**Guna** – Laghu

**Virya** – Sheeta

**Vipaak** – Madhur

**Effect on Dosha** – Balances Vata and Pitta

**Useful Part** – Whole Plant

**Action** –

- It suppresses the AChE activity resulting in enhanced cholinergic function, which in turn enhances attention and memory processing and increases working memory.
- Can be used in depression, anxiety, nervousness, manic depressive psychosis, sleep disturbance and insomnia.
- Can be used in loss of concentration
- Useful in treatment of ADHD
- Useful in treatment of cognitive impairment like Alzheimer's Disease

**Dose** – Swarasa – 10-15 ml /day

Churna – 2-3gm/day

Extract capsules – 250mg – 1gm/day

**Yoga** – Brahmi vati, Brahmi Ghrita, Saraswata Churna



**2. SHANKHAPUSHPI**

**Scientific Name** – *Convolvulus pluricaulis Chois*

**Family** – Convolvulaceae

**Rasa** – Tikta

**Guna** – Snigdha, Picchila

**Virya** – Sheeta

**Vipaak** – Madhura

**Effect on Dosha** – Balances Pitta & Kapha

**Useful Part** -Whole plant



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### Action –

- As per Charak Samhita Chikitsa sthana 1.3, its regular intake can act as an excellent braintonic.
- Can be used as brain & nerve tonic
- Can be used to treat anxiety & epilepsy
- Useful in psychiatric disorder like neurosis
- Can be used in treating sleep disorders like insomnia

**Dose** – Kalka – 1-2gm/day  
Kashaya – 50-100ml/day  
Kshara – 250mg – 2gm / day

**Yoga** - Saraswata Churna, Brahmi Vati, Manasamitra Vatakam,

### 3. ASHWAGANDHA

**Scientific Name** – *Withania somnifera*

**Family** – Solanaceae

**Rasa** – Tikta, Kashaya

**Guna** – Snigdha, Laghu

**Virya** – Ushna

**Vipaak** – Madhur

**Effect on Dosha** – Balances Kapha & Vata

**Useful Part** - Root

### Action -

- Acts as an adaptogen (Adaptogens are herbal extracts which protect against multiple stressors and increase attention and endurance under stress)
- Rejuvenates the nervous system
- Enhances the body's resilience to stress

**Dose** - Churna – 3-6 gm/day

Kshara – 1-2gm/day

**Yoga** – Ashwagandha Churna, Ashwagandha Rasayan, Ashwagandha Ghrita, AshwagandhaRishta



#### **4. JYOTISHMATI**

**Scientific Name** – *Celastrus paniculatus*

**Family** – Celastraceae

**Rasa** – Katu, Tikta

**Guna** – Teekshana

**Virya** – Ushna

**Vipaak** – Katu

**Effect on Dosha** – Balances Vata & Kapha

**Useful Part** – Seed, Taila

**Action** –

- Improves concentration, alertness and other cognitive functions by acting on acetylcholine level in the brain
- It increases the glutathione and catalase levels and decreases malondialdehyde in the brain, which might be responsible for its antioxidant, neuro-protective and cognitive – enhancing actions.
- Helpful in neurodegenerative disorders due to its anti-oxidant action which reduces theoxidative damage of the neurons
- It has anti stress property and calming effect which helpful in treating insomnia

**Dose** – Churna – 1-2gm/day

    Taila – 5-15 drops /day

**Yoga** – Jyotishmati taila



#### **5. KUSHMANDA**

**Scientific Name** – *Benincasa hispida*

**Family** – Cucurbitaceae

**Rasa** - Madhur

**Guna** – Laghu, Snigdha

**Virya** – Sheeta

**Vipaak** – Madhur

**Effect on Dosha** – Balances Pitta & Vata

**Useful Part** – Fruit, Seed, Seed Oil

**Action** –

- It possesses anti-depressant activity, hence useful in curing depression
- Acts as a memory booster
- Acts as a natural anti-oxidant hence can be used in curing stress
- As it has anti-depressant activity, can be used in reducing the suicidal tendency of depressive patient



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**Dose** – Fruit – 10-20gm/day

Beej Churna – 3-6gm/day

Seed Oil – 5ml

**Yoga** – Kushmaand khand, Kushmaandguda Kalyanak, Kushmaand Ghrita

**6. JATAMANSI**

**Scientific Name** – *Nardostachys jatamansi* Dc.

**Family** – Valerianaceae

**Rasa** – Tikta, Kashaya, Madhura

**Guna** – Laghu, Snigdha

**Virya** – Sheeta

**Vipaak** – Katu

**Effect on Dosha** – Tridosha shamak

**Useful Part** – Root

**Action** –

- It has anti-oxidant properties can be used in neurological disorders like epilepsy, hysteria, syncope, convulsions
- Can be used in curing mental weakness
- It is a useful memory restorative agent, can be used in cognitive disorders like amnesia and attention deficit
- It has anti-oxidant properties which is helpful in reducing the stress

**Dose** - Churna – 2-4gm/day

**Yoga** – Mamsyadi kwath, Rakshoghna Ghrita



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## HERBO-MINERAL AND METALLIC FORMULATIONS FOR MENTAL HEALTH PROMOTION AND RESTORATION

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### ABSTRACT

Mental health disorders were well recognized by the ancient ayurvedic seers and their ayurvedic treatment involves meticulous use of metals and minerals in different forms. In the recent era, COVID-19 has adversely affected the mental health of every age group around the world. Rasaushadhis show fast action (shigravyapti) in comparatively smaller dose (alpmatra). The herbo-mineral and metallic formulations as well as single metals and minerals classically mentioned in mental health disorders like Unmada (psychosis/mania), Apasmara (epilepsy), Bhutonmada (Exogenous psychosis), Apatantraka (Hysteria with loss of consciousness), Akshepa (Convulsions), Hruddaurbalya (Weakness of the heart), Bhrama (Vertigo), Nidranasha (Insomnia), Pralapa (Delirious speech), Murccha (Syncope), Mansika Nirbalta (Mental debility), Smrutihani (Memory loss), Mandabuddhitva (Retarded intellect), Buddhikshaya (Impaired Intelligence), etc have been summarized in this chapter. After thorough screening of the classical texts, a total of 55 formulations containing metals and minerals as an ingredient were found to be prescribed in mental health disorders. The mode of action of the commonly used metals and minerals has also been explained briefly. These drugs need clinical trials and pharmaceutical studies to establish their pharmacokinetic and pharmacodynamic properties on modern parameters. They may be used as preventive and supportive agents along with the allopathic anti-psychotic treatment or alone as the primary treatment.

**Keywords-** Anxiety, Ayurveda, COVID-19, Depression, Rasaushadhi

### INTRODUCTION

Health as defined by World Health Organization (WHO) includes mental well-being as an important component. WHO estimates that the burden of mental health problems in India is 2443 disability-adjusted life years (DALYs) per 10,000 people. COVID-19 (Corona Virus Disease-2019) has posed major threat to the healthcare sector, global economy and mankind in general. It has affected mental health in multiple ways. Novelty of the disease, fear of isolation and social stigma resulted in development of various psychiatric disorders both in healthy as well as affected individuals. Livelihoods have been adversely affected due to all such reasons resulting in emotional outbursts, panic, fear of death, anxiety, depression, loneliness, insomnia, suicidal tendency, etc. Determinants of mental health include individual attributes such as the ability to manage one's thoughts, emotions, behaviours and interactions with others. In addition, social, cultural, economic, political and environmental factors have a role to play as do specific psychological, personality and genetic factors. A survey conducted by the Indian Psychiatric Society has revealed twenty percent increase in mental illnesses since the coronavirus outbreak in India. Various government and non-government organizations have raised this issue and measures have been taken time and again. The current health care strategy adopted for COVID-19 focuses on eradication of the pathogen as well as building host-immunity. A set of guidelines consisting of 31 points has been issued by the WHO to mitigate psychological problems emerged due to COVID-19 in different age groups with a special focus on children, women and healthcare service providers. Ministry of AYUSH has also released a protocol based on Ayurveda and Yoga for management of COVID-19. They have included use of drugs like *Ashwagandha* (*Withania somnifera* DUNAL) and *Yashtimadhu* (*Glycyrrhiza*

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*glabra*L.) which have proven results in mental health disorders. According to Charaka, *Jwara*(~Pyrexia) affects the mind, body and sensory organs of an individual. Ancient classical texts have mentioned many formulations for pyrexia and mental health disorders in different dosage forms like traditionally fermented biomedicines(*Asava* and *Arishta*), liquid preparations obtained by distillation(*Arka*), semi-solid confections (*Avleha* and *Paka*), decoction (*Kwatha*), powders(*Churna*), pills (*Vati*and *Guggulu* preparations), medicated oils (*Ghrita*and *Taila*), drugs of mineral and metallic origin (*Rasaushadhies*), etc. Psychotherapy (*Sattvavajaya Chikitsa*) holds utmost importance in the management of mental health disorders. Some herbal formulations mentioned for the treatment of disorders related to mental health i.e., *Unmada*(~psychosis/mania) and *Apasmara*(~epilepsy) in *Charak Samhita* are *Hingwadi Ghrita*, *Kalyanaka Ghrita*, *Mahakalyanaka Ghrita*, *Maha-Paishachika Ghrita*, *Lashunadi Ghrita* 1 and 2, *Apara Ghrita*, *Siddhartakadi Agada*, *Siddhartaka Ghrita*, *Panchgavya Ghrita*, *Mahapanchgavya Ghrita*, *Brahmi Ghrita*, *Vachadi Ghrita*, *Amalakadi Ghrita*, *Palankashadi Taila*, etc. A *varti*(suppository) containing *Hartala*(Yellow orpiment) as an ingredient has been mentioned for use in *Unmada* in the form of *Anjana* (collyrium).

Ancient seers of Ayurveda have made a meticulous use of metals and minerals in various formulations along with herbal ingredients in different diseases. *Rasaushadhies* are known to show fast action (*shigravyapti*) in comparatively smaller doses (*alpmatra*). The herbo-mineral and metallic formulations as well as single metals and minerals classically mentioned in mental health disorders like *Unmada*, *Apasmara*, *Bhutonmada* (Exogenous psychosis), *Apatantraka* (Hysteria with loss of consciousness), *Akshepa* (Convulsions), *Hruddaurbalya* (Weakness of the heart), *Bhrama* (Vertigo), *Nidranasha* (Insomnia), *Pralapa* (Delirious speech), *Murccha* (Syncope), *Mansika Nirbalta* (Mental debility), *Smrutihani* (Memory loss), *Mandabuddhitva* (Retarded intellect), *Buddhikshaya* (Impaired Intelligence), etc have been summarized in this chapter. The mode of action of the commonly used metals and minerals has also been explained briefly.

### MATERIAL AND METHOD

Official websites of WHO and Ministry of AYUSH, Government of India, were searched for relevant information. Official journals of various organizations including JAIM, AYU, and NISCAIR journals like JIPR were thoroughly searched for pertinent information. PubMed was searched for collection of significant information regarding the topic with keywords like anxiety, depression, mania, psychosis, *Rasaushadhi*, COVID-19, coronavirus and SARS-CoV-2. Relevant classical texts mentioned in the Schedule 1 of the Drugs and Cosmetics Act, 1940 were screened for Herbo-mineral and metallic formulations mentioned in the treatment of mental health disorders.

### OBSERVATIONS

Formulations classically prescribed in mental health disorders containing metals and minerals as major or minor ingredient have been summarized in Table 1.

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**Table 1- Formulations in mental health disorders containing metals and minerals as an ingredient**

S. No	Formulation	Reference	Metallic and Mineral Ingredients	Indication
1.	<i>Abhraka Bhasma</i>	RasaTarangini (R.T.) 10/72	<i>Abhraka</i> (Mica)	<i>Medhajanaka</i> (Increases Intellect)
2.	<i>Amrutadi Mandoor</i>	Bhaishajya Ratnavali (B.R.) 101/10-13	<i>Mandoor</i> (Iron oxide)	<i>Mastishka Roga</i> (Mental disorders)
3.	<i>Bhuta Bhairava Rasa</i>	B.R. 25/23-25	<i>Rasa Sindoor</i> a(HgS), <i>Abhraka</i> , <i>Lauha</i> (Iron), <i>Manashila</i> (Realgar), <i>Gandhaka</i> (Sulphur), <i>Hartala</i> (Orpiment)	<i>Apasmara</i> (Epilepsy)
4.	<i>Bhutankusha Rasa</i>	B.R. 24/46-51	<i>Parada</i> (Mercury), <i>Lauha</i> , <i>Rajata</i> (Silver), <i>Tamra</i> (Copper), <i>Mukta</i> (Pearl), <i>Vajra</i> (Diamond), <i>Hartala</i> , <i>Gandhaka</i> , <i>Manashila</i> , <i>Tuttha</i> (Blue vitriol), <i>Sauviranjana</i> (Stibnite)	<i>Bhutonmada</i> (Exogenous psychosis)
5.	<i>Brahmi Vati</i>	B.R. 5/166-172	<i>Swarna Sindoor</i> , <i>Vanga</i> (Tin), <i>Abhraka</i> , <i>Shilajatu</i> (Black Bitumen)	<i>Apatantraka</i> (Hysteria with loss of consciousness), <i>Akshepa</i> (Convulsions), <i>Hruddaurbalya</i> (Weakness of the heart), <i>Bhrama</i> (Vertigo), <i>Manoroga</i> (Psychological Disorder)
6.	<i>Bruhat Kasturi Bhairava Rasa</i>	Rasatantra Sara Siddhaprayoga SangrahaPart 2 (RTS SPS 2) Chapter 3 Formulation 7	<i>Tamra</i> , <i>Rajata</i> , <i>Mukta</i> , <i>Pravala</i> (Coral), <i>Swarna</i> (Gold), <i>Lauha</i> , <i>Hartala</i> , <i>Abhraka</i>	<i>Mastishka Shamaka</i> , <i>Nidranasha</i> (Insomnia), <i>Pralapa</i> (Delirious speech), <i>Unmada</i> (Mania/Psychosis)
7.	<i>Bruhat Vatachintamani Rasa</i>	B.R. 26/145-148	<i>Swarna</i> , <i>Rajata</i> , <i>Abhraka</i> , <i>Lauha</i> ,	<i>Bhrama</i> , <i>Pralapa</i>

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			<i>Pravala, Mukta, Rasa Sindoora</i>	
8.	<i>Chaitanyodaya Rasa</i>	B.R. 71/5-6	<i>Swarna, Parada, Gandhaka, Abhraka, Lauha, Shilajatu, Mukta</i>	<i>Tatvonmaada</i>
9.	<i>Chandbhairava Rasa</i>	B.R. 25/31-33	<i>Rasa Sindoora, Tamra, Lauha, Hartala, Gandhaka, Manashila</i>	<i>Apasmara</i>
10.	<i>Chaturbhuj Rasa</i>	B.R. 24/52-56	<i>Rasa Sindoora, Swarna, Manashila, Hartala</i>	<i>Apasmara, Unmada</i>
11.	<i>Chaturmukha Rasa</i>	B.R. 26/149-155	<i>Parada, Gandhaka, Lauha, Abhraka, Swarna</i>	<i>Apasmara, Unmada</i>
12.	<i>Chintamani Chaturmukh Rasa</i>	B.R. 26/141-144	<i>Rasa Sindoora, Lauha, Abhraka, Swarna</i>	<i>Bhrama, Apasmara, Unmada</i>
13.	<i>Gyanodaya Rasa 2</i>	RTS SPS 2 Ch.54 F. 6	<i>Abhraka, Lauha, Rasa Sindoora</i>	<i>Aptantraka, Nidranasha</i>
14.	<i>Hartala</i>	R.T. 11/53	<i>Hartala</i>	<i>Apasmara</i>
15.	<i>Indra Brahma Vati</i>	B.R. 25/19-22	<i>Rasa Sindoora, Abhrak, Lauha, Rajata, Swarna Makshika</i>	<i>Apasmara</i>
16.	<i>Jawahar Mohra</i>	RTS SPS2 Ch. 24 F. 5	<i>Manikya(Ruby), Panna(Emerald), Mukta, Pravala, Swarna, Rajata</i>	<i>Murccha(Syncope), Mansika Nirbalt(Mental debility)</i>
17.	<i>Jyotishmati Rasayana</i>	RTS SPS 2 Ch.54 F.32	<i>Gandhaka</i>	<i>Unmada, Smrutihani(Memory loss)</i>
18.	<i>Kamdudha Rasa (Mauktika Yukta)</i>	Rasayogsagar (R.Y.S.)Kakaradi Rasa 711-713	<i>Mukta, Pravala, Gairika (Hematite)</i>	<i>Bhrama, Unmada</i>
19.	<i>Kasturi Bhairava Rasa</i>	RTS SPS 1 Kharaliya Rasayana F.4	<i>Hingula(Cinnabar)</i>	<i>Bhutonmada, Unmada, Apasmara, Murccha</i>
20.	<i>Lauha Bhasma</i>	R.T. 20/83	<i>Lauha</i>	<i>Medhavardhaka</i>
21.	<i>Lokeshwara Pottali</i>	RTS SPS 2 Ch. 14 F. 12	<i>Rasa Sindoora, Swarna, Gandhaka</i>	<i>Unmada</i>
22.	<i>Manashila</i>	R.T. 11/115	<i>Manashila</i>	<i>Bhutopdrava Nashana</i>
23.	<i>Manikya</i>	R.R.S. 4/12	<i>Manikya</i>	<i>Bhutvetaal Paapagham</i>
24.	<i>Manasmitra Vataka</i>	SahastrayogaGutika Prakarana F. 66	<i>Swarna, Swarna Makshika(Chalcopyr</i>	<i>Manodosha (Mental disorder), Unmada, Apasmara,</i>

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			ite), <i>Mukta, Lauha, Rajata, Shilajatu</i>	<i>Mandabuddhitva</i> (Retarded intellect)
25.	<i>Mritsanjivani Gutika</i>	Sahastrayoga Gutika Prakrana F. 64	<i>Rajata, Swarna, Swarna Gairika</i>	<i>Apasmara, Manovibhrama</i>
26.	<i>Mukta</i>	R.T. 23/72-74	<i>Mukta</i>	<i>Manovikara</i>
27.	<i>Navratna Rajamriganka Rasa</i>	B.R. 23/213-218	<i>Parada, Gandhaka, Swarna, Rajata, Kharpara, Lauha, Vaikranta, Vanga, Naga, etc</i>	<i>Apasmara</i>
28.	<i>Panchamrita Lauha Guggulu</i>	B.R. 101/14-17	<i>Parada, Gandhaka, Rajata, Abhraka, Swarna Makshika, Lauha</i>	<i>Mastishka Roga</i>
29.	<i>Panna</i>	Ayurveda Prakash 5/105	<i>Panna</i>	<i>Bhutanashana</i>
30.	<i>Pravala</i>	R.T. 23/139-141	<i>Pravala</i>	<i>Bhutashamana</i>
31.	<i>Pushpadhanwa Rasa</i>	RTS SPS 1 Ch. F.157	<i>Rasa Sindoor, Naga(Lead), Lauha, Abhraka, Vanga</i>	<i>Manovikara</i>
32.	<i>Pushparaga</i>	R.T. 23/93-94	<i>Pushparaga(Topaz)</i>	<i>Medhavardhaka</i>
33.	<i>Rasa Sindoor</i>	B.R. 25/17-18	<i>Parada</i>	<i>Apasmara</i>
34.	<i>Rasadi Gutika</i>	Sahastrayoga Gutika Prakarana F.24	<i>Parada, Manashila, Gandhaka, Tamra</i>	<i>Chitta Vibhrama</i>
35.	<i>Rajata Bhasma</i>	R.R.S. 5/28-29	<i>Rajata</i>	<i>Bhrama, Unmada</i>
36.	<i>Sarvapasmara Ra Rasa</i>	R.Y.S. Shakaradi rasa 1526-1528	<i>Parada, Hartala, Gandhaka, Manashila</i>	<i>Apasmara</i>
37.	<i>Sangyaprabodhana Pradhamana Nasya 2</i>	RST SPS Part 2Ch.3 F. 38	<i>Parada, Gandhaka</i>	<i>Murccha</i>
38.	<i>Smruti Sagar Rasa</i>	Yogratnakar Apasmara Chikitsa	<i>Parada, Gandhaka, Hartala, Manashila, Swarna Makshika, Tamra Bhasma</i>	<i>Apasmara Smrutihani</i>
39.	<i>Sringarabhra Rasa</i>	B.R. 14/101-110	<i>Abhraka, Parada, Gandhaka</i>	<i>Manovikara</i>
40.	<i>Suchimukha Rasa</i>	Sahastrayoga Gutika Prakarana F. 34	<i>Parada, Gandhaka, Hartala, Manashila, Makshika, Tuttha, Tankana(Borax)</i>	<i>Unmada</i>
41.	<i>Sutshekhara Rasa</i>	RTS SPS 1 Ch. F.133	<i>Parada, Gandhaka, Swarna, Tamra</i>	<i>Unmada, Nidranasha</i>
42.	<i>Swarna Bhasma</i>	R.T. 15/69-80	<i>Swarna</i>	<i>Buddhikshaya (Impaired intelligence)</i>

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				<i>Apasmara Smrutihani, Unmada</i>
43.	<i>Swarna Makshika</i>	R.T. 21/27	<i>Swarna Makshika</i>	<i>Apasmara, Anidra</i>
44.	<i>Unmadabhanjana Rasa</i>	B.R. 24/41-45	<i>Vanga, Rajata, Abhraka, Pravala, Lauha</i>	<i>Vatika Unmada, Bhutonmada, Apasmara</i>
45.	<i>Unmadabhanjini Rasa</i>	B.R. 24/31-34	<i>Manashila</i>	<i>Anjanartha varti in Chaturthaka Jwara, Unmada and Apasmara</i>
46.	<i>Unmada Gajakesari Rasa</i>	B.R. 24/35-37	<i>Mercury, Sulphur, Manashila</i>	<i>Unmada, Apasmara, Bhutonmada</i>
47.	<i>Unmada Gajankusha Rasa</i>	B.R. 24/38-40	<i>Mercury, Tamra, Sulphur, Abhrak</i>	<i>Sannipatika Unmada and Bhutonmada</i>
48.	<i>Vaikranta Bhasma</i>	R.T. 23/167	<i>Vaikranta (Tourmaline)</i>	<i>Medhya, Rasayana</i>
49.	<i>Vajra Bhasma</i>	R.T. 23/25-27	<i>Vajra</i>	<i>Medhavardhaka, Bhrama</i>
50.	<i>Vanga Bhasma</i>	R.T. 18/39	<i>Vanga</i>	<i>Medhavardhaka</i>
51.	<i>Vasantakusumak ara Rasa</i>	B.R. 73/102-107	<i>Swarna, Rajata, Vanga, Naga, Lauha, Abhraka, Pravala, Mukta</i>	<i>Smruti Bhramsha (Impairment of Memory)</i>
52.	<i>Vatakulantaka Rasa</i>	B.R. 25/26-30	<i>Manashila, Parada, Sulphur</i>	<i>Apasmara, Murccha</i>
53.	<i>Yashada</i>	R.T. 19/120	<i>Yashada</i>	<i>Vivek Samruddhi</i>
54.	<i>Yogendra Rasa</i>	B.R. 26/160-166	<i>Rasa Sindoor, Swarna, Lauha, Abhrak, Mukta, Vanga</i>	<i>Apasmara, Murccha, Unmada, Kshinendriya (Impaired senses)</i>
55.	<i>Yograja Rasa</i>	RTS SPS 2 Ch.10 F.14	<i>Shilajatu, Rajata, Swarna, Lauha</i>	<i>Apasmara</i>

## DISCUSSION

Mental health promotion involves creating an environment, which promotes healthy living and encourages people to adopt healthy lifestyle. Ayurveda is the science of life and it encourages an individual to adopt a healthy lifestyle through proper *Dincharya* (daily regime) and *Ahara* (dietary regime). Availability of and access to cost-effective treatment of common mental disorders at the primary health care level is the need of the hour, especially in a developing country like India. A study conducted in the USA revealed that survivors of COVID-19 appear to be at increased risk of psychiatric sequelae. It was observed that the incidence of any psychiatric diagnosis in 14 to 90 days after COVID-19 diagnosis was 18.1% (95% CI 17.6–18.6) The incidence of a first diagnosis of dementia in the 14 to 90 days after COVID-19 diagnosis was 1.6% (95% CI 1.2–2.1) in people older than 65 years.<sup>11</sup> Ayurveda can be effectively employed as a supportive and rejuvenating therapy in various diseases including

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mental disorders. After thorough screening of the classical texts, a total of 55 formulations containing metals and minerals as an ingredient were found to be prescribed in mental health disorders (Table 1). *Rasaushadhies* i.e., drugs containing metals and minerals play an important role in Ayurveda because of its effectiveness in small doses and longer shelf life. These drugs may be used when Ayurveda is adopted as the primary treatment modality or as an adjuvant along with antipsychotic drugs for supportive treatment to minimize the adverse effects.

Mercury is extensively used in majority of the formulations as it easily combines with other elements and forms stable compounds. Mercury is said to have '*Yogavaahitva*' i.e., when combined with other elements, it increases their therapeutic activity. It increases the bioavailability of the drug and hence acts as a bio-enhancing agent.

Metals and minerals like Biotite, Iron, Gold, Silver, Tin, Diamond, Tourmaline, etc play an important role as *Medhya Rasayana* i.e., brain tonic that helps in promotion of mental health when used after proper processing, in the prescribed format and in different forms. *Dhriti* (retention) is the physiological function of *Kapha* which is the reason why most of the metals and mineral shaving *medhya* effect are of cold potency (*Shita Virya*) and alleviate *Kapha Doshha*. *Medhya* drugs promote *Buddhi* and *Manas* by balancing *Satva*, *Raja* and *Tama*.

Metals and minerals are employed in therapeutics after being processed via various pharmaceutical techniques like *shodhana*, *jarana*, *marana* etc. which have their own significance in detoxifying and increasing its therapeutic potential. Reduced metallic powders may provide nourishment, as they are a combination of many trace elements and electrolytes. Researchers have suggested that metallic/mineral preparations are anti-oxidants which fight free radicals. Ayurvedic formulations have a wholesome effect on an individual and they do not usually act due to single ingredients alone. They are complex mixtures of compounds which target the pathological manifestation in different ways. Ayurveda differs from other systems of medicine using single ingredients

### CONCLUSION

Mental health disorders were well recognized by the ancient seers of Ayurveda and detailed description of its management is found abundantly. In the recent era, COVID-19 has adversely affected the mental health of every age group around the world. Ayurveda has many herbo-mineral and metallic formulations in different dosage forms for the treatment of mental disorders. These drugs need clinical trials and pharmaceutical studies to establish their pharmacokinetic and pharmacodynamic properties on modern parameters. They may be used as preventive and supportive agents along with the allopathic anti-psychotic treatment or alone as the primary treatment. Drug-drug interaction is to be kept in mind while prescribing these formulations along with other drugs.

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## HERB FOR MENTAL HEALTH IN COVID-19

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## INTRODUCTION

Ayurveda is the life science which not only treats disease but also provides the guide to maintain health by holistic approach. As increasing patient flow towards Ayurveda treatment in last decades indicate the virtuous responses of Ayurveda medicaments to many health issues. Mental health is one of the important to maintaining someone healthy and prosperous. Various description and practical application of nootropic herbal drugs are there for treatment of psychic and psycho-stomatic disorder.

COVID-19 is declared as a health emergency by WHO on 30<sup>th</sup> Jan 2020 and pandemic on 11<sup>th</sup> March 2020. A novel disease in world causing changes in life style of persons starting from lockdown, changes in social normal, fear of the infection, online duty and study, loss of income is the cause of mental illness. Health is the combination of physical, mental and social wellbeing. The mental illness is now a growing challenge in health care system and due to the pandemic increase in the case of mental issues either due to changes due to pandemic or the disturbance of physical health. Different herbs have practically use in treatment of mental issue have describe in *Samhita* and clinical evidence which is describe in the chapter.

## MATERIALS AND METHOD

Relevant data were collected from classical Ayurvedic literature, scientific articles, and practical experiences. Data mining was carried out from various texts, peer reviewed journals and authentic websites of the concerned subjects. Evaluated them using scientific basis and practical aspects. This article is based on a review of *Ayurvedic* texts. Materials related to relevant topics have been collected. The main Ayurvedic texts used in this study are *Charak Samhita, Sushruta Samhita, Ashtang Samgraha, Ashtang Hridaya, Bhava Prakash, and Sharangdhara Samhita*, and available commentaries on these.

## OBSERVATIONS

### Cause of mental illness in COVID-

1. Quarantine, self-isolation
2. Social distancing
3. Prohibition of recreational activities
4. Loss of income source
5. Life threating fear
6. Sudden changes in day-to-day activities
7. Difficulty in securing medical care and medication

### Ayurveda and mental health-

*Maharshi Shusruta* while describing the feature of a healthy person enumerate the role association of physical and mental health by cheerful *Atma, Indriya and Mana*.

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In *Ayurveda* main cause of the mental disorder is *Pragyaparadha* which is characterised by *derangement* of normal psychological functions, *Buddhi Bibhrmsa* (Intellectual dysfunction), *Dhruti Bibhramsha* (Cognitive dysfunction) and *Smruti Bibhramsha* (Memory dysfunction).

Different *Medhya* drugs describe in *Ayurveda*-

- ❖ While describing the effectiveness of *Rasayan* (Rejuvenating drugs) *Medhya* effect is described.
- ❖ Effectiveness of *Haritaki Rasayan* in mental disorder.
- ❖ Four nootropic drugs (*Medhya Rasayan*) describe in *Karaprachitiya Rasayan*.
- ❖ Drugs like *Kusmanda* (*Benisahispida*), *Vacha* (*Acorus calamus*), *Jatamansi* (*Nordostachysjatamansi*) describe as brain tonic.
- ❖ *Aswagndha* (*Withinasominfera*) also used as adptogenic drugs clinical practice.

### Table- 1: Evidenced based clinical use of – *Medhya Rasayan*

#### 1. *Mandukaparni* (*Centellaasiatica* Linn.)

Parts use- whole plant

Chemical constituent- Medacoside, Asiaticoside, Medacassoside, Asiatic acid

Evidence based uses- To evaluate the role of 70% hydro-ethanolic extract of *Centellaasiatica* (CA) on generalized anxiety disorder (GAD) in man shows a result significantly ( $p < 0.01$ ) attenuated anxiety related disorders but it also significantly ( $p < 0.01$ ) reduced stress phenomenon and its correlated depression. CA further significantly ( $p < 0.01$ ) improved the willingness for adjustment and cognition.

#### 2. *Yastimadhu* (*Glycirrhiza glabra* Linn.)

Part use- Root

Active ingredients are Glycyrrhizine, Flavonones, Isoflavones, Glycyrrhetic acid

Evidence based uses- The doses of aqueous root extract of *Glycirrhiza* significantly enhanced the memory; however, in the doses of 150 and 225 mg/kg, it showed a significant ( $P < 0.01$ ) enhancement in learning and memory.

Special adjuvant milk is given along with root powder of *Yastimadhu*.

#### 3. *Guduchi* (*Tinosporacordifolia* (Wild) Miers)

Parts use- Stem

Chemical constituents' classes are alkaloids, diterpenoid lactones, glycosides, steroids, sesquiterpenoid, phenolics, aliphatic compounds and polysaccharides.

Evidence based uses- *T. cordifolia* has also been reported to show neuroprotective potential by modulating anti-oxidant enzyme system of brain tissue.

The current study examined whether 50% ethanolic extract of *Tinosporacordifolia* (TCE) can attenuate these negative effects of SD. Three groups of adult Wistar female rats - (1) vehicle treated-sleep undisturbed (VUD), (2) vehicle treated-sleep deprived (VSD) and (3) TCE treated-sleep deprived (TSD) animals were tested behaviourally for cognitive functions, anxiety and motor coordination. TSD animals showed improved behavioural response in EPM and NOR tests for anxiety and cognitive functions, respectively as compared to VSD animals.

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### 4. *Shankhapushpi (Convolvulus pleuricaulis Chois)*

Part use- Whole plant

Chemical constituent- Microphylllic acid, Shankhapushpin, Kaempferol-kaempferol-3-glucoside, 3, 4 Dihydroxycinnamic acid, Sitosterols.

Evidence based uses- The antistress effects of BR-16A, a polyherbal preparation contain *Shankhapushpi* and its interaction with GABAergic modulators against social isolation-induced stress were investigated in the study. BR-16A (100 mg/kg and 200 mg/kg) treatment for 5 days significantly reversed the social isolation stress-induced prolongation of onset and decrease in pentobarbitone-induced sleep, increased total motor activity and stress-induced antinociception.

Ayushman-8 (containing *Shankhapushpi*, *Brahmi* and *Vacha*) a CCRAS research product have good result in mental disorder.

The antidepressant-like effect of *Convolvulus pleuricaulis Chois*(CPE) in the chronic unpredictable mild stress(CUMS)-exposed rats may be linked to the alteration of inflammatory cytokines, liver enzymes, serotonin and noradrenaline levels. CPE may be a potential drug for the treatment of depression and its associated neuro-inflammation.

## OTHER HERBS USED IN MENTAL HEALTH

### ❖ *Kushmanda (Benincasahispida)*

Part use- Fruit

Chemical composition- Flavonoids, saccharides, carotenes, uronic acid, volatile oil  
*Kusmanda* use in practice in mental health formulation like *Kusmanda Rasayan*

### ❖ *Vacha(Acorus calamus)*

Parts use- Rhizome

Chemical composition-  $\alpha$ -asarone, elemicine, cis-isoelemicine, cis and trans isoeugenol and their methyl ethers, camphene, P-cymene, bgurjunene, a-selinene, b-cadinene, camphor, terpinen-4-ol  
70% hydro-ethanolic extract of *Acorus calamus* in general anxiety disorder 500mg twice daily show significant Antiolytic effect.

### ❖ *Jatamamsi (Nardostachysjatamamsi)*

Parts use- Rhizome

Chemical composition- Sesquiterpenes, Coumarins, Jatamansone

Study was to assess the potential of *N. jatmansi* as a memory enhancer. The elevated plus maze and the passive avoidance paradigm were employed to evaluate learning and memory parameters. Three doses (50, 100, and 200 mg/kg, p.o.) of an ethanolic extract of *N. jatamansi* were administered for 8 successive days to both young and aged mice. The 200 mg/kg dose of *N. jatmansi* ethanolic extract significantly improved learning and memory in young mice and also reversed the amnesia induced by diazepam (1 mg/kg, i.p.) and scopolamine (0.4 mg/kg, i.p.).

### ❖ *Aswagandha(Withaniasominfera)*

Parts use- Roots

Chemical constituents- Isopelletierine, Anaferine, Anhygrine

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Significant antistressadaptogenic activity, in a study of *Withania somnifera* roots was investigated against a rat model of chronic stress (CS). The stress procedure was mild, unpredictable footshock, administered once daily for 21 days to adult male Wistar rats. CS induced significant hyperglycaemia, glucose intolerance, and increase in plasma corticosterone levels, gastric ulcerations, male sexual dysfunction, cognitive deficits, immunosuppression and mental depression.

### ❖ *Haritaki(Terminalia chebula)*

Parts use- Fruit pulp

Chemical composition- Galic acid, Chebulinic acid

The ethanolic extracts of *T. chebulais* compared with *W. sominifera* as standard in Cold resistant stress and immobilization stress altered the various biochemical parameters like glucose, cholesterol, triglycerides, blood urea nitrogen (BUN), plasma corticosterone, blood cell count (RBC and WBC) and weight of organs like liver, spleen, testis, and adrenal glands. The extract of *T. chebula* reduced stress-induced elevated levels of serum biochemical parameters, blood cell count, prevented alterations in the weight of the liver, adrenal gland and increased the weight of the spleen.

Adaptogenic effect of *Tinosporacordifolia*, *Asparagus racemosus*, *Emblica officinalis*, *Withaniasomnifera*, *Piper longum* and *Terminalia chebula* were administered orally to experimental animals, in a dose extrapolated from the human dose, following which they were exposed to a variety of biological, physical and chemical stressors where stress induced by cisplatin induced alterations in gastrointestinal motility. All the plants reversed the effects of cisplatin on gastric emptying, while *Tinosporacordifolia* and *Asparagus racemosus* also normalized cisplatin induced intestinal hypermotility. *Emblica officinalis* strengthened the defence mechanisms against free radical damage induced during stress.

### How *Rasayan* herbs act in mental health-

- 1- **Action of oxidative stress-** Cytokine storm due severe immune reaction cause disturbance in the production of Reactive Oxygen Species and Antioxidant defences. Which is neutralise by disease specific *Rasayan*like *Piper longum* which is act on respiratory, gastrointestinal and mental illness.
- 2- **Adaptogenic activity-** Herbs that increase the body's ability to resist the damage due to stress, certain drugs like Holy basil, *Withania*, *Turmeric* use in practice, Ministry of AYUSH also circulate the advisory of *Sanskara* of milk with turmeric (golden milk).
- 3- **Nootropic effect:** Herbs that act on cognitive factors like *MedhyaRasayan*.
- 4- **Psychoneuro stability:** Herbs that act a depressor in hyper-excitability, Psychosis to produce clam in neural symptoms.

## CONCLUSION

The flourishing Ayurveda practice in recent time along with the support of government of India, Ayurveda play an important role in treatment COVID. Different hospital like AIIA have holistic COVID care centre. Herbal drugs are now on research under different organisation for use in COVID-19 like *Guduchi*, *Aswagandha*, *Satavari*, *Pippali* etc. Here we discuss the

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different herbs that can be use in treatment of mental ailment and have promising result for patient to combat the challenge of COVID. *Maharshi Charak* told one measure cause of mental illness is person himself, the person is solely involved in cause of sorrow and happiness. Hence the person should protect himself from mental ailment like fear, grief, depression and stress by practising self-analysis (*Swadhyaya*) one part of *Astanga Yoga*.

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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## HERBS FOR RESTORING MENTAL HEALTH ISSUES IN POST COVID-19 PATIENTS

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### ABSTRACT

*The ever increasing epidemiological burden of severe life-threatening diseases like the Covid pandemic on human population across the globe has compelled the researchers and clinicians to develop stringent therapeutic strategies against them. The current spate of increased incidence of neurological disorders too demands effective therapeutic interventions. However, the existing conventional therapies against them are marred by adverse side effects associated with their administration. Hence herbal medicines have a substantial role in dealing with psychological issues in Post Covid Patients. Role of Traditional herbs which act as nootropics - in fight against stress, anxiety and mental health problems is big arena to understand and interpret in context of Post Covid mental health. Proper diet, respite, adequate rest and relaxations are important parameters for patients.*

### INTRODUCTION

“Tsunami of psychiatric illnesses’ is a prediction by concerned experts discussed as the repercussion of COVID-19 pandemic in the world. In country like India where social norms are completely transformed as per before and after scenario of Covid-19 pandemic, postcovid patients have to deal with family and others in a very passive mode. Post Covid recovery is hampered due to stringent Social distancing, quarantine and socio economic personal turmoils. Mental health is at stake of the Post covid patients due to lockdown experiences and anxiety leading to delayed recovery from the symptoms. Post-traumatic stress, confusion, and anger are the negative psychological impacts, while stressors are infection fears, frustration, longer quarantine duration along with inadequate supplies and information, stigma and financial loss.

### MATERIALS AND METHODS

Understanding wide range of impact on mental health is the main aim and hence a thorough review is essential to understand the gravity of reflections in psychology and behavior of covid survivors. The major mental health issues that have been reported to have been associated with the COVID-19 pandemic are **stress, anxiety, depressive symptoms, insomnia, denial, anger and fear** globally. Stress, anxiety and depression go hand in hand with the COVID-19 pandemic, results from studies done globally have shown the increasing prevalence of mental health disorders among various population groups.

Being disturbed emotionally, irritability, insomnia, depression and post-traumatic stress symptoms are faced by these patients followed by post quarantine span. The future impact is alteration in habits and activity changes like avoiding crowds and over consciousness of hand sanitization. These psychological symptoms may last from many months up to a few years. Though

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spending time outside is associated with lower stress and positive mental health outcomes and despite these reported benefits, outside time was likely affected by COVID-19 public health restrictions that forced people to be within homes. Change in outside time (i.e., the average difference of minutes per day spent outside condensed into categorical variables) may contribute to or mitigate worsening mental health.

### HOW MENTAL HEALTH ISSUES ARISED IN POST COVID PATIENTS?

Longer quarantine is associated with poorer psychological outcomes, perhaps unsurprisingly, as it stands to reason that the stressors reported by participants could have more of an effect the longer, they were experienced for. The diagnosis of COVID-19, and subsequent need for physical distancing, has been associated with feelings of **isolation and loneliness**. COVID-19-related stigma has also become pervasive and can result in a sense of hopelessness. Increasing reports of lingering malaise and exhaustion akin to chronic fatigue syndrome may leave patients with physical debility and emotional disturbance. Compounded by the psychological toll of the pandemic experienced population wide, individuals recovering from COVID-19 may be at even greater risk of depression, anxiety, posttraumatic stress disorder, and substance use disorder. These combined effects have the potential to result in a global health crisis, considering the sheer number of COVID-19 cases worldwide.

Patients recovering from COVID-19 had to face a second battle - coping with the consequences of mental health challenges. Mainly patients who had undergone ICU and intubation might have experienced "**Post-intensive care syndrome**" (PICS) which presented as a combination of physical, cognitive, and mental health impairments due to an ICU stay for a critical illness associated with Covid. People suffering from PICS may experience anxiety, sleep difficulties, depression, or post-traumatic stress disorder (PTSD).

#### Post-ICU Mental Health

Even healthcare providers should take these potential mental health issues after discharge in Covid 19 patients seriously. Those recovering from a severe case of COVID-19 might experience nightmares, startle response, PTSD, trouble sleeping, emotional instability, depression, appetite changes, and loss of interest. ICU patients who were incubated may experience flashbacks of trauma, real or imagined. It can be overwhelming to go home back to 'normal' after such a long and stressful road in the hospital, not just for the patient but the caregivers as well.

**TABLE 1.** Human corona viruses, mental health and psychological impacts.

COVID-19	a. Anxiety and depression have changed in different age groups, and covid-19 has an impact on the psychology of the elderly people and lead to anxiety and depression.	Asmundson & Taylor, <a href="#">2020</a> Brooks et al., <a href="#">2020</a> Duan & Zhu, <a href="#">2020</a> Meng et al., <a href="#">2020</a> Rubin & Wessely, <a href="#">2020</a> Wind, Rijkeboer, Andersson, & Riper, <a href="#">2020</a>
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COVID-19	a. It may lead to isolation and movement restrictions for a long time with a heavy impact on mental health, well-being, social functioning and work.	Brooks et al., <u>2020</u> Salisbury, <u>2020</u> Thombs, Tao, Wu, et al., <u>2020</u> Duan& Zhu, <u>2020</u>
COVID-19	a. Because of this pandemic outbreak, sleep quality reduces as stress increase, which may lead to depression and suicidal behavior. b. Self-coping styles and psychological growth have important role in keeping mental health of nurses and doctors.	Huang & Zhao, <u>2020</u> Lu, Wang, Lin, & Li, <u>2020</u> Sher, <u>2020</u> Sun et al., <u>2020</u>
COVID-19	a. During its outbreak, the symptoms of attention deficit hyperactivity disorder (ADHD) in children are worse than normal situation, which have negative impact on emotions, self-esteem, international relationships and learning ability.b. The mental health effects of COVID-19 depend on how long the pandemic and self-isolation period lasts.	Caulfield & George, <u>2020</u> Zhang et al., <u>2020</u>
COVID-19	a. Mental health monitoring, early identification of at-risk patients and treatment irrespective of financial barriers are essential for decreasing chronic distress. Also, the governments should equip psychological health departments.	DePierro, Lowe, & Katz, <u>2020</u> Moghanibashi-Mansourieh, <u>2020</u> Tian et al., <u>2020</u>
COVID-19	a. Progressive muscle relaxation as an auxiliary technique may reduce anxiety and improve sleep quality in patients.  b. Proper diet, respite, adequate rest and relaxations are important parameters for patients.	Mohindra, Ravaki, Suri, Bhalla, & Singh, <u>2020</u> Liu et al., <u>2020</u>

**WHAT TRADITIONAL HERBS CAN DO?**

In recent years, health planners and practitioners are recognizing the value of traditional medical systems like Āyurveda. The medicinal plants from indigenous pharmacopoeias like the compendia



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of Caraka and Suśrūta have shown significant healing power and have been postulated to be effective in a wide variety of diseases, ranging from stress, anxiety to Alzheimer's like conditions:

They control neuroreceptor binding and channel transporter activity by modulating neuronal communication or the hypothalamic-pituitary-adrenal axis. Therefore, some herbal medicines can be used as antidepressants by sensitizing serotonin receptors or inhibiting monoamine oxidase. Nootropics are also known as smart drugs; in general, it means any given substance that influences the cognitive ability in a positive way. They probably act by altering the levels of neurotransmitters, hormones, and enzymes that are available to the brain, through improvement of brain's oxygen supply or stimulation of nerve growth. Herbs acting as memory herbs enhance the level of neurotransmitters like acetylcholine and also increase blood flow directed towards the brain, thereby nurturing it with increased supply of oxygen and nutrients, which further refines brain function and memory:

दीर्घमायुः स्मृतिं मेधामारोग्यं तरुणं वयः।  
प्रभावर्णस्वरौदार्यं देहेन्द्रियबलोदयम्॥१॥  
वाक्सिद्धिं वृषतां कान्तिमवाप्नोति रसायनात्।  
लाभोपायो हि शस्तानां रसादीनां रसायनम्॥२॥

### Ashtanga Hridiya Uttartantra Chap.39/1-2

**Rasayana herbs contribute for memory enhancement which helps against long term Brain Fogging in Post Covid 19 patients. Cognitive impairment is also corrected and all senses are strengthened.** Rasayana herbs promote a youthful state of physical and mental health and expand happiness. The herbs that are considered Medhya Rasayana are said to be working with the higher brain function, or mind-rejuvenating herbs. They engender and summon intelligence, memory, and mental perception and bring nervine and nervous system restorative action:

मण्डूकपर्ण्याः स्वरसं यथाग्नि  
क्षीरेण यष्टीमधुकस्य चूर्णम्।  
रसं गुडूच्याः सहमूलपुष्याः  
कल्कं प्रयुञ्जीत च शङ्खपुष्याः॥४४॥  
अयुष्प्रदान्यामयनाशनानि  
बलाग्निवर्णस्वरवर्धनानि।  
मेध्यानि चैतानि रसायनानि  
मेध्या विशेषेण तु शङ्खपुष्पी॥४५॥

### Ashtanga Hridiya Uttartantra Chap.39/45

*Medhya Rasayana* is a group of 4 medicinal plants that can be used singly or in combinations. They are *Mandukaparni* (*Centellaasiatica* Linn.), *Yastimadhu* (*Glycirrhizaglabra* Linn.), *Guduchi* (*Tinosporacordifolia* (Wild) Miers) and *Shankhapushpi* (*Convolvulus pleuricaulis* Chois), specially mentioned with wide range of applications on different systems.

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तद्वद्विदार्यतिबलाबलामधुकवायसीः।  
श्रेयसीश्रेयसीयुक्तापथ्याधात्रीस्थिरामृताः॥६०॥  
मण्डूकीशङ्खकुसुमावाजिगन्धाशतावरीः।  
उपयुञ्जीत मेधाधीवयः स्थैर्यबलप्रदाः॥६१॥

### Ashtanga Hridiya Uttartantra Chap.39/61-62

Yet in practice few more handful drugs used with same aim are mentioned elsewhere in the Ayurveda classical textbooks. They are *Aindri* (*Bacopamonniera*), *Jyothishmati* (*Celastruspanniculata*), *Kushmanda* (*Benincasahispida*), *Vacha* (*Acoruscalamus*) and *Jatamamsi* (*Nardostachysjatamamsi*). MedhyaRasayanaare used either in polyherbal preparations or alone.

Proper healthcare can be achieved by considering traditional herbal medicines which can improve physical and mental health conditions. The most important herbal plants for treatment of stress, anxiety and mental health problems are *Centellaasiatica*, *Glycyrrhizaglabra*, *Tinosporacordifolia*, *BacopaMoneira*, *Withania Somnifera*, *Celastruspanniculata*, *Benincasa Hispida*, *Acorus Calamus*, *Convolvulus pleuricaulis*, *Nordastachy's Jatamansi*. Above mentioned herbs can be used singly or in combinations depending upon the Post Covid presentation of Psychological issues in the patient.

### DISCUSSION

1. **Mandukaparni** (*Centellaasiatica* Linn.) is a perennial herb rooting at nodes. Fresh whole plant juice is used for therapeutic purposes as Medhya (cognitive enhancer). Major constituents are saponin (medacoside, asiaticoside, medacassoside, asiatic acid, a new triterpenicacid). They act on behaviour besides being neuroprotective and brain growth promoter. Dendritic arborization is supposed to be the neuronal basis for improved learning and memory. *Centellaasiatica* inhibits the memory impairment induced by scopolamine through the inhibition of AChE. BR-16A (Mentat), a formulation containing *Centellaasiatica* proved for its antistress effects. A study was conducted on Menotab, an effective herbomineral preparation containing *Centellaasiactica* with other drugs from the Himalaya drug company, Bangalore. Study showed that Menotab is an ideal medication for relief of postmenopausal symptoms as a short-term therapy.

#### Centellaasiatica.



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2. *Yastimadhu* (*Glycyrrhizaglabra* Linn.) is a hardy herb or under shrub belonging to Fabaceae family. Fine powder of dried root is used internally with milk for therapeutic purpose as *Medhya*. Active ingredients are glycyrrhizine, flavanones, isoflavones, glycyrrhetic acid, six phenolic compounds. Multidimensional activities of *Yastimadhu* may be attributed to glycyrrhizine and flavanones. The roots and rhizomes of *G. glabra* has been studied with respect to spatial learning and passive avoidance, preliminary free radical scavenging, cerebral ischemia and antioxidant capacity towards LDL oxidation. The roots and rhizomes of *Glycyrrhizaglabra* is an efficient brain tonic; it increases the circulation into the CNS system and balances the sugar levels in the blood. Liquorice has significant action on memory enhancing activity in dementia it significantly improved learning and memory on scopolamine induced dementia.

### Glycyrrhiza Glabra



3. **Guduchi:** (*Tinosporacordifolia* (Wild) Miers) is a large glabrous, deciduous, climbing shrub of Menispermaceae family found throughout tropical India. Juice of whole plant is used therapeutically as *Medhya*. It is also used in the form of decoction, powder and *Satwa* (starch extract of stem). Its root is known for its anti-stress, anti-leprotic and anti-malarial activities. Chemical constituents' classes are alkaloids, diterpenoid lactones, glycosides, steroids, sesquiterpenoid, phenolics, aliphatic compounds and polysaccharides. Neuroprotective and ameliorative properties are due to their antioxidant and trace element contents. *Tinosporacordifolia* is known to be a rich source of trace elements (Zinc and Copper) which act as antioxidants and protects cells from the damaging effects of oxygen radicals generated during immune activation. It increases the blood profile and has lead scavenging activity. *Tinosporacordifolia* has been claimed to possess learning and memory enhancing, antioxidant and anti-stress activity. *Tinosporacordifolia* enhanced the cognition in normal and cognition deficits animals in behavioural test -Hebb William maze and the passive avoidance task. Mechanism of cognitive enhancement is by immunostimulation and increasing the synthesis of acetylcholine, this supplementation of choline enhances the cognition. Myriad actions of Guduchi may be attributed to its antioxidant and immunomodulatory properties.



#### **Tinosporacordifolia**

4. *Shankhapushpi* (*Convolvulus pleuricaulis* Chois) is a perennial, prostrate or sub erect spreading hairy herb found throughout India. Recommended therapeutic form is fine paste of whole plant. Highly regarded as *Medhya* (intellect promoter). Important chemical principles are microphylllic acid, shankhapushpin, kaempferol-kaempferol-3-glucoside, 3, 4 dihydroxycinnamic acid, sitosterols. Neuroprotective and intellect promoting activity implicated to free radical scavenging and antioxidant property. BR-16A (Mentat), a poly herbal combination containing *Shankhapushpi* significantly reversed the social isolation stress-induced prolongation of onset and decrease in pentobarbitone-induced sleep, increased total motor activity and stress-induced antinociception in experimental model. Ayushman-8 (containing *Shankhapushpi*, *Brahmi* and *Vacha*) reported to be effective on *Manasa-mandata* (mental retardation). *Shankhapushpi* compound containing *Shankhapushpi*, *Sarpagandha*, and *Gokshura* in equal quantities studied to be effective in *Chittodvega* (anxiety disorders).

Sanjay Parsania reported *Shankhapushpi* to be effective in relieving signs and symptoms of *Chittodvega* (anxiety disorders). Herbalists believe that *Shankhapushpi* calms the nerves by regulating the body's production of the stress hormones, adrenaline and cortisol. Few investigations reports that *Shankhapushpi* has potent depressive action in mice.

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***Convolvulus pleuricaulis***

5. **Aindri** (*Bacopamonniera*) commonly called as **Brahmi** belongs to Scrophulariaceae family. It is a small, creeping marshy herb grown throughout India. Most beneficial therapeutic form is macerated whole plant juice. Properties are said to be similar to that of *Mandukaparni*. *Bacopamonniera* is a well-known nootropic plant reported for its tranquilizing, sedative action, cognitive enhancer, hepatoprotective, memory enhancer [and antioxidant actions. Neuroprotective activity may be ascribed to having its reactive oxygen species scavenging property. *Bacopamonniera* is a saponin rich plant. Bacosides are the main active nootropic principal present in the alcoholic extract of the plant.

Isolation of a new saponin, a jujubogenin, named bacopasaponin G, and a new glycoside, phenylethyl alcohol was reported. Three new saponins designated as bacopasides III, IV and V isolated. Apart from memory enhancer activity these bacosides have the potential to modulate the activities of heat shock protein (Hsp70) expression, cytochrome P450 and superoxide dismutase in the rat brain. On rats, alcoholic extract increases both cognitive function and retention capacity, decreases retrograde amnesia and protects from phenytoin -induced cognitive deficit. It is mainly utilized in the treatment of memory and attention disorders.

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**Bacopa Monniera**

6. **Jyotishmati** (*Celastruspanniculata*) is a large, woody, climbing shrub with ovate or obovate leaves found all over India. Seeds are yellowish, ellipsoid or ovoid enclosed in a scarlet aril, Seed oil (*JyotishmatiTaila*) is known for *Medhya* action. This oil contains several terpenoids like paniculatadiol, b-sitosterol, celastrol, b-amyrin, pristimerin, but its most investigated components are its many sesquiterpenoids, dihydroagarofuran-type polyols or esters. *Celastruspaniculata* showed antioxidant activity by decreasing the lipid peroxidation and anti-arthritic activity in rat model. Seed oil of *Celastruspanniculata* (*Malkangoni*) reversed scopolamine-induced deficits in navigational memory task in young adult rats.

**Celastruspanniculata**



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7. **Kushmanda** (*Benincasahispida*) belonging to Cucurbitaceae an extensive trailing or climbing herb cultivated throughout the plains of India as a vegetable. The fruit, broadly cylindrical, is covered with a waxy bloom. Phytochemical analysis of *Benincasahispida* shows presence of alkaloids, flavonoids, saponins and steroids. *Benincasacerifera* serves as ROS scavenger and an antioxidant effective agent. It has a tissue protective preventive effect on colchicine induced Alzheimer's disease via direct and indirect antioxidant activity. *Kushmandadi Ghrita* showed significant results in the management of *Chittodvega* (anxiety disorders).



### **Benincasahispida**

8. **Vacha** (*Acoruscalamus*) of Araceae family is a semiaquatic, perennial, aromatic herb with its rhizome being horizontal, rounded, somewhat vertically compressed, and spongy and leaves grass like and sword shaped; grown all over India. Rhizome is useful part having *Medhya* quality. It has been used in Indian and Chinese system of medicine for hundreds of years to cure diseases especially the central nervous system (CNS) abnormalities. Active chemical principles are  $\alpha$ -asarone, elemicine, cis-isoelemicine, cis and trans isoeugenol and their methyl ethers, camphene, P-cymene, b-gurjunene,  $\alpha$ -selinene,  $\beta$ -cadinene, camphor, terpinen-4-ol,  $\alpha$ -terpineol and  $\alpha$ -calacorene, acorone, acronone, acoragermacrone, 2-deca-4,7 dienol, shiyobunones, linalool and preisocalamendiol. Acoradin, galangin, 2, 4, 5-trimethoxy benzaldehyde, 2,5-dimethoxybenzoquinone, calamendiol, spathulenol and sitosterol are also present. Good in clearing speech to the children and useful in schizophrenic psychosis.

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**Acorus calamus**



9. **Jatamansi** (*Nardostachys jatamansi*) is an erect perennial aromatic herb with long, stout, woody, greyish, rhizomatous, tail-like rootstock covered with reddish-brown hairs or tufted fibrous remains of the petioles of withered radical leaves and belongs to Valerianaceae family. Rhizome is used for medicinal purposes as it is *Bhutaghna* or *Manasa Doshahara* (relieves of psychiatric problems) and *Medhya*. Roots and rhizomes of *N. jatamansi* are used to treat hysteria, epilepsy, and convulsions. The decoction of the drug is also used in neurological disorders, insomnia and disorders of cardiovascular system. Rhizomes contain a terpenoid ester, nardostachysin I. It is proven to improve learning and memory in mice and also to enhance biogenic amine activity. An acetone extract of *N. jatamansi* has shown significant inhibition of benzoyl peroxide-induced cutaneous oxidative stress, toxicity, and ear oedema in mice



**Nordastachy's Jatamansi**



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10. **Withaniasomnifera**, a Solanaceae family plant, holds the most prominent place of the Ayurvedic Rasayana herbs, acting as an adaptogen, rejuvenating the nervous system, and enhancing the body's resilience to stress. For focus, concentration, and memory, Ashwagandha has been shown in many studies to enhance all aspects of cognitive function

### **Withaniasomnifera**



Sensorimotor function, auditory reaction time, and mental arithmetic ability are improved by Adaptogenic action, and stress management is achieved. The glycol with anolides mimics the body's own stress-reducing relaxation hormones, which reduces cortisol. Overall energy levels can be enhanced through optimizing mitochondrial function. *Withaniasomnifera* helps to maintain homeostasis, a sense of presence and focus, throughout times of stress. Ashwagandha is a calming adaptogen—one of the few adaptogens that can be taken later in the day or even at bedtime

### **Anxiolytic**

Effectively utilized with people struggling with anxiety, insomnia, nervous exhaustion, and mild OCD, *with aniasomnifera* has GABA-mimicking effects. In one Indian study done on rats, a bioactive glycol with anolides isolate made from the roots of the plant showed results comparable to those elicited by the benzodiazepine lorazepam for anxiety and the tricyclic anti-depressant imipramine for depression.

The one study is the first report in the direction of clinical research where the scientific clinical study is conducted to understand the effect of Ashwagandha root extract on sleep quality in the considered patient population. Various sleep parameters were included in this study along with the level of anxiety in a 10-week treatment period, and the outcome was compared with a placebo via a randomized, double-blind, controlled clinical trial. Significant improvement of different components of sleep quality, sleep onset latency, and reduced anxiety was observed while using Ashwagandha root extract in participants for the insomnia patients compared to the placebo group. Kaushik et al. reported that the active ingredient of Ashwagandha leaves such as tryethylene glycol can induce sleep in mice through reducing the NREM sleep onset latency period.

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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## HERBS FOR MENTAL HEALTH IN COVID 19 PATIENTS

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### ABSTRACT

*Worldwide many people get affected during pandemic i.e., COVID 19 causes many health related as well as mental crisis, anxiety, stress and critical mental health problems in 93% of countries worldwide. WHO survey shows the devastating impact of covid 19 on mental health services. In some cases, there is higher risk of severe outcomes and even death. Every individual facing more problems during pandemic, emotional, mental, feeling of helplessness, loneliness. Ayurveda is the most ancient science of medicine in India. As per Ayurveda, a perfect balance of mind, body and soul is considered as complete health. For all mental health ailments meditation and herbs are more useful. Herbs like Ashwagandha, Guduchi, Yashtimadhu, Brahmi etc. to fight against Covid 19 and to restore mental health.*

### INTRODUCTION

The covid 19 pandemic has affected many individuals through associated anxiety, stress and critical mental health problems in 93% of countries worldwide. WHO survey shows the devastating impact of covid 19 on mental health services. Bereavement, isolation, loss of income, fear of infection and distorted daily activities invites psychiatric illness including stress, anxiety, and depression. Covid 19 itself can cause complications related to neurological and mental disorders. In some cases, there is higher risk of severe outcomes and even death. Hence it is necessary to pay attention towards mental health.

Ayurveda is the most ancient science of medicine in India. As per Ayurveda, a perfect balance of mind, body and soul is considered as complete health. The interdependent nature of immunity and psychological state is established and decides the outcome of disorders. An immune system is affected by mental wellbeing and depression has negative impact on its outcome.

As there are no specific anti Covid -19 drugs, focuses on traditional medicinal plants. Some herbs are found to be effective for prevention, treatment and rehabilitation of the diseases including Covid-19. Herbal extracts inhibit viral replication also it can interact with key viral proteins which are associated with virus virulence. Virological clearance can occur more quickly by ayurvedic treatment which help in faster recovery and concomitantly reduce risk of viral dissemination. Reduced inflammation markers suggested less severity of SARS-COV2 infection in associated study.

Some Ayurvedic medicinal herbs have properties to fight against Covid19 and to restore mental health.

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Following are some Ayurvedic herbs for mental health in Covid patients:

### 1] Ashwagandha:

Latin name: WithaniaSomnifera

Family: Solanaceae



Guna:-*Laghu, Snigdha*. Rasa:-*KatuTiktaMadhur*.

Vipak:-*Madhur* and Virya :- *Ushnya*

Chemical constituents: Withanone, Withanolids, withaferins, saponins, Sioindosides, Alkaloids ( isopelletierine, anaferine, cuseohygrine, anahygrine ) and acylsterylglucosides.

Part used: Roots

With none which is the active components of with aniasomnifera, inhibits the interaction between Receptor Binding Domain (RBD) of SARS-COV2 spike protein and Host ACE-2 receptor. ACE2RBD complex prevents viral entry into host cell causing early virological clearance.

Ashwagandha possesses anti-inflammatory, anti-tumor, anti-stress, anti-oxidant, immunomodulatory, hemopoietic and rejuvenating properties. It also has positive effect on the endocrine, cardiovascular and central nervous system.

It is used in covid 19 patients to decrease viral load as well as to relieve stress and increase immunity. Ashwagandha can reduce anxiety and stress, useful in depression. It strengthens the activity of brain.

Ayurvedic preparation: *ashwagandadichurna, ashwagandhaghanvati, rasayanghrut, ashwagandharishta.*

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### 2] Guduchi

Latin name: *Tinosporacordifolia*

Family- Menispermaceae

Guna: *Guru, snigddha*. Rasa: *Tikta, Kashaya*. Vipak: *Madhur*. Virya :*Ushnya*,

Chemical constituents: Berberine, Giloin, terpenes, tetrahydropalmatine, glycosides, alkaloids, steroids and flavonoids.

Part used: Stem, Roots, leaves, *Panchang*

Guduchi is a medicinal plant having several constituents such as Berberine, Giloin, terpenes, glycosides, alkaloids, steroids and flavonoids. It is used as anti-anxiety, anti-microbial, antiviral, anti-diabetic, anti-parasitic, anti-diarrhoeal, anti-ulcer, anti-inflammatory, analgesic, antipyretic agent. It is hepatoprotective and cardioprotective. Its content micronutrients viz- copper, calcium, phosphorus, iron, zinc and manganese. It also helpful in treating endocrine and metabolic disorders and It strengthens immune system of our body.

Guduchi has antiviral property against SARS COV-2 .Berberine can regulate 3CL<sup>pro</sup>protein's function due to its easy inhibition and thus it can control viral replication.

Guduchi has protective mechanisms against oxidative stress related diseases.

Preparation:-*guduchichurna ,kadha, guduchighanvati, Amrutarishta, guduchi tail* .



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**3] Yastimadhu:-**

Latin name :GlycerrhizaGlabra



Family: Leguminosae

Guna : *Guru, Snigdha* ; Rasa: - *Madhur*, Vipak: *Madhur*; Virya: *Sheet*

Chemical constituents: glycerrhizin, isoliquiritin, asparagines, Triterpenesaponin, Glycerrhizic acid.

Part used: Roots

Glycyrrhizic acid is a triterpenesapon in which is found in high concentration in the root of Glycyrrhizaglabra plant. It has antiviral activity. Glycyrrhizin inhibits the viral main protease and blocks the viral replication. High concentration of glycyrrhiz in in aqueous Licorice root extract may inhibit SARS COV-2 replication.

Glycyrrhizin can reduce expression of ACE-2 receptor in the lung and reduce lung inflammation. Thus, it decreases the severity of the disease and existing symptoms. Finally help to reduce critically ill covid patients.

A proper function of adrenal gland is necessary to maintain cortisol level in the body. Cortisol is a stress hormone which regulate our health. Glycyrrhizaglabra (Licorice root) is effective for stimulating the adrenal gland. Licorice also contains compounds that inhibit monoamine oxidase enzyme that breaks down neurotransmitters like Serotonin.

Preparation: Yashtyadichurna, *YashtyadiKwath*, *Yashtimavadhya tail*.

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**4] Tulasi:**



Latin name: *Ocimum sanctum*

Family: Lamiaceae

Guna: *Laghu, Ruksha*; Rasa: *KatuTikta*; Vipak: *Katu*; Virya: *Ushna* ;

Prabhav : *Krumighnya*

Chemical constituents: Eugenol, Thymol, beta caryophyllene, Rosmarinic acid, Carvacrol, flavonoids .

Part used: *Panchang*, Leaves, seeds.

Tulasi has broad spectrum anti-microbial and antiviral activity. It has anti-inflammatory, immunomodulatory action. Scutellarein is an active component from *Ocimum Sanctum*, binds to the enzymatic active site of viral RNA- dependent RNA polymerase of SARS COV2

Tulasi also has beneficial effect on physical, chemical, metabolic and psychological stress through a unique combination of pharmacological actions. Tulasi protects from psychological stress through positive effects on memory and cognitive function and through its anxiolytic and anti-depressant properties.

Preparation: *tulasiswarasa, churna*

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**5] Haridra:-**



Latin name: *Curcuma longa*

Family: Zingiberaceae

Guna: *Ruksha, Laghu*; Rasa: *Tikta, Katu*; Vipak: *Katu*; Virya: *Ushna*

Chemical constituents: Curcumin, Curcuminoids, Cymene, Tumeron, Demethoxycurcumin, Diarylheptanoids.

Part used: Roots (Rhizomes)

Haridra (Turmeric) is widely used in food and as a traditional medicinal herb. Haridra contains bioactive component called curcumin. Curcumin has immunoboosting aptitude. It can alleviate the covid 19 associated ill-effects including cytokine storm.

Curcumin can avert the anxiety and the stress driven manifestation of depression through modulation of the monoaminergic troupe (dopamine, glutamate, serotonin and nor adrenaline) [13][14].

Preparation: *Haridrakhand, Swarasa, Churna*.

In Ayurveda, herbs with a stabilizing effect on the mind called as “*Medhyarasayana*”. These herbs develop the intellect and nourish the neurological tissues and act as nerve tonics.

Following are the well-known herbs in Ayurveda which are used for psychological disorders. These herbs can be used for mental health in covid patients.



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**6] Vacha:**



Latin name: *Acorus Calamus*

Family: Araceae

Guna: *Laghu, Tikshna*; Rasa: *Katu, Tikta*; Vipak: *Katu*; Virya: *Ushna*; Prabhav: *Medhya*.

Chemical constituents: Asarone, Methylisoeugenol, Asarylaldehyde, Acorin, caffeine.

Part used: Roots

Vacha is emetic, pungent and bitter in taste, ushnavirya and alleviates the diseases due to vata and kaphadoshas.

It is beneficial to throat and intellect. Vacha is also called as “Manasdosahar”.

It has been proven that Vacha has antidepressant effect. It is used in psychological disorders.

Vacha has various constituents which are beneficial in several metabolic and neurological disorders such as anticonvulsant, antidepressant, antihypertensive, anti-inflammatory, immunomodulatory, neuroprotective, cardioprotective and anti-obesity effects.

So, it can be useful in covid patients.

Preparation: *Saraswatachurna, Vachadi Tail, MedhyaRasayan*

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**7] Shankhapushpi :**



Latin name: *Convolvulus pluricaulis*

Family: *Convolvulaceae*

Guna: *Snigdha, Pichhil*; Rasa: *Tikta, Vipak*; Madhur,

Virya: *Sheet*, Prabhav : *Medhya*

Chemical constituents: Maltose, rhamnose, Sucrose, Carbohydrate D- glucose, Starch.

Part used: *Panchang*

Shankhpushpi is useful in cough, poisoning, epilepsy and as Bhutaghni (microorganisms or evil spirits causing psychological disorders). It is intellect promoting and rasayana and acts as anervine tonic.

It has protective action against memory dysfunction and antioxidant action on brain cells. It inhibits AchE which is responsible for cognitive function. It also inhibits 5-LOX which is responsible for neurodegenerative disorders.

Preparation: *Shankhpushpipanak, MedhyaRasayana, shankhpushpichurna, swarasa, kashay.*

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**8] Brahmi:**



Latin name: *Bacopamonnieria*

Family: Scrophulariaceae

Guna: *Laghu, Sar* ; Rasa: *Tikta, Kashay, Madhur*; Vipak: *Madhur*, Virya : *Sheet*;

Prabhav: *Medhya*

Chemical constituents: Bacoside A, Betulinic acid, Rosavin, Oroxindin.

Part used: *Panchang*, Leaves, Roots

Brahmi is nervine tonic .Brahmi has anxiolytic, nootropic, antidepressant, sedative and adaptogenic effects in human.

Bacoside in Brahmi create anti-oxidant environment in brain. neuroprotective activity regulates mRNA translation and surface expression of neuroreceptors in various parts of brain.

Preparation: *Brahmivati, churna, ghrut, tail, Sarswatarishta, Sarswatghrut.*

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**9] Jyotishmati(Malkangani):**



Latin name: *Celastrus panniculatus*

Family: *Celastraceae*

Guna: *Tikshna*; Rasa: *Katu, Tikta*; Vipak: *Katu*, Virya: *Ushna*; Prabhav: *Medhya*

Chemical constituents: Acetic acids, benzoic acids, Fatty acids.

Part used: Seeds

Jyotishmati is pungent and bitter in taste and laxative. It is useful in diseases occurring due to kapha and vata doshas. It promotes digestion, intellect and memory.

It is nervine and brain tonic used in mental depression and improving memory. Jyotishmati oil has anti-depressant like effect by interacting with dopamine D2 receptors, serotonergic and GABA receptors.

Preparations: *Jyotishmati oil, Jyotishmativati, Smritisagar rasa.*

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**10] JATAMANSI :**



Latin name: *Nardostachys Jatamansi*

Family: Valerianaceae

Guna: *Laghu, Snigdha*. Rasa: *TiktaKashayMadhur*. Vipak: *Katu*. Virya: *Sheet*. Prabhav: *Bhutaghnya*.

Chemical constituents: -Isovaleric acid, patchoulol, alpha guaiene, methylvaleric acid, alpha bulnesene.

Part used: Roots, Rhizomes

Jatamansi is a neuroprotective herb having natural sedative action. Its natural neuro relaxing effect helps to block sympathetic nervous response and activate parasympathetic nervous response which repair and rejuvenate mental function. It is used in diseases such as epilepsy, hysteria, sleeplessness and convulsions. Jatamansirhizomal extract has anticonvulsant, antidepressant and neuroprotective effect.

Preparation: *MansyadiKwath, RakshoghnaGhrut, Mansighrut, Keshyatail*.

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## 11] MANDUKPARNI:



Latin name: *Centellaasiatica*

Family: Umbellifereae

Guna: *Laghu*. Rasa: *TiktaKashayMadhur*. Vipak: *Madhur*.

Virya: *Sheet*. Prabhav: *Medhya*

Chemical constituents: Alkaloids, flavonoids, terpenes, polyacetylenes, amino acids.

Part used: panchang, Leaves.

Mandukparni is a traditional medicinal herb having neuroprotective property. It has an antioxidant property which reduces oxidative stress. It is used in Alzheimer's disease, Parkinson's disease, neurotoxicity, anxiety, depression, convulsions and insomnia. Mandukparni enhances memory and learning capacity.

Preparation: *Mandukparni swaras, Brahmipanak, Brahmitail, Sarswatarishta, Sarswatghrut.*

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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## MENTAL HEALTH IN COVID-19: GILOY AS POWER DRUG

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## INTRODUCTION

COVID-19 has been labelled as a public health emergency of international concern (PHEIC) and the epidemic curves are still on the rise. Due to exaggeration of lockdown, mental health of people has been affected. Anxiety, emotional stress, depression, insomnia, denial, tension, anger and fear were observed that could affect attention, understanding and decision-making capacity and wellbeing of doctors and medical staff. Due to isolation and lack of contact with family, exhaustion was observed in the medical workers. During recent times, the use of herbal based formulations has been on the rise in the direct treatment of infectious diseases. *Guduchi* which is called as “adaptogen” or “Rejuvenator” is used as *MedhyaRasayana* to combat stress and anxiety. There are some references found in ayurvedic and modern literature that proves the efficacy of *Guduchi* in reducing stress and anxiety. In this paper the mechanism of stress and the effect of *Guduchi* in mental health will be discussed in detail.

## MENTAL HEALTH ISSUES AND TINOSPORA CORDIFOLIA

Mental health is a state of wellbeing in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully and is able to contribute to his or her community

A WHO guideline stated that “increased rates of stress and anxiety is the main psychological impact of the pandemic up till now”, with a warning that “as new measures especially quarantine is introduced, its impact on public’s daily activities, livelihoods, loneliness levels, harmful drugs and alcohol use, depression, and suicidal behaviour or self-harm are also expected to rise”

Any alteration in external or internal environment of a cell that disrupts its homeostasis is termed as stress. Living systems are optimally tuned to adjust to environmental conditions in which they live and any change in these conditions, such as temperature shock, starvation, desiccation, bacterial, and/or viral infection, challenges the homeostasis of living systems. Cells, however, employ a variety of ways to combat these adverse situations which include either activation of cell survival promotion pathways or programmed cell death to eliminate damaged cells. Other than this production of anti-oxidants also reduce stress to some extent.

Ayurvedic formulations are reported to have life trait benefitting properties which improve capacity to withstand stress and tolerate adverse conditions. Some earlier studies have shown that feeding on some of the Ayurvedic formulations can provide better stress tolerance against a variety of stressors. In another study *Guduchi* and *Madhuyashti* were given to see their efficacy on different environmental stressors in *Drosophila*.

*MedhyaRasayana* are a group of medicinal plants described in Ayurveda with multi-fold benefits specially act on intellect and memory due to their specific action called Prabhav. In Charaka Samhita four *MadhyaRasayana* are described:



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1. *Guduchi (Tinosporacordifolia)*
2. *Mandukaparni (Centellaasiatica)*
3. *Shankapushpi (Convolvulus pluricaulis)*
4. *Madhuyashti (Glycyrrhiza glabra)*

*Guduchi (Tinosporacordifolia (Wild) Miers)* of Menispermaceae family is a large glabrous, deciduous, climbing shrub which is found throughout the tropical India. *Giloy* is used in different forms to yield different actions. Juice of *Giloy* is used universally as *MedhyaRasayana*. *Guduchi* is also used in the form of Decoction, Powder and Sattva (Starch Extract of stem). Root of *Guduchi* is known for its anti-stress, anti-leprotic and anti-malarial activities. *Tinospora cordifolia* is known to be a rich source of trace elements (Zinc and Copper) which act as antioxidants and protects cells from the damaging effects of oxygen radicals generated during immune activation. *Tinospora cordifolia* has been claimed to possess learning and memory enhancing, antioxidant, and anti-stress activity. *Tinospora cordifolia* enhanced the cognition in normal and cognition deficits animals in behavioural test Hebb William maze and the passive avoidance task. Mechanism of cognitive enhancement is by immune stimulation and increasing the synthesis of acetylcholine, this supplementation of choline enhances the cognition. *Guduchi* which is called as “adaptogen” or “Rejuvenator” also belong to the adaptogen class as this is reported to improve stress response and help the body to adapt to stress by normalizing physiological processes towards homeostasis.

The antistress action has been shown to be beneficial in depression and in improving cognition and memory. The most likely antidepressant mechanisms involve inhibiting reuptake of amines in the brain. Improved levels of norepinephrine (NE), serotonin (5-hydroxytryptamine or 5-HT), and dopamine (DA), and decreased levels of gamma-aminobutyric acid (GABA) have been demonstrated. Inhibiting the breakdown of amines, particularly norepinephrine and serotonin has also been demonstrated. GABA-B receptor antagonism and G-protein mediated signalling have been suggested as additional underlying mechanisms. Central antioxidant and protective properties play an important role in improving cognition, concentration, and memory. *Tinospora cordifolia* has also been shown to be beneficial in improving cerebral ischaemia. Prevention of oxidative stress injury and regulation of cytokines are possible mechanisms involved in beneficial effects in this situation. *Tinospora cordifolia* is one of the unique herbal medicines in management of depression, Alzheimer disease, and attention-deficit hyperactivity disorder.

Traditionally, *T. cordifolia* is prescribed in disease conditions like fever, asthma, dysentery, leprosy, diarrhea, jaundice, skin infections and diabetes by Ayurveda practitioners. Its drug like action has been categorized according to taste, property (guna), digestion and metabolism, potency and mechanism of action.

### RESULT

Plant part	Medicinal uses
Root	<ol style="list-style-type: none"><li>a. Root of <i>Guduchi</i> having anti-oxidant activity and it will reduce tissue cholesterol, phospholipid and free fatty acids.</li><li>b. Root is used for visceral obstruction; its water extract is used in leprosy.</li><li>c. Resistance against HIV.</li><li>d. Prevent diabetic cataract and weight loss in diabetic patients.</li><li>e. Hypoglycaemic activity - root of this herb decreases blood glucose level, brain lipid level and increases total haemoglobin.</li></ol>

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	<p>f. Roots of the herb is very thin and strong, in Sushruta root is used for suturing surgical wound, because of this strong root there is no chances of wound rupture and <i>Guduchi</i> having potent wound healing property.</p>
Stem	<p>a. Combination of root and stem extract with other drug are prescribed as anti-dote to snake bite and scorpion sting.</p> <p>b. Juice of the stem with honey is better for the treatment of Asthma.</p>
Leaves	<p>a. Leaves are extensively used in the treatment of fever, urinary tract disorder, diabetes, anaemia, asthma, cardiac disorder, bacterial infection.</p>
Fruit	<p>a. Combination of dried or powdered fruit with honey is used as tonic for the treatment of rheumatism and jaundice.</p>
Bark	<p>a. Anti-pyretic, anti-allergic, anti-spasmodic, anti-leprotic.</p>

## CONCLUSION

The COVID-19 pandemic has disrupted or halted critical mental health services in 93% of countries worldwide while the demand for mental health is increasing, according to a new WHO survey. Reports also shows that many adults are reporting specific negative impacts on their mental health and well-being, such as difficulty sleeping (36%) or eating (32%), increases in alcohol consumption or substance use (12%), and worsening chronic conditions (12%), due to worry and stress over the coronavirus. People are overstressed by the compulsions of social distancing and physical barrier methods. They are likely to find comfort and support in some of the deeply rooted traditional practices that may protect them from the infection and its associated debilitating conditions and also help in reducing stress level. *Guduchi* itself means “one which protects our body” and an Amrita means the nectar that confers immortality”. Every part of the plant has therapeutic values. Stress, which is defined as physical or emotional burden or body's fight and flight response to challenging circumstances, induces a cluster of physiological changes involving endocrinal, immune and nervous systems. *Tinospora Cordifolia* having *Medhya* properties produce anti-oxidants in the body which proves to be beneficial in reducing stress. *Medhy* property of *Guduchi* which help in increasing cognitive function of mind Other than this *Guduchi* which is called as “adaptogen” or “Rejuvenator” also belong to the adaptogen class as this is reported to improve stress response and help the body to adapt to stress by normalizing physiological processes towards homeostasis. So, *T. cordifolia* along with other *Medha Rasayanas* has been recommended for the treatment of depression and stress management.

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**INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE  
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**MEDHYA RASAYANA HERBS FOR THE MANAGEMENT OF PSYCHOLOGICAL  
PROBLEMS IN COVID 19**

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## **INTRODUCTION**

The first case of COVID 19 was detected in December 2019 and WHO declared it as global pandemic after few weeks later. It is an acute respiratory syndrome caused by novel coronavirus 2 (SARS-CoV-2). Globally there are 237,383,711 confirmed cases of COVID-19, including 4,842,716 deaths till date reported to WHO. Few common symptoms of COVID 19 are fever, dry cough, and shortness of breath. The effect of the COVID 19 on mental health was not so much clear in its earlier phase but now various studies have been published showing its bad impact on global mental health. Studies suggest that SARS-CoV-2 can damage CNS, can cause viral encephalitis, hypoxic encephalopathy, meningitis-encephalitis, infectious toxic encephalopathy and acute cerebro vascular disease. One of such studies showed that 36.4% of COVID-19 patients had neurological manifestations. A study conducted on 40,469 of COVID-19 patients suggests that 22.5% of them have neuropsychiatric symptoms, including headache, insomnia, encephalopathy, cerebro vascular disease, depression and suicidal ideation. A meta-analysis of 12 studies of 976 COVID 19 patients has shown that depressive symptoms occurred in 35% and anxiety in 28% of them.

Looking all these aspects the WHO has also expressed its concern over the pandemic's mental health and psycho-social consequences. Earlier the medical science was focusing on identification, testing, treatment, drug development and vaccines of the novel Corona virus but now they are concerned about its long-term effect on health as well as mental health. Efforts has been made by medical science for making few strategies like development of teams of specialists qualified personals, training of community health personnel in basic aspects of mental health care, online counselling etc. but still the issue of effective mental health promotion and protection is a challenging question.

Ayurveda is experienced science of life which treasures various measures and modalities for holistic management of disease. Thus, the herbs mentioned as *Medhya* (cognitive enhancers) in Ayurveda may be utilized for effective management of mental illnesses during COVID 19.

The herbs namely *Mandukaparni* (*Centella asiatica* Linn.), *Yashtimadhu* (*Glycyrrhizaglabra* Linn.), *Guduchi* [*Tinosporacordifolia* (Willd.) Miers ex Hook. f. and Thoms.], and *Sankhapushpi* (*Convolvuluspluricaulis* Choisy) are mentioned as *Medhya rasayana* in *Charak Samhita* and among them *Sankhapushpi* is said to be best. Further it is stated that *Medhya Rasayanas* has multi-fold benefits, like improvement of memory and intellect by *Prabhava* (specific action). *Medha* means intellect and/or retention and *Rasayana* means therapeutic procedure or preparation that on regular practice will boost nourishment, health, memory, intellect, immunity and hence longevity.

Due to these kinds of properties these herbs may have good effect on mental health of COVID 19 patients as well as general public and health workers. To understand the potential of

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*Medhyarasayana* in minimising the psychological burden an attempt has been made to review these herbs from Ayurveda classics as well as from research databases.

### MATERIAL AND METHODS

The review of *Medhyarasayana* was done from *CharakaSamhita*, pharmacological attributes were reviewed from *Bhavaprakashanighantu* and contemporary review of COVID 19 mental health and *Medhya rasayana* was done from PubMed and google scholar. The searching key were *Medhya rasayana*, *Mandukaparni* + *Medhya/Centella asiatica* Linn. + *Medhya*, *Yashtimadhu* + *Medhya/Glycyrrhizaglabra* Linn. + *Medhya*, *Guduchi* + *Medhya/Tinosporacordifolia* (Willd.) Miers ex Hook. f. and Thoms. + *Medhya*, *Sankhapushpi* + *Medhya/Convolvuluspluricaulis* Choisy + *Medhya*, and COVID 19 + mental health.

### OBSERVATIONS AND RESULTS

It was observed that *Mandukaparni* and *Guduchi* should be used in *Swarasa* (expressed juice) form, *Yashtimadhu* in powder form with milk, and *Sankhapushpi* in *Kalka* (paste) form for *Medhyakarma* (action).

The pharmacodynamic attributes, *Doshghanta* and *Medhyakarma* of herbs showed that the herbs are enumerated as *Smrutiparda*, *Medhya*, *Manasaroghara*, *Smrutida*, *Apasmaranuta*.

**Table 1:** Pharmacodynamic attributes, *Doshghanta* and *Medhyakarma* of *Medhyarasayana*

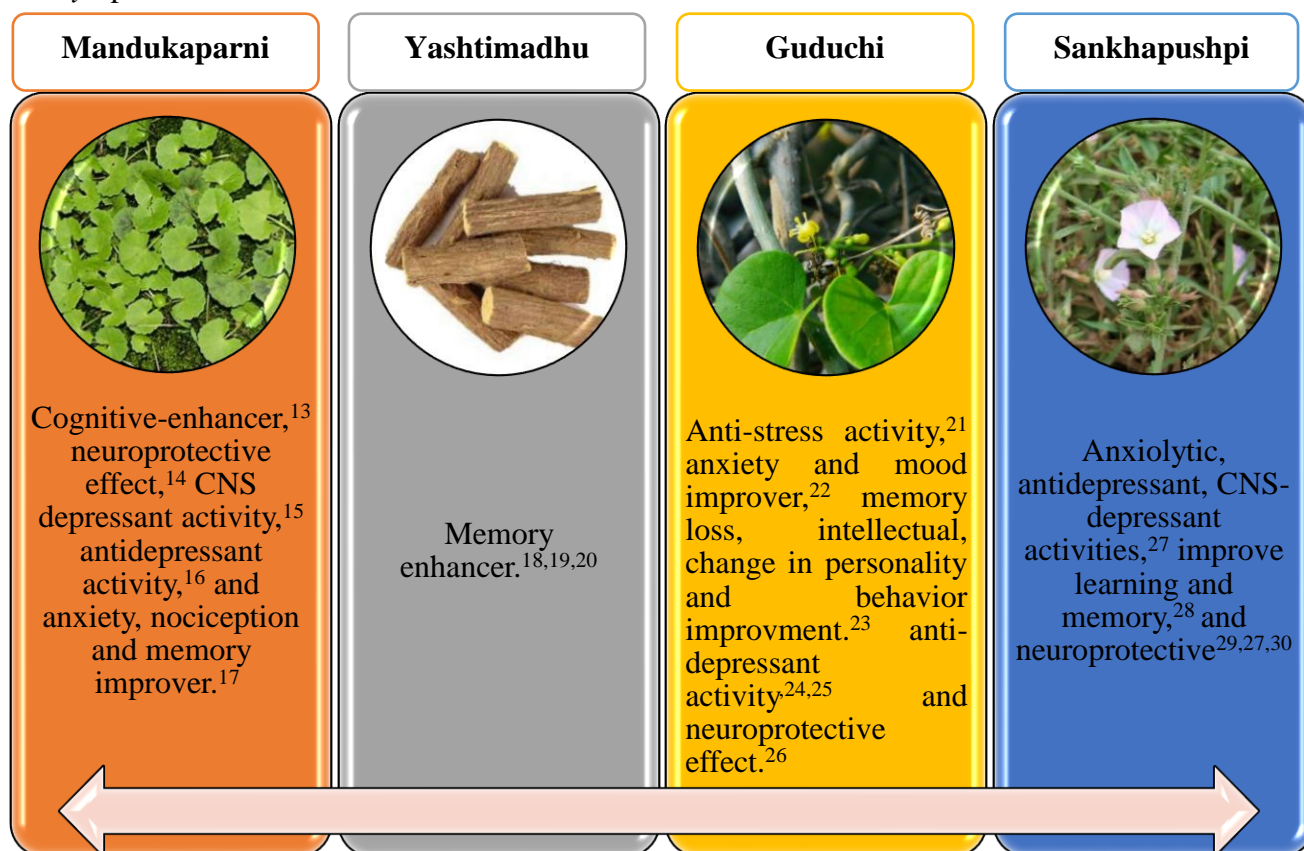
<i>Medhya rasayana</i>	Pharmacodynamic attributes	<i>Doshghanta</i>	<i>Medhya karma</i>
<i>Mandukaparni</i> ( <i>Centella asiatica</i> Linn.) (B.P.Ni., Pg. 448)	<b>Rasa-</b> Tikta, Kashaya <b>Guna-</b> Laghu, Sara <b>Veerya-</b> Sheeta <b>Vipaka-</b> Madhura	-	<i>Smrutiparda</i>
<i>Yashtimadhu</i> ( <i>Glycyrrhizaglabra</i> Linn.) (B.P.Ni., Pg. 62)	<b>Rasa-</b> Madhura <b>Guna-</b> Guru, Snigdha <b>Veerya-</b> Sheeta <b>Vipaka-</b> Madhura	<i>Pitta-Vata-Raktashamaka</i>	-
<i>Guduchi</i> [ <i>Tinosporacordifolia</i> (Willd.) Miers ex Hook. f. and Thoms.] (B.P.Ni., Pg. 257)	<b>Rasa-</b> Tikta, Kashaya <b>Guna-</b> Laghu <b>Veerya-</b> Ushna <b>Vipaka-</b> Madhura	<i>Tridoshashamaka</i>	-
<i>Sankhapushpi</i> ( <i>Convolvuluspluricaulis</i> Choisy) (B.P.Ni., Pg. 439)	<b>Rasa-</b> Kashaya <b>Guna-</b> Sara <b>Veerya-</b> Ushna <b>Vipaka-</b> Katu	-	<i>Medhya</i> , <i>Manasaroghara</i> , <i>Smrutida</i> , <i>Apasmaranuta</i>

- B.P.Ni. – Bhavaprakasha Nighantu

Contemporary review of the herbs showed that the herbs are having various activities like memory enhancing, neuro protective, anti-depression etc. (Figure 1).

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**Figure 1:** Showing various reported pharmacological activities of herbs indicating their *Medhya* potential.



**Figure 1:** Reported activities of *Medhya rasayana* herbs

**DISCUSSION**

The recent survey by the Indian Psychiatric Society shows a twenty percent increase in mental illnesses since the coronavirus outbreak in India.

It is also reported that COVID 19 patients develop mental disorders and neurological symptoms due to central nervous system penetration and neuro-inflammation. In SARS-CoV-2 it has been found that the angiotensin converting enzyme 2 receptor (ACE2) is crucial for penetrating cells which is widely present in multiple human organs, including the nervous system and skeletal muscles. The ACE2 is also expressed by the epithelial cells of oral cavity, which would support the concept of olfactory route of the CNS invasion by a novel coronavirus and showed taste or olfactory disorder.

High cytokine release was reported in COVID 19, characterized by increased production of interleukin (IL)-2, IL-7, granulocyte-colony stimulating factor, interferon- $\gamma$  inducible protein 10, monocyte chemoattractant protein 1, macrophage inflammatory protein 1- $\alpha$ , and tumour necrosis factor- $\alpha$ , as per severity of COVID-19. Direct viral invasion of the brain causing encephalitis, neuro-inflammation, and peripheral organ dysfunction and cerebro vascular changes can separately, or all combined cause neuropsychiatric symptoms.

*Mandukaparni* and *Sankhapushpi* have neuro protective and CNS depressant activity which can be useful in COVID 19.

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*Sankhpushpi* reduces anxiety and stress by controlling the production of body's stress hormones, adrenaline and cortisol.

It contains many phytonutrients like convolidine, convolvine, convolvidine, convoline, confoline, phyllabine, subhirsine, and scopoline. These compounds help in brain stimulation and increase the ability to concentrate. *Mandukaparni* has Asiatic side, an active principle which imparts anxiolytic activity. *Yashtimadhu* contains the active principles, glycyrrhizin, glycoside, isoliquiritin, liquiritin, steroid estrogen, hispaglabridin B, isoliquiritigenin, and paratocarpin B. It also increases the blood circulation to the central nervous system. Isoflavones glabridin and hispalglabridins A and B of G. have significant antioxidant activity. The antioxidants protect susceptible brain cells from the oxidative stress, resulting in reduced brain damage and improved neuronal function, thereby enhancing the memory.

*Guduchi* has active principles such as tinosporone, tinosporic acid, cordifolisides A-E, syringen, berberine, giloin, gilenin, crude giloininand, arabinogalactan polysaccharide, picrotene, gilosterol, tinosporol, tinosporidine, sitosterol, cordifol, and glucan polysaccharide. The root extract of the herb was found to possess normalizing activity against stress-induced changes in norepinephrine, dopamine, 5-hydroxytryptamine, and 5-hydroxyindoleacetic acid levels. The herb also enhances cognition (learning and memory) in normal rats.

A clinical study of *Medhya rasayana* suggests its efficacy in short term memory in school going children.

All these scientific studies support the use of *Medhya rasayana* in COVID 19 mental health. These herbs can be used as single or in combination.

Further, as per Ayurveda principles *Pittadosha* maintains the intelligence and *Kapha* sustains the body with intelligence and *Dhriti* (courage) by its *Sthiraguna*. *Pranavata* performs the intellectual function and it is the main factor involved in grasping and fast recall, especially because of its *Chala* (mobile) and *Vishada* (fast-spreading) properties. *SadhakaPitta* performs functions like discrimination between right and wrong by the *NishchayatmakaBuddhi* and *Medha* (intelligence). *MedhyaRasayanashelps* to maintain *Vata*, *Pitta*, and *Kaphadoshas* normal functions and also have specific *MedhyaPrabhava*.

## CONCLUSION

COVID 19 has affected the life due to deaths, hard quarantine, rules, social distancing and its impact on mental health is well reported. In this aspect four well reported *Medhya rasayana* *Mandukaparni* (*Centella asiatica* Linn.), *Yashtimadhu* (*Glycyrrhizaglabra* Linn.), *Guduchi* [*Tinosporacordifolia* (Willd.) Miers ex Hook. f. and Thoms.], and *Sankhpushpi* (*Convolvuluspluricaulis* Choisy) may be utilized in single or in combination for better management of mental issues in COVID 19.

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### MENTAL HEALTH SCENARIOS IN COVID-19 AND POSSIBLE ROLE OF AYURVEDIC INTERVENTIONS IN THE SAME - AN OVERVIEW

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#### MENTAL HEALTH SCENARIO IN COVID-19 PANDEMIC

The COVID-19 pandemic has hit the world hard in multiple aspects. Massive loss of life was witnessed due to lack of planning and knowledge. The virus outbreak, lockdowns and economic recession not only lead to physical distress but also created a surge in mental disorders in individuals. A study based on Canadian individuals reported an increase in suicide from 418 to 2114 associated with joblessness during the pandemic (**McIntyre and Lee (2020b)**). Similar rising trajectory of suicide was studied in the USA, Pakistan, India, France, Germany, and Italy (**Mamun and Ullah (2020), Thakur and Jain (2020)**). Researchers have reported an increase in psychological distress in the general population as well as in healthcare workers (**Hao et al (2020), Tan et al (2020), Wang et al (2020b)**). The COVID-19 pandemic has challenged health care systems in numerous aspects. The prophylactic and therapeutic potential of traditional and complementary medicine systems such as Ayurveda were not really considered during the crisis in global hunt for effective preventive and treatment measures. Throughout the world, the physical effects of COVID-19 infection were studied; however the effects of this pandemic on mental health were less researched. As a major virus outbreak, the COVID-19 pandemic led to unprecedented hazards to mental health globally.

The COVID-19 pandemic is evidently associated with highly significant levels of psychological distress. High rates of symptoms of anxiety (6.33% to 50.9%), depression (14.6% to 48.3%), post-traumatic stress disorder (7% to 53.8%), psychological distress (34.43% to 38%) and stress (8.1% to 81.9%) were reported in the general population during the COVID-19 pandemic in China, Spain, Italy, Iran, the US, Turkey, Nepal, and Denmark. Risk factors associated with distress measures included female gender, younger age group ( $\leq 40$  years), presence of chronic/psychiatric illnesses, unemployment, student status and frequent exposure to social media and news concerning COVID-19.

COVID-19, showed that the psychological effects of contagion and quarantine is not limited only to the fear of contracting the virus (**Barbisch et al (2015)**) but also to the elements arising as a complication of the pandemic such as separation from loved ones, loss of freedom i.e., foundations, uncertainty about the advancement of the disease and the feeling of helplessness (**Li and Wang (2020), Cao et al (2020)**). These aspects led to critical consequences (**Weir (2020)**) such as the rise in number of suicides (**Kawohl and Nordt (2020)**). Suicidal behaviours are related to the feeling of anger associated with the stressful condition widely spread among people who lived in the most affected areas (**Miles, 2014; Suicide Awareness Voices of Education, 2020; Mamun and Griffiths, 2020**). As reported in a survey administered during the COVID-19 pandemic, children and young adults were particularly at risk of developing anxious symptoms (**Orgilés et al (2020)**). Data collected on a sample of college students at the time of the spread of the epidemic in China showed how anxiety levels in young adults were mediated by certain protective factors such as living in urban areas, the economic stability of

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the family and cohabitation with parents (Cao et al (2020)). Health-care workers are another segment of population particularly affected by stress during the pandemic (Garcia-Castrillo et al (2020), Lai et al (2020)). Data from a survey on 1,257 HCWs who assisted patients in COVID-19 wards showed high percentages of depression (50%), anxiety (44.6%), insomnia (34%), and distress (71.5%) (Lai et al (2020)). The constant fear of pandemic led to the origin of obsessive thoughts (Brooks's et al (2020)) reducing social relationships. In another research in Italy, Rossi et al. (2020) evaluated mental health outcomes among health care workers during the pandemic confirming a high score of mental health issues, particularly among young women and front-line workers.

Lead /year	Author	Country	Sample size(n=)	Sample Characteristics	Prevalence n/total (%)
	<u>Ahmed et al., 2020</u>	China	1074	Age range: 14–68 Mean age: 33.54±11.13 Sex(f/m):503/571	Anxiety symptoms: 311/1074 (29%) Depressive symptoms: 398/1074 (37.1%)
	<u>Gao et al., 2020</u>	China	4827	Age range: 18–85 Mean age: 32.3 ± 10.0 Sex(f/m): 3267/1560	Anxiety symptoms: 1091/4827 (22.6%) Depressive symptoms: 2331/4827 (48.3%)
	<u>González-Sanguino et al. 2020</u>	Spain	3480	Age range: 18–80 Mean age: 37.92 Sex(f/m): 2610/870	Anxiety symptoms: 752/3480 (21.6%) Depressive symptoms: 651/3480 (18.7%) PTSD symptoms: 550/3480 (15.8%)
	<u>Hwanget al. 2020</u>	China	7236	Age range: 6–80 Mean age: 35.3 ± 5.6 Sex(f/m): 3952/3284	Anxiety symptoms: 2540/7236 (35.1%) Depressive symptoms: 1454/7236 (20.1%)
	<u>Lei et al. 2020</u>	China	1593	Age range: ≥18 Mean age:32.3 ± 9.8 Sex(f/m): 976/617	Anxiety symptoms: 132/1593 (8.3%) Depressive symptoms: 233/1593 (14.6%)
	<u>Liu et al. 2020</u>	China	285	Age range: ≥18 Mean age: N/A Sex(f/m): 155/130	PTSD symptoms: 20/285 (7%)
	<u>Mazza et al., 2020</u>	Italy	2766	Age range: 18–90 Mean age: 32.94±13.2 Sex(f/m): 1982/784	Anxiety symptoms: 516/2766 (18.7%) Depressive symptoms: 904/2766 (32.7%) Stress symptoms: 751/2766 (27.2%)
	<u>Moccia et al., 2020</u>	Italy	500	Age range: 18–75 Mean age: N/A Sex(f/m): 298/202	Symptoms of psychological distress: 190/500 (38%)
	<u>Moghanibashi-Mansourieh 2020</u>	Iran	10,754	Age range: N/A Mean age: N/A Sex(f/m): 7073/3681	Mild-to-severe anxiety symptoms: 5472/10,754(50.9%) Mild-to-average: 3419/10,754 (31.8%)

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				Severe-to-very severe: 2053/10,754 (19.1%)
<u>Olagoke et al., 2020</u>	USA	501	Age range: $\geq 18$ Mean age: $32.44 \pm 11.94$ Sex(f/m): 277/224	Depressive symptoms: N/A *Occurrences of depressive symptoms were stratified based on socio-demographic information.
<u>Ozamiz-Etxebarria et al. 2020</u>	Spain	976	Age range: 18–78 Mean age: N/A Sex(f/m): 792/184	Symptoms of depression/anxiety/stress: N/A * Rates of depression, anxiety, stress symptoms were stratified based on sociodemographic information (e.g., sex, age, etc.)
<u>Özdin et al. 2020</u>	Turkey	343	Age range: $\geq 18$ Mean age: $37.16 \pm 10.31$ Sex(f/m): 169/174	Anxiety symptoms: 155/343 (45.1%) Depressive symptoms: 81/343 (23.6%)
<u>Qiu et al., 2020</u>	China	52,730	Age range: N/A Mean age: N/A Sex(f/m): 34,131/18,599	Symptoms of psychological distress: 18,155/52,730 (34.43%)
<u>Samadarshi et al., 2020</u>	Nepal	374	Age range: N/A Mean age: N/A Sex(f/m): 195/179	Moderate to high stress symptoms: 307/374 (82%)
<u>Sønderskov et al., 2020</u>	Denmark	2458	Age range: N/A Mean age: 49.1 Sex(f/m): 1254/1204	Depressive symptoms: 624/2458 (25.4%)
<u>Wang et al., 2020a</u>	China	1210	Age range: 12–59 Mean age: N/A Sex(f/m): 814/396	Symptoms of psychological impact: 651/1210 (53.8%) Depressive symptoms: 200/1210 (16.5%) Anxiety symptoms: 348/1210 (28.8%) Stress symptoms: 98/1210 (8.1%)
<u>H. H. Wang et al. 2020</u>	China	1599	Age range: 18–84 Mean age: $33.9 \pm 12.3$ Sex(f/m): 1068/531	Symptoms of psychological distress: N/A
<u>Wang et al., 2020b</u>	China	600	Age range: 18–72 Mean age: $34 \pm 12$ Sex(f/m): 333/26	Anxiety symptoms: 38/600 (6.33%) Depressive symptoms: 103/600 (17.17%)
<u>Zhang et al. 2020</u>	China	263	Age range: $\geq 18$ Mean age: $37.7 \pm 14.0$ Sex(f/m): 157/106	Psychological impact (IES $\geq 26$ ): 20/263 (7.6%)

## ROLE OF AYURVEDA IN COUNTERING THE COVID-19 RELATED MENTAL ISSUES

Ayurveda classics have described the imbalance in *sharirika dosha* i.e., *Tridosha* (*vata*, *pitta*, *kapha*) as the root cause of any disease but the etiopathogenesis of mental disorders is a completely different aspect. The *sharirika dosha* have a comparatively less significant role in the development of mental disorders in an individual. Ayurveda classics have given equal importance to *mansika dosha* (*satva*, *raja*, *tama*) and described the disequilibrium of this *satva-raja-tama* axis as the root cause of the all-mental disorders. While *satva* is considered as a *guna*, the other two dosha *raja* and *tama* are considered as *dosha* leading to the count as two rather than three. Another trident of great importance in the etiopathogenesis of any disease is the *asatmaindriarthasamyoga*, *praghyapradha* and *kala*. Acharya Charaka have pinpointed the “*praghyapradha*” form of aetiology as the key factor behind the origin of mental disorders i.e., *masika roga*. Unwanted mental stress is a trigger that can result in mental disturbances leading to depression or anxiety. Ayurveda classics have classified anxiety and depression as “*mano-vibhrama avastha*” and “*mano-avasada avastha*” respectively and have deciphered various remedial as well as prophylactic interventions for the same. Ayurvedic treatments for anxiety and depression solely focus on pacification of the aggravated ‘*vata dosha*’ to regain normal functions and achieve the equilibria stage of *mansika dosha* (*satva*, *raja*, *tama*) and *sharirika dosha* (*vata*, *pitta*, *kapha*). There are three measures by which the attainment of equilibrium of *mansika* and *sharirika* dosha can be emulated i.e., *Daivavyapashraya* (spiritual therapy), *Yuktivyapashraya* (measures based on logic/rationale) and *Satvavajyaya* (measures to enhance the *satva* in an individual).

त्रिविधमौषधमिति- दैवव्यपाश्रयं, युक्तिव्यपाश्रयं, सत्त्वावजयश्च। तत्र दैवव्यपाश्रयं- मन्त्रौषधिमणिमङ्गलबल्युपहारहोमनियमप्रायश्चित्तोपवासस्वस्त्ययनप्रणिपातगमनादि, युक्तिव्यपाश्रयं- पुनराहारौषधद्रव्याणां योजनासत्त्वावजयः- पुनरहितेभ्योऽर्थेभ्यो मनोनिग्रहः॥५४॥

The chapter comprises focus on the management of stress, depression, anxiety and other psychological alterations arisen due to direct or indirect complication of COVID-19 using the three modes of treatment described in Ayurveda classics.

### **युक्तिव्यपाश्रयं- पुनराहारौषधद्रव्याणां योजना**

Just as the *sharirikabala* is referred to as the humoral immunity/strength of the body, the *mansika bala* is referred as the psychic immunity of an individual. While the sole focus of the physicians and researchers all around the globe was on expounding the humoral immunity of an individual, the psychic immunity was left unchecked. As a consequence of this negligence, a large number of populations around the globe dealt with depression, anxiety, stress like psychological anomalies and further leading to more severe complications. *Yuktivyapashraya* methodology of treatment is the logic/rational based employment of an intervention. Charaka defines *yuktivyapashraya chikitsa* as a judicious use of *ahara* and *aushadha* according with proper planning i.e., *yojana*. ‘*Bala*’ i.e. immunity is the ability to prevent disease and arrest its progress to maintain homeostasis i.e., *dhatu-samyata*. The concept of building strength of mind i.e., *Mansika Bala* and body i.e., *Sharirika Bala* to cope with various stress conditions is a cornerstone of Ayurveda practice. Ayurvedic external procedures like *Abhyanga* increase the blood circulation to remove metabolic wastes and toxins from the body. It stimulates vital pressure points which lead to nervous stimulation and reduction in stress, anxiety and

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depression. *Padabhyanga* procedure mentioned in Ayurveda classic is known for stimulation of nerve endings and vital pressure points present in the foot. This procedure promotes mental calmness and relieves stress and anxiety. *Padabhyanga* procedure is evidently known to alleviate psychological disorders such as nervousness, anxiety and insomnia and also acts as a preventive procedure of use in mental disorders like depression. *Shirodhara*, another form of head massage involves the continuous pouring of medicated oil on the forehead with pendulum motion for a specific period of time. *Shirodhara* boosts the immune system and improves the blood circulation around the head and face to effectively treat hypertension, insomnia and depression. Apart from the external procedures; Ayurveda classics have described drugs in form of *rasayana* for countering anxious and depressive states i.e., *mano-vibhratmak/ mano-avasa* avastha in individuals. Drugs like *Ashwagandha* (*Withania somnifera*), *Shatavari* (*Asparagus racemosus*), *Brahmi* (*Bacopa monnieri*), *Vacha* (*Acorus calamus*), *Jatamansi* (*Nordostachys jatamansi*), *Tagar* (*Valeriana wallichii*), *Chandan* (*Santalalum album*), *Yasthimadhu* (*Glycyrrhiza glabra*), *Tulsi* (*Ocimum sanctum*), *Mandookaparni* (*Centella asiatica*) and *Shankapushpi* (*Convolvulus pluricaulis*) have been proven to have anxiolytic and anti-depressive effect in various faces of psychic immunity alterations i.e., *manovibhramatmaka avastha*.

### सत्त्वावजयः- पुनरहितेभ्योऽर्थेभ्यो मनोनिग्रहः

*Satvavajaya chikitsa* is referred to as measures to enhance the *satva* guna in an individual. It is defined as "*satvavajaya punaha ahitebhyo arthebhyo manonigraha*" (Ch. Su. 11/54). *Satvavajaya* therapy aims at the control of the mind by restraining the mind from desires for wholesome objects which are achieved by increasing *satvaguna* to balance the disequilibria of *manasa dosha* i.e., *raja* and *tama*. *Asatmeya-indriyarthasamyoga* is regarded as one other principal causes of disease in the etiological trident. Hence, avoidance of *ati*, *heena* and *madhya yoga* of *chintya*, *vicharya*, *uhya*, *dhyeya* and *sankalpa* will serve as the treatment of the psychic disorders. *Satvavajaya chikitsa* mainly focuses on the consciousness, intelligence, memory as well as spiritual aspects of individuals aiming at altering and discriminating the maladaptive thoughts. Mind of an individual plays a very important role in countering the stress developed due to excessive intake of *manas vikara* causing inputs. It is responsible for memory, emotional capability, intellect and behaviour. Mind can act as a creative as well as a destructive force in an individual and hence needs to be tamed and restrained to work constructively. The increasing amount of competition and stress is consuming the mental abilities and disrupting the normal functioning of the mind. The *satvavajaya chikitsa* mentioned in the ancient literature can help us in maintaining the balance of our mind. The technique of this measure of intervention is not just for the diseased person but can be useful as a preventive measure too against the *manovikara*. *Satvavajaya chikitsa* is to control the mind by withdrawing it from undesired objects. *Satvavajaya chikitsa* prevents the impairments of *dhee*, *dhriti* and *smriti* and brings the *mansika dosha* back to the normal state. The word *satva* refers to *mana* (mind) and *avajaya* refers to conquering. Hence, *satvavajaya* means to have control over the mind and thus abstaining from unrighteous things.

Various techniques can be summed up as a part of *satvavajaya chikitsa*.

**Mano-Nigraha**; the term "manonigraha" means mental restraint or control over the mind (C.Su.7/27). The mental restraint can be achieved by practicing *manaso gyana*, *vijnana*, *dhairya*, *smriti*, *Samadhi* like techniques (C.Su.1/58). Viz. *gyana* (knowledge), *vijnana* (skilled/textual knowledge about the disease), *dhairya* (patience & will power of an individual), *smriti* (the memory of an individual should be in stable form so as to differentiate between the

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sanity and insanity) and *samadhi* (ability to concentrate only on good thoughts). The methods of *satvavajaya chikitsa* also include *ashwasana*; assurance to the patient (assurance to the individual about his ability to cope up with the mental distress could have proven a boon for all affected in times of pandemic) and *pratidwandachikitsa*; induction of opposite emotion to the one causing the distress. *Satva; mana* tends to follow a functional pattern. Factors like *chintya, vichara, uhaya, dhyeya, sankalpa* are the characters of *mana* i.e., *mana* performs only these functions. Excessive functioning of *mana* leads to various *manovikara*. Thus, regulating these functions and having control over them is utmost important in preventing and treating the *manasa vikara*. Regulating the thought process (*chintya*), analysing the thoughts and ideas before putting them out (*vicharya*), channelling the presumptions through rationale (*uhya*), concentrating on objectives till their completion (*dhyeya*) and promising oneself to do the righteous (*sankalpa*) prevent the occurrence of *manas vikara* in an individual.

### ***Dharniya Vega dharana:***

controlling the psychological urges i.e., *lobha* (greed), *shoka* (grief), *bhaya* (fear), *krodha* (anger/rage), *maana* (ego), *nairlajja* (shame), *irsha* (jealousy), *atiraga* (obsession), *abhidhyaya* (non-righteous desire) (Ch. Su.7/27) is another way to achieve the control over mind thereby enhancing the *satva guna* in the individual. *Dharniye vega dharan* also includes control over physical (*kayika*), verbal (*vachika*) and mental (*mansika*) activities. The '*atiyoga*' signifies excessive use of speech, mind and body activities while their complete inactivity is '*ayoga*' (non-utilization). *Atiyoga* of body activities: suppression of natural urges, their forceful manifestation, slipping from uneven places, excessive walking, falling, maintaining improper posture, unhygienic, assault, excessive massage, excess holding of breath and giving all kind of stress/torture to the body are the examples of wrong utilization of body activities. b) *Atiyoga* of speech: backbiting, lying, quarrels, unpleasant talks, irrelevant and unpleasant harsh talks are the examples of wrong utilization of speech. c) *Atiyoga* of mind activities: fear, grief, anger, greed, confusion, pride, envy and misconceptions are wrong utilization of mind. Excess of these emotions can cause instability in mental activities, and hence need to be avoided.

### **Avoidance of *Pragyaparadha:***

*Praghyaparadha* means the errors of *Prajna* which is a comprehensive collectively used to refer the three entities of the mind: *Dhi, Dhriti* and *Smriti*.

Acharya Charaka have described *praghyaparadha* as the pinpoint root cause of all *manovikara* and it must be avoided (Ch. Su.11/39). *Dhi* means the understanding or buddhi. *Dhriti* means the will to control self from wrong deeds. *Smriti* means the memory i.e. ability to recollect conscious whenever necessary. Failure of any of the three is counted as *Prajnaparadha* (intellectual blasphemy) which is a cause for many *mansika* as well as *sharirikavikara*.

### ***Sadvrutta:***

Code of conduct serves many purposes simultaneously. It helps in gaining positive health and also helps in gaining control over our senses. The complete guidelines for the code of conduct include various areas of our daily activities like a cleansing of the body, basic and pleasant attire, and the presentable look as well as to be free from anxiety and fear like emotions and having a positive attitude. The various forbidden codes of conduct imply on us to be virtuous, while the etiquettes for eating, following natural urges, codes for studying and learning as well as the codes for social behaviour and maintaining a good psyche in society helps us in maintaining our well-being. The code of conduct also teaches us to be compassionate towards life and have a higher aim of attaining peace in life. Thus, following the *sadvrutta* (code of conduct) is the path towards a virtuous life and peaceful wellbeing.

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### *Acharya Rasayana:*

Another method in enhancing the satva in an individual. Being truthful, loyal, respectful, anger-free, abstaining from wine, nonviolent activities, soft-spoken, practicing meditation, practicing cleanliness, perseverance, charity, compassion and positivity will help an individual to develop a positive mindset. Individual practicing this method can remain mentally healthy for lifetime.

### **दैवव्यपाश्रयं- मन्त्रौषधिमणिमङ्गलबल्युपहारहोमनियमप्रायश्चित्तोपवासस्वस्त्ययनप्रणिपातगमनादि**

*Daivavyapashraya* is spiritual/divine form of therapy being used in the management of both *sharirika* and *mansika vikara*. The methods adopted are chanting *mantra*(hymns), *aushadhi*(tying medicinal plants), *mani dharan* (wearing of gems), *mangala* (performing auspicious ceremony), *bali* (oblations), *upahara* (offering), *homa* (performing yajya), *niyama*(religious observance), *prayashchitta* (going through atonement), *upavasa*(fasting), *svastyayana* (chanting of auspicious hymns), *pranipata*(placing faith in God) and *yatragamana* (travelling to pilgrimage). Among *trividha chikitsa*, *daivavyapashraya chikitsa* has been mentioned in the beginning because of its “*ashukaritva*” i.e., providing immediate response in *manasvikara*. Since travelling was prohibited during COVID-19 pandemic times, *yatragamana* is not advised to be followed.

## THE IMPLEMENTATION OF PRINCIPLES

- The ‘*satva- raja-tama axis*’ and ‘*kayika-vachika-mansika vega axis*’ plays a pivotal role in maintaining the mental stability of an individual. Efforts should be made by individuals/physicians to maintain the equilibrium to avoid the occurrence/recurrence of *manas vikara*.
- The individual must remain positive and keep his ‘*mana*’ free from unwanted thoughts, as these might result in mental distress further leading to mental disorders.
- Avoidance of ‘*ati, heena and mithya yoga*’ of *mana* with its *vishya* (*chintya, vicharya, uhya, dhyeya* and *sankalpa*) will never lead to occurrence of *manas vikara* at first place. Regulating these functions and having control over them should be utmost priority in the prevention and treatment of the *manasa vikara*.
- Like described, the “*mano-avasada avastha*” (depression) and “*mano-vibhratamaka avastha*” (anxiety) can be prevented as well as treated through the principles of *Sadvrutta, Acharya Rasayana, Manonigraha, Dharniye Vega Dharan* and avoidance of *Praghyapradh*.

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Control over Mind. (Ch. Su.7/27)

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**MEDHYA RASAYANA: THE PANACEA FOR ADDRESSING MENTAL HEALTH  
ISSUES IN COVID 19**

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## **INTRODUCTION**

The widespread outbreaks of the highly infectious COVID-19 disease which was identified in China at the end of 2019 is a major health crisis affects physically as well as associates with adverse mental health consequences. In this time of covid pandemic whole attention was given in improving the physical health of infected as well as non-infected persons but awareness of mental illness has not been addressed.

Clinical features of covid 19 ranges from asymptomatic state to severe acute respiratory distress syndrome and multi organ disfunction.

The virus outbreak, lockdowns and economic crises lead to symptoms of psychological distress, mental and psychological illness. Psychological reactions to pandemic include maladaptive behaviour, emotional distress and defensive responses: anxiety fear frustration, loneliness, anger, boredom, depression, stress, avoidance behaviours. A peculiar syndrome known as “headline stress disorder” can be observed during modern pandemics: it is characterised by high emotional response, as stress and anxiety, to endless reports from new media, that may cause physical symptoms including palpitation and insomnia; further progression to physical and mental disorder if possible. These symptoms mostly seen in people affected by Covid 19, be associates with preventive measures, elderly peoples, children’s and health care workers. Other group where to give specific attention such as people with pre-existing psychiatric condition, pregnant women, pre-existing systemic disorders, international migrant workers, and international students. This tragic health crisis should significantly enhance our understanding of the mental health risk factors among the peoples and health care professionals facing the COVID-19 pandemic.

Extremely strict pandemic preventions measures, the mandatory closure of schools and suspension of all essential production and commercial activity are seriously affecting people daily life, working activity and putting economic organization in danger. It is hypothesized that non affected and affected patients by covid 19 may experiences psychopathological symptoms due to several reasons: clinical symptoms and disease progression, medication side effects, perceived danger, fear of virus transmission to other or social isolation, uncertainty, physical discomfort and overwhelming negative news portrayal in mass media coverage.

**Older people and people with chronic conditions** will understandably have heightened fear, anxiety, and feelings of isolation.

**Children and teens** may have difficulty understanding and coping with this crisis and it may be expressed in behaviours rather than symptoms.

## **INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS**

**People who are helping with the COVID-19 response**, such as health care professionals and first responders, put themselves at risk every day. That can lead to intense stress, fear of catching and transmitting infection, as well as burnout as the pandemic progresses.

**People with any pre-existing mental health conditions** may see their symptoms and conditions magnified. Those conditions include patients with substance use, PTSD and other trauma-related disorders, anxiety, depression, illness anxiety or somatic symptom disorder, and obsessive-compulsive disorder with fear of germs or contamination.

Another study found that health care workers who had been quarantined had more severe symptoms of posttraumatic stress than members of the general public who had been quarantined

### **AYURVEDA TO COMBAT COVID HEALTH CRISIS**

A new psychological crisis intervention model is required to deal with the urgent psychological problems of people involved in the Covid 19 pandemic. *Ayurveda* proposed treatment modality to address the challenge and restoring health in these covid health crises. In *Ayurveda* elaborated description of causation and management of epidemic (*Janapadodhwamsa*) are described more pertinently.

#### **Mental Disorders in *Ayurveda***

Ayurveda has described various kinds of mental Disorders:

1. *Unmada* (Insanity)
2. *Apasmara* (Epilepsy)
3. *Atattvaabhinivesha* (Obsessive Disorders)
4. *Bhaya* (Fear)
5. *Harsha* (Excitation)
6. *Shoka* (Grief)
7. *Udvega* (Anxiety)
8. *Avasada* (Depression)

## TREATMENT MODALITIES IN AYURVEDA

*Ayurveda* has kept the treatment schedule of almost all *manasika* (psychiatric disease), and *sharirika* (somatic) diseases under the three main categories<sup>9</sup>:

### *Daivavyapashreya chikitsa*

(Holding of pearls, drugs, rituals, sacrifice of animals prayachhitya etc.)

### *Yuktivyapashreya chikitsa*

(Proper application of diets and medicines, *Rasayana drugs* are included in which are used to cure both psychiatric disease and somatic diseases)

### *Satvavajayachikitsa*

(Mind is protected from the effects of various harmful and non-conductive substances and activities)

### *Rasayana chikitsa*

These all treatment modalities are supportive in treatment of mental illness. *Rasayana chikitsa* is one of the specialized branches of Ayurveda described under the *Yuktivyapashreya chikitsa* is used in treating mental health. The revitalization and rejuvenation approach in *Ayurveda* is known as the '*Rasayan chikitsa*' (rejuvenation therapy).

दीर्घमायुःस्मृतिमेधामारोग्यंतरुणंवयः।

प्रभावर्णस्वरौदार्यदेहेन्द्रियबलंपरम्॥

वाक्सिद्धिंप्रणतिकान्तिलभतेनारसायनात्।

*Rasayana* means therapeutic procedure or preparation that on regular practice will boost nourishment, health, memory, intellect, and immunity and hence longevity. It aims enhancement in strength, immunity, ojus, vitality, will power, determination of the body, longevity, memory, intelligence, excellence of luster, complexion and voice, optimum strength of physique and sense organs.

लाभोपायोहिशस्तानारसादीनारसायनम्॥

As per *Acharya Charak*, *Rasayana* is defined as the means of achieving the finest quality of *rasadi dhatus* (body tissues) where it increases life span, improves *medhya* (intelligence), cures disease, stabilizes youthfulness, improves luster, complexion, voice and senses strong, etc.

According to *Acharya Charak*, equilibrium of *Agni* of *Dhatu*, *Vayu*, and *Srotas* are essential factors for maintaining normal strength, color and longevity of the body. The main aim of *Rasayana Chikitsa* is to maintain *agni* in equilibrium state with nourishment of blood, lymph,

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flesh, adipose tissue and semen. This prevents the individual from chronic degenerative diseases. The therapy influences the fundamental aspect of body viz., *Dhatus, Agni, Srotansi* and *Ojus*.

When get expose to modern world with the concept of Rasayana we equate in term of:

- Immunomodulator
- Antioxidant
- Cytoprotective
- Adaptogens
- Nootropic

and many other multiple properties

### Rasayana As Immunomodulator:

- Activation of macrophages for enhance generation
- Stimulation of cytotoxic activity and phagocytosis
- Proliferation of lymphocytes leading to production and also cytotoxic induction of Thelper and natural killer cells and activation of complete pathway
- By augmenting or reducing the ability of the immune system

### Antioxidant:

- Circumvent the damage caused by oxygen free radical

### What is meant by adaptogens?

- The concept of adaptogens was coined in 1947 by Russian scientist Lazarev. He defined them as substances meant to put the organism into a state of nonspecific heightened resistance in order to resist stresses and adapt to extraordinary challenges.
- Increases the ability of an organism to adapt to environmental factors e.g., *Ashwagandha, Tulsi, haridra, Pippali, Amalaki, Guduchi, shatavari*.

### Nootropic:

- Promote intelligence and functions of brain e.g., *Medhya Rasayana* drugs (namely- *Mandukparni, Guduchi, Yashtimadhu and Shankhpushpi*).

### ***Medhyarasayana***

मण्डूकपर्ण्याःस्वरसःप्रयोज्यःक्षीरेणयष्टीमधुकस्यचूर्णम्।

रसोगुडूच्यास्तुसमूलपुष्प्याःकल्कःप्रयोज्यःखलुशङ्खपुष्प्याः॥

आयुःप्रदान्यामयनाशनानिबलाग्निवर्णस्वरवर्धनानि।

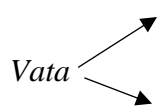
मेध्यानिचैतानिरसायनानिमेध्याविशेषेणचशङ्खपुष्पी॥

*Acharya charaka* has been described a group of four distinctive medicinal plants which give *medhya* property called as *Medhya rasayana chatushka*. *Medhya* is described in broad way. *Medhya* comprises of all the three mental faculties- *Dhee, Dhriti* and *Smriti* and these are

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interrelated with each other. *Medhya* can also be subdivided into the following faculties: 1. *Grahanashakti* (Power of Grasping) 2. *Dharana shakti* (Power of Retention) 3. *Vivekshakti* (Power of Discrimination) 4. *Smriti* (Power of recollection)

### Relation between Tridosh and medhya:

- *Vata*  *Prana vayu*- controlling the function of *buddhi* and *mana*  
*Udan vayu*- helps in recalling the past experiences
- *Pitta* Promotes *medha* (esc. *Sadhaka pitta*)
- *Kapha* – responsible for best qualities of *dhruti*

### Relation between Dhatu and medhya

- *Rasa dhatu*- nourishes the *buddhi*
- *Rakt dhatu*- responsible for promotion of *medha*
- *Mansa sarata*- indicating strong *dhruti*
- *Sukra* and *ojasa*- help responsible for nourishment of *buddhi*

### ***Medhya Rasayanachatushka***

1. The juice of *Mandukaprni*(*Centella asiatica* Linn.)
2. The powder of *Yastimadhu*(*Glycyrrhiza glabra* Linn.) with milk
3. The juice of *Guduchi*(*Tinospora cordifolia* Wild, Miers) along with its Root and flower
4. The paste of *Shankhapushpi* (*Convolvulus pluricaulis* Chois)

These drugs can be used single or in combination.

### The formulation of *Medhya Rasayana* drugs is of two types:

#### 1. *Shita Virya* and *Madhura Vipaka*-

It promotes *kapha* and enhances “*Dharana Karma*” (i.e., retention of cognition) e.g., *Sankhpushpi*, *Yastimadhu*, *Bramhi*, etc.

#### 2. *Ushna Virya* and *Tikta Rasa*-

It promotes *pitta* and enhances *Grahana* and *Smarana* (i.e., grasping power and Memory) e.g., *Guduchi*, *Vacha*, *Jyotishmati* etc.

### *Medhya* drugs act at different levels

- a. at level of *Rasa*
- b. act by stimulating and improving the function of *Agni*
- c. improves circulation of *Rasa* by opening and cleaning the micro channel and thus improving *Medhya* function.

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*Medhyarasayana* drugs play an essential role in the treatment of psychiatric and psychosomatic diseases. The mode of this therapy involves the individual to attain sedation, calmness, tranquillity or a stimulation of activities of brain. Based on the experimental and clinical research, it is known that these drugs have varying degree of psychotropic action and are known to possess antidepressant, sedative and tranquilizing action. *Medhya Rasayana* drugs are used for prevention and treatment of mental disorders of all the age groups. These drugs promote the Intellect (*Dhi*) Retention power (*Dhriti*), memory (*Smriti*). In fact, they produce Neuro nutrient effect by improving cerebral metabolism. *Medhya Rasayana* drugs are known to have specific effect on mental performance by promoting the functions of “*Buddhi*” and “*Manas*” by correcting the disturbances of “*Rajas*” and “*Tamas*” [9]. This helps the mental patient to get relieve from stress, anxiety and depression.

Rasapanchaka of medhya chatushka:

Drugs	Rasa	Guna	Virya	Vipaka	Doshagnata
<i>Mandukaparni (Centella asiatica Linn)</i> <sup>16</sup>	<i>Tikta</i>	<i>Laghu</i>	<i>Sheeta</i>	<i>Madhur</i>	<i>kaphapittashamaka</i>
<i>Yastimadhu (Glycyrrhiza glabra Linn.)</i> <sup>17</sup>	<i>Madhur</i>	<i>Guru Snigdha</i>	<i>Sheeta</i>	<i>Madhur</i>	<i>Vatapittashamaka</i>
<i>Guduchi (Tinospora cordifolia Willd. Miers)</i> <sup>18</sup>	<i>Tikta, Kasaya</i>	<i>Guru, Snigdha</i>	<i>Ushna</i>	<i>Madhur</i>	<i>Tridosahara</i>
<i>Shankhapushpi (Convolvulus pleuricaulis Chois.)</i> <sup>19</sup>	<i>Tikta</i>	<i>Snigdha, Picchil</i>	<i>Sheeta</i>	<i>Madhur</i>	<i>Tridosahara</i>

***Mandukaparni (Centella asiatica Linn):***

*Mandukaparni* is *Medhya* by *Prabhava* (special effect).

- Plays a significant role in improving cognition and memory. One of the major etiological factors implicated in Parkinson's disease (PD).
- Improves learning and memory processes by modulating dopamine, 5-Hydroxytryptamine receptor, and noradrenaline systems.
- anti-oxidant and anti-apoptotic mechanisms
- Showed improved memory performance, oxidative defense decreased aluminium concentration.
- Neuroprotective potential by different modes of action such as enzyme inhibition, prevention of amyloid plaque formation in Alzheimer's disease, dopamine neurotoxicity in Parkinson's disease, and decreasing oxidative stress.
- Asiatic side, an active principal present in *Mandukaparni* imparts anxiolytic activity thus, it helps in reducing the anxiety.
- Brain growth promoter, inhibits the memory impairment induced by scopolamine through the inhibition of AChE.

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### *Yastimadhu (Glycyrrhiza glabra Linn.)*

- *Madhura* and *Shita* qualities and *Vatapittashamaka* and *Rasayana* effects of *Yastimadhu* bring about soothing effect, and probably this helps in bringing about *Stairya* and *Dhriti* to establish stability of mind and for enhancing memory
- The root of *G. glabra* Linn. contains the active principles, glycyrrhizin, glycoside, isoliquiritin, liquiritin, steroid estrogen, hispaglabridin B, isoliquiritigenin, and paratocarpin B
- *G. glabra* Linn. increases the blood circulation to the central nervous system and balances the sugar levels in the blood.
- anti-convulsant potential
- neuro protective effects, anti-inflammatory, anti-excitotoxic, and antioxidative effects
- Antidepressant-like activity
- Memory-strengthening activity
- beneficial effect on learning and memory
- The isoflavones glabridin and hispaglabridins A and B of *G. glabra* Linn. Have significant antioxidant activity which protects susceptible brain cells from the oxidative stress, resulting in reduced brain damage and improved neuronal function, thereby enhancing the memory.

### *Guduchi (Tinospora cordifolia Wild Miers):*

- *Guduchi*, another component of *Medhya Rasayana*, has *Katu*, *Tikta Rasas* which help in keeping the mind alert, so that things can be remembered properly. By *Tridoshahara* property, it helps to establish a balance and a good coordination of grasping, retention, and recall of memory. Further, *Rasayana Prabhava* helps in retaining things.
- *T. cordifolia* has active principles such as tinosporone, tinosporic acid, cordifolisides A-E, syringen, berberine, giloin, gilenin, crude giloininand, arabinogalactan polysaccharide, picrotene, gilosterol, tinosporol, tinosporidine, sitosterol, cordifol, and glucan polysaccharide.
- *T. cordifolia*, at a dose of 500 mg daily, enhances verbal learning and memory and logical memory (of immediate and short-term type) compared to placebo in healthy volunteers.
- Neuro protective activity on n rat model of Parkinson's disease (PD).
- Antidepressant-like Activity
- attenuate oxidative stress mediated cell injury

### *Shankhapushpi (Convolvulus pluricaulis Chois)*

- It has *Kashaya Rasa* and *Ushna Guna*, which may enhance the alertness and quick understanding and retention of experiences.
- *C. pluricaulis* contains many phytonutrients like convolidine, convolvine, convolidine, convoline, confoline, phyllabine, subhirsine, and scopoline. These compounds help in brain stimulation and increase the ability to concentrate.
- *C. pluricaulis* reduces anxiety and stress by controlling the production of body's stress hormones, adrenaline and cortisol.



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- It is reported to possess anxiolytic and memory-enhancing and mood-elevating effects, and is claimed to retard brain aging.
- boosting memory and improving intellect
- Beneficial for brain disorders like epilepsy.
- Effective in neurosis and used in cerebral abnormalities, insomnia, and serve as wonderful nervine tonic and memory invigorator.
- Enhances memory function due to its Antioxidant and Acetyl cholinesterase Inhibitory Properties.
- antioxidant and anticonvulsant activity

### CONCLUSION

After the journey of evolution of *Rasayana* till date in multidimensional spectrum of approach these are the few words of conclusions. *Medhya Rasayanas* strengthens the body, maintain normal body function, and improve memory power. The *rasayana* approach for each disease must be cause specific i.e.

- Cause being autoimmune – *rasayana* acts as an immunomodulator
- Free radicals as cause – *rasayana* acts as an antioxidant
- Adaptogenic cause (lifestyle)- *rasayana* acts by adaptogens.

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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## PATHOPHYSIOLOGY OF MENTAL HEALTH AILMENTS IN COVID 19

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## INTRODUCTION

In today's world most of the people have experienced the suffering of Covid-19 pandemic. It was started from Wuhan, China, and spread to other countries very rapidly. Globally, as of 4:58pm CET, 8 February 2021, there have been 105,805,951 confirmed cases of COVID-19, including 2,312,278 deaths, reported to WHO. The World Health Organization (WHO) declared the outbreak as a pandemic on March 11, 2020. The pandemic COVID-19 disease can be understood in *Ayurveda* as *Janapadodhwamsa* (affecting many people at a time and destructing the community as well as health of the people in respective places). In India, COVID-19 disease is disseminating very rapidly and the status of cases on January 27, 2021 (active cases: 176498, discharged cases: 10359305, death cases: 153724). All the streams of medical sciences tried to find out the path physiology, treatment and prevention of COVID - 19. Lots of efforts are taken to manage the COVID-19 disease with the help of various types of treatment, including antiviral therapy, plasma therapy, vaccines, immunity boosting therapy by *Ayurveda* Medicines, preventive measures like *Dhupana* (fumigation), *Nasya karma* (Nostril oilation) etc. for COVID-19 cases.

The consequences of COVID 19 impacted almost every aspect of life and adversely affected mental health of lots of people. It is well known that pandemic pose a threat to mental health. Correspondingly, two recent reviews found a consistent negative impact of COVID 19 on mental health, with 16-18% of participants showing symptoms of anxiety and depression. The first evidence indicates that women, younger people and those with a poor sleep quality are at increased risk for mental health problems.

## OBJECTIVES

1. To establish the pathophysiology of mental illness in COVID 19 according to *Ayurveda*.
2. To establish *Nidan Panchakas* of mental illness in COVID 19.

## MATERIALS AND METHODS

The understanding of concept of *Manasika Bhavas* mentioned in the *Samhitas* like *Bruhatrayi's laghutrayi's*, text books, research articles, internet available information etc was searched. All the relevant literature including classical text with commentaries were explored for the concept of *Jwara*, *Janpadodhwamsa*, *Aupsargika Roga*, *Nidan Panchaka* and *Shatkriyakala*, *ojakshaya*, *unmada* etc to establish the pathogenesis and electronic databases including Google Scholar, Pub Med, different government health agencies, websites and Google search were also searched for the relevant data by keywords like; coronavirus disease, SARS-COV-2, COVID-19, *Ayurveda*, *Janpadodhwamsa*, *Aupsargika Roga*, *ojas*, *unmada*, *srotas*, *Nidan Panchaka*, *Shatkriyakala*, traditional medicine, WHO.

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## OBSERVATIONS AND RESULTS

### Impact of COVID-19 on general public's mental health

In response to this global health crisis, quarantine and lock down measures were implemented by international and government health organizations to contain the rapid spread of the virus. Further measures included suspension of flights, avoidance of large gatherings, mandatory use of face mask in many countries, social distancing, tele working, home-schooling of children and health orders to stay at home. While the WHO and worldwide health authorities are actively working on containing the outbreak, such a period of health crisis has significant repercussions on human health and welling, accompanied by psychological distress and related symptoms such as stress, panic and anxiety in the general population. Regardless of exposure, people may experience fear and anxiety of falling sick or dying, helplessness, or blame of other people who are ill, potentially triggering off a mental breakdown. Significant psychiatric morbidities have been found to vary from depression, anxiety, panic attacks, somatic symptoms, and post-traumatic stress disorder symptoms, to delirium, psychosis and even sociality, which have been associated with a younger age and increased self-blame. For those grieving from the traumatic and sudden loss of loved ones from the outbreak, the inability to gain closure can result in anger and resentment.

As for those who are sick or quarantined, they may experience shame, guilt, or stigma. Studies have reported a high prevalence of psychological distress with longer duration of quarantine associated with an increased prevalence of posttraumatic stress disorder symptoms that were correlated with depressive symptoms. With the closure of community services and the collapse of industries negatively impacting the economy, many people end up in financial losses and risk unemployment, further intensifying the negative emotions experienced by individuals. Pandemic has severe impact at individual level as well as family level. Public health emergencies lead to depression and anxiety among sufferers and family members. Several types of health problems from the range of depression, anxiety, panic attacks, somatic symptoms, post-traumatic stress disorder, delirium, psychosis and even suicide. Health care professionals have higher level of stress, depression and anxiety not because they are infecting themselves but because they are infecting their loved ones.

## COVID 19 & ANALOGY WITH AYURVEDA

### Importance of mental health in *Ayurveda*

*Acharya Sushruta* mentioned the health definition in which he gave equal importance to mental health with physical health such as "Health is the state of having balanced *doshas* (biological energies which maintain one's physiology and psychology), balanced digestion, balanced tissues, and proper expulsion of wastes. It is a state of peace/contentment in the soul, senses and mind".

### *Ayurvedic* system of disease Development with basic physiology

According to *Ayurveda* each and every living non-living being of this universe is composed of five elements (earth, water, fire, air, space). In human body, these elements are clustered into 3 biologic humours (*Vata, Pitta, Kapha*). All these *Doshas* are *Sharira Dosh* having specific functions in our body; they maintain the equilibrium of the body. Along with these 3 mental humours also there (*Satwa, Raja, Tama*). *Dosha Guna Mahabhuta* Relation explained in table 1. Both mental and physical humours are maintaining the body in homeostatic

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condition known as *Prakriti*. If fluctuations occur in the equilibrium depending upon the dietary, environmental, behavioural changes lead to pathological conditions known as *Vikriti*. So that each and every pathological condition is end of physical and mental equilibrium imbalance.

**Table 1: Physiology of *Dosha Guna Mahabhuta* Relation**

Sr No.	<i>Triguna</i>	<i>Panchamahabhuta</i>	<i>Tridosha</i>
1	<i>Satwa</i> (Clarity and balance)	<i>Akasha</i>	<i>Vayu (rajobahula)</i>
2	<i>Raja</i> (Activity and arrogance)	<i>Vayu</i>	
3	<i>Satwa + raja</i>	<i>Teja</i>	<i>Pitta (satwabahul)</i>
4	<i>Satwa + tama</i>	<i>Aap</i>	<i>Kapha (tamo-bahul)</i>
5	<i>Tama</i> (Darkness and inertia)	<i>Prithwi</i>	

***Sharirika dosha* vitiates the *Manasika Dosha***

*Acharya Charaka* has mentioned at so many instances here it has been shown that somatic disorders also affect the psychic conditions of human being. Due to *bhaya* (fear) and *shoka* (sadness) vitiation of *vata* occurs which aggravate the other *doshas* of body such as *Pitta* (inflammatory changes) and *Kapha* (obstructional pathology) and as who having *Vata Prakriti* and *Alpa Satwa*, they affect more of symptoms.

*Dosha, Dhātu, Mala, Strotas, Agni* and *Manas* (mind) is the framework in which any disease is needed to be interpreted. Concept of diagnosis in *Ayurveda* is less about naming diseases but understanding the underlying in-equilibrium. *Acharya Charaka* has mentioned in *Vimana Sthana* in *Anumana Pariksha* that we can observe with clinical features (Table 2) and we can suspect the patient with positive or negative attitude and accordingly we can also suspect *Satwa* of that patient.

**Table 2:**

Positive attitude	Negative attitude
<i>Amoda – harsha</i>	<i>Dinata - Shoka</i>
<i>Santosha – priti</i>	<i>Abhidroha - Krodha</i>
<i>Avishad- dhairya</i>	<i>Vishad – bhaya</i>
<i>Utsaha – parakrama</i>	<i>Avibhrama – avasthana</i>
<i>Smaran - smriti</i>	<i>Pratishedha – dwesha</i>

**Pathophysiology**

In *Ayurveda* COVID-19 pandemic may be considered as *Janapadodhwansa vyadhi* and it also context was referred as '*marak*(fatal). The common causes for the *Janapadodhwansa vikaras* are vitiation of *Vayu* (air), *Jala* (water), *Desha* (area), *Kala* (time) and *adharmā* (unethical practices). However, *Bhuta* (microorganisms) also an important factor plays in *janapadodhwansa vikara*. COVID 19 is a viral disease which enters the body so that it can be termed as *Agantuja vyadhi*. As described in *Jwara nidana*, *Bhutabhishanga* can be equated with microbes. The main common aspect is that, in this similar cardinal features are developed irrespective of *Desha, Dosha, Prakriti*. The hypothetical pathophysiology of infection of covid 19 as per ayurvedic perspective, by considering *bhutabhishanga vyadhi* which is *samsargaja/auspurgika*. When *Sannipata jwara* may aggravates into the most dangerous form *Sama-sannipata jwara* with drastic vitiation of all 3 *Doshas*. It manifests along with systemic

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symptoms also there is mental symptoms like giddiness, stupor, delirium, insomnia, restlessness, psychosomatic symptoms like chest pain, incomplete evacuation of urine or stool and vice versa.

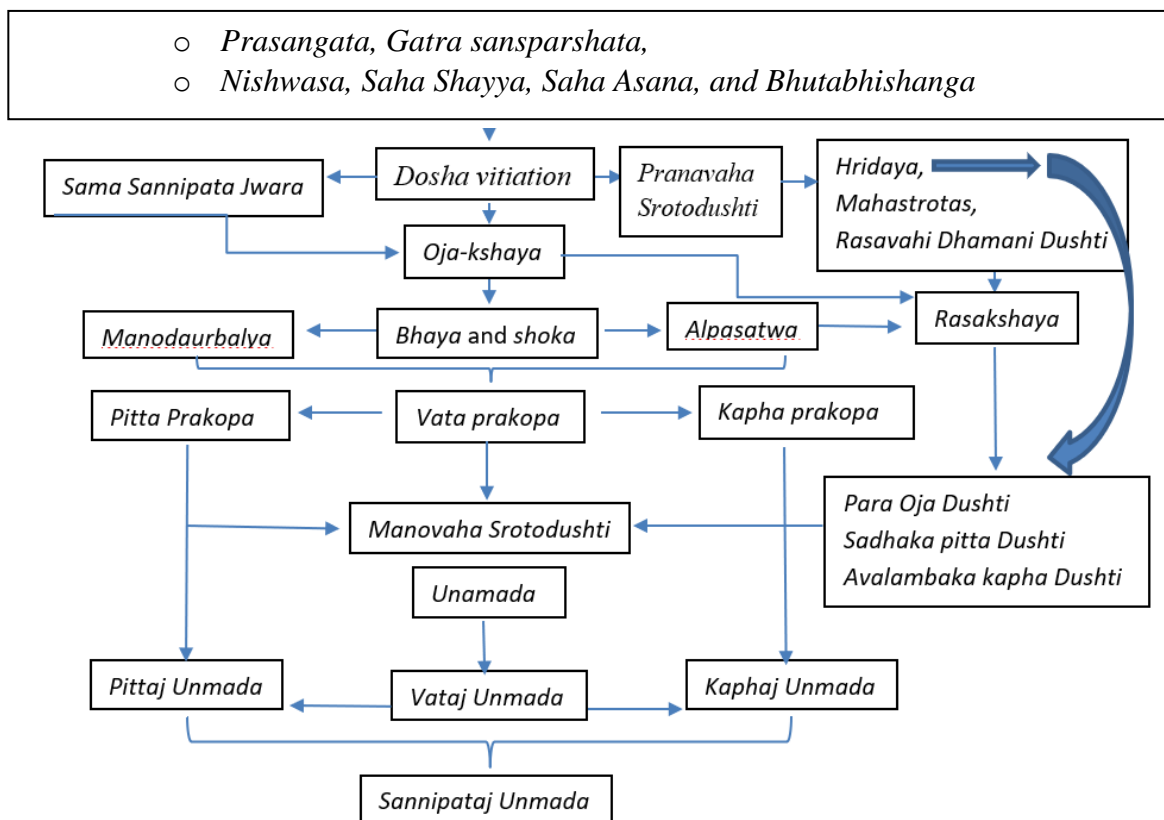
Considering the signs and symptoms of COVID-19 we can also consider it in *Pranavaha-srotas Dushti*, as its *Mulasthan*(root or origin) described by *Acharya Charaka* *Hridaya*, *Mahasrotas* and *Rasavahi Dhamani*. *Jwara* is one of the cardinal features of COVID 19 which is also caused by the *rasavaha srotodushti* as it is a *Rasapradoshaja vikara*. When *jwara* gets vitiation of all 3 doshas and coverts into *sama sannipata jwara* it vitiates the *Ojas* (Vital essence of body) that *jwara* is known as *Abhinyasa jwara*. The causes of *Rasa dhatu dushti* i.e., ‘*chintyanamati chintanat*’ (excessive thinking) and causes of *Unmada* includes *Chinta*, *Bhaya*, *Shoka* etc *manas bhavas* are similar. Lots of mental symptoms are developed due to *Rasa Kshaya*. There is a concept of *Ojas* plays key role in *Vyadhikshmatawa*(resistance against disease), if its depletion occurs in body then immune-compromised state of person comes and becomes important factor responsible for disease formation. *Vyadhikshamatva* in an individual is an attribute of his inherent *ojas* status or vital immune strength. *Ojas* is the final product of tissue nourishment and is the quintessence of all the seven *dhatus* namely *rasa*, *rakta*, *mānsa*, *meda*, *asthi*, *majjā*, *śukra*. *Acharya Sushruta* describes *ojas* as the *paramateja* of the *saptadhatus* and as the *bala* or biological strength of an individual. *Ojas* is considered to be of two kinds namely 1. *parā ojas* and 2. *aparā ojas*. *Parā ojas* is subtle in nature and is in minute quantity measuring only eight drops located in the heart while *aparā ojas* is gross i.e., half an *añjali* in quantity spread all over the body. *Parā ojas* is a life factor and its injury and insult may lead to instantaneous death. *Aparā ojas* is responsible for gross biological and immune strength.

*Ojas* depletions developed the symptoms like fear, severe weakness, lack of concentration, unstable mind with stress, dryness in body, lack of interest, cachexia. Heart is also common seat of *Prana* and *Udana Vayu* (related to respiration), *Sadhaka Pitta* (facilitating cell biological functions), and *Avalambaka Kapha* (protection and maintenance of organs).

As *bhaya*, *chinta*, *shoka*, *bhuta*, *lobha*, *harsha*, *krodha* etc *manas bhavas* are developed by individual or collectively by *rasavaha srotas* vitiation, *pranavaha srotas* vitiation, *ojas* depletion which plays a role in developing pathogenesis of *unmada* because all these are *nidanas* (causes) of *unmada*. These *nidanas* vitiates *mana* (mind) and *dosha* and manifests *manovaha srotas* and developed the state of *Unmada*. The Cardinal features of *Unmada* (Identical Symptoms of Insanity) are *Vibharama* (state of Doubt, apprehension) of *Mana* (mind), *buddhi* (intelligence), *Samdhya*(recognition), *Gyana* (Knowledge), *Smriti* (Memory), *Bhakti* (worship/attachment), *Shila* (morality), *Cheshta* (activity/Movements) and *Achara* (Behaviour). Further acc. To *dosha*, *dushya*, *prakriti* and *kala* predominance the subtypes *unmada* will develops.

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**Flow-**



**DISCUSSION**

COVID-19 is a new disease that has affected many countries of the world so the impact of it is not only on physical but mental health also. The pathogenesis of the disease is progressively explored by the contemporary medical science. For treating any disease successfully, the pathogenesis of disease should be understood precisely by the physician. In Ayurveda, emphasis is given on the accurate diagnosis and understanding the manifestation of a disease through the knowledge of its path physiology from *Nidana* to *Samprapti* before initiating the treatment for any disease (Table 3). Accordingly, the physician should also acquire knowledge of the associated branches of the sciences.

**Table 3: Pathogenesis according to *Nidanapanchaka* and *Shatkriyakala***

<i>Srno</i>	<i>Shatakriyakala</i>	<i>Nidanapanchaka</i>	<b>Pathogenesis</b>
<b>1</b>	<b><i>Sanchaya</i></b>	<i>Nidana</i>	Disease manifestation of COVID 19, symptoms started so that, <i>Krodha, shoka, Bhaya</i> symptoms increases. This is the early stage of symptoms development. <i>Sanchaya, prakopa</i> and <i>prasara</i> of <i>Doshas</i> are occur subsequently in this stage. So, it can be comparable with asymptomatic stage.
<b>2</b>	<b><i>Prakopa</i></b>		
<b>3</b>	<b><i>Prasara</i></b>		
<b>4</b>	<b><i>Sthansamshraya</i></b>	<i>Purvaroop</i>	Establishment of disease started by vitiation all 3 dosha, <i>dushya, paranavaha, rasavaha, manovaha srotas</i> gets involved and since the prognosis of disease is so vigorous it shows impact on health <i>rajo</i>

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			and <i>tamo guna</i> of <i>mana</i> and shows impact on mental health. In this stage prodromal symptoms are developed.
5	<i>Vyakta</i>	<i>Roopa</i>	It is associated with occurrence of classical sign and symptoms of disease. According to <i>Ayurveda</i> development of symptoms of <i>Vataj, Pittaja</i> and <i>Kaphaja Unmada</i> which we may be correlate with anxiety and depression.
6	<i>Bheda</i>	<i>Upadrava</i>	This is the stage of chronicity and complications. Even after recovery of the patient with the systemic illness. But, <i>ojas dushti, rasakshya avastha</i> is there so that, mental health impaired which is the long-lasting condition which manifest the general quality of life of patient. So, it shows impact on Physical health for long lasting period.

As per Ayurveda, the progression of disease depends upon status of three important factors including *Nidana, Dosha, and Dushya* and these factors are reciprocally interlinked with severity of disease. The status of *Srotasa* is also an important factor in pathogenesis of disease. After vitiation, *Dosha* get propagated in various *Srotasa* in *Prasara Avastha*. If *Srotasa* is in natural robust state, then there will be no further progression due to nonavailability of susceptible site for *Sthanasamshraya* of the vitiated *Dosha* and disease will not develop, whereas in case of comorbidities, the *Srotasa* is already vitiated by *Dosha* and have more susceptibility toward the disease owing to subsequent down gradation of the *Sharia Bala*. Therefore, more chances of development and rapid progression of disease in comorbid situations.

Correlation of modern science symptoms and *ayurvedic symptoms of Unmada, ojaskshya*, are as follows (Table 4)-

**Table 4: MODERN SCIENCE SYMPTOMPS AND AYURVEDA SIMILARITIES**

<b>Depression</b>	Depressed mood with variation in moods worst in early morning or in the evening	<i>Acharya vibhrama</i>
	Loss of pleasure in life and lack of interest in oneself and others	<i>Bhakti vibhrama</i>
	Low self-esteem and ideas of hopelessness and worthlessness Self-blame and feeling of excessive and inappropriate guilt.	<i>Rahasyakamata</i>
	Hallucinations and delusion abnormal dreams	<i>Swapne cha abhikshna darshanam</i>
	Sleepiness	<i>Swapnanyata</i>
	Sleep disturbance may occur insomnia, Fatigue	<i>Anidra and angamarda</i>
	Headache	<i>Shirah shoola</i>



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	Anorexia	<i>Anannabhilasha</i>
	Weight loss	<i>Karshya</i>
	Poor concentration, psychomotor retardation and reduced libido.	<i>Narivivikta priyata</i>
<b>Anxiety</b>	Anxious mood (worries, fearful anticipation, irritability) Fears (dark, strangers, alone, traffic etc)	<i>Krodha, shoka, bhaya, harsha</i>
	Insomnia (fatigue on waking, dreams, nightmares etc)	<i>Swapne cha abhikshna darshanam</i>
	Intellectual (difficulty in concentration)	<i>Buddhi Vibhrama</i>
	Depressed mood (lack of interest in hobbies etc)	<i>Arochaka</i>
	Somatic (muscular pain, stiffness, twitching, myoclonic jerks, unsteady voice, increased muscular tone, fatigability, trembling, restlessness, inability to relax)	<i>Abhiksnam smit hasit nritya geet vaditra sampraoga asthane</i>
	Tinnitus	<i>Swanah karnayo</i>
	Blurring of vision	<i>Vyathita indriya</i>
	Feeling of pricking sensation	<i>Toda</i>
	Respiratory symptoms such as choking feelings, dyspnoea.	<i>Uchavasyadhikyam</i>
	Gastro intestinal symptoms like difficulty in swallowing, abdominal pain, etc	<i>Anannabhilasha-arochaka-Avipaka</i>
	Autonomic: dry mouth, flushing, pallor, tendency to sweat, giddiness, tension headache, raising of hair Behaviour: fidgeting, restlessness or pacing, tremor of hands, furrowed brow, strained face, rapid respiration etc	<i>Satatam aniyatam girinam utsarga Akshi-bhru-oshtha-hanuagra-hasta-padanga vikshepanam</i>
poor memory	<i>Smriti vibhrama</i>	

## CONCLUSION

Considering the mental health impairment in COVID 19 pandemic observed in people understanding of patho physiology of mental illness is necessary. Collective understanding about causative factors, previous mental status, genetic factors, and stages of illness, clinical features, assessment and management is necessary. Ayurveda has very much concerned about mental health along with the physical health in the management with holistic treatment principles. By assessing *Dosha, dushya, strotas* involvement and stage of illness we can concisely and precisely manage the illness by Ayurveda.

Impact of Covid 19 occurs at mental health both at individual level and health care level who work tirelessly to provide medical care at health care setting. *Ayurvedic* concepts are strongly relevant to mental health consideration of COVID 19. *Adharniya vegas* should not be held and along with that while releasing *Dharaniya vega* proper care should be taken. *Pranayama* and *Yoga* are also helpful for relieving the stress of the workers who are working at COVID 19 health care centre along with this it also improves the pulmonary function test of COVID 19 patients.

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# **INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS**

## **PATHOPHYSIOLOGY OF MENTAL HEALTH AILMENTS IN COVID-19: AN AYURVEDIC OVERVIEW**

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### **INTRODUCTION**

Since the end of 2019, the corona virus disease 2019 (COVID-19) outbreak has continued to spread worldwide. Researchers rapidly identified the cause of COVID-19 to be the transmission of serious acute respiratory syndrome by a novel corona virus (SARS-CoV-2). Unfortunately, due to the lack of effective cures and vaccines, the ability of public medical systems to guard against COVID-19 is deteriorating rapidly. Although approved vaccines are now available, their safety is still a concern. Further, because of reports regarding the potential to be re infected with COVID-19, public panic is still spreading even though COVID-19 transmission has been contained substantially. To date, projections regarding the end of the COVID-19 pandemic around the world are still far from optimistic. There were more than 158.95 million confirmed cases and 3.30 million deaths by May 11, 2021 (supported by Johns Hopkins University), a situation that has led to unprecedented losses and stress.

COVID-19 not only threatens physical health but has also led to mental health sequelae (i.e., loss of family, job loss, social constraints and uncertainty, and fear about the future). In general, mental health problems, including depression and anxiety, have had major negative impacts on the public during the COVID-19 pandemic. Previous studies showed that mental health problems, such as depression, anxiety, insomnia, and post-traumatic stress disorder (PTSD), suddenly increased after the COVID-19 outbreak: 53.8% of respondents rated the psychological impact of the outbreak as moderate or severe; 16.5% of participants reported moderate to severe depressive symptoms; 28.8% of participants reported moderate to severe anxiety symptoms; and 24.5% of participants showed psychological stress. Moreover, such mental health problems were worse in confirmed patients and healthcare workers. As a typical example, one early study revealed acute anxiety symptoms in 98.84% of confirmed patients and depression symptoms in 79.07% of confirmed cases. In addition, an early investigation concerning the mental health status of 400 public health workers found that 31% of public health workers had anxiety symptoms, and 24.5% of them had depressive symptoms. In this vein, it seems that the mental health sequelae of the COVID-19 pandemic want more attention. In addition, with the development of the epidemic situation, long-term isolation due to the increasing number of confirmed and suspected patients has caused losses to life and property, which has not only caused considerable psychological stress in the population but has also had physiological effects, such as insomnia and PTSD.

In brief, the COVID-19 pandemic has exposed public health to dramatic risks and resulted in unacceptable mental and physiological stresses. Despite considerable research, two critical concerns regarding mental health problems during the COVID-19 pandemic remain. One concern in previous studies is that the conclusions regarding the prevalence of these mental health problems are highly heterogeneous, irrespective of whether they are derived from original investigations or meta-analyses. Another is that early investigations were almost all done during the peak of the COVID-19 pandemic and thus may overestimate the scale of

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mental health problems. In this chapter we try to explore the ayurvedic towards the pathophysiology of the mental ailments due to covid-19 outbreak as the science of Ayurveda has played a major role and played a neck to neck with the western system of medicine to mitigate Covid-19.

### PATHOPHYSIOLOGY OF MENTAL AILMENTS

The spread of Covid-19 can be nearly correlated with *Janapaddhwamsa Vyadhi or Marak* due to its pandemic nature. According to *Sushrut Samhita*, *Vayu* which is *Ritu Vyapanna* and *Vish Yukta* is the prime factor for *Janapaddhwamsa* which is spread across a large topography and is characterised by *Kasa, Shwasa, Vamathu, Pratishyaya, Shiro Ruka, Jvara*, etc which is the classical presenting symptoms of acute Covid-19 infection.

Charak has quoted the etiological factor for *Janapaddhwamsa* to be *Niyata Atankaparyayahetu, and Aniyata Atankaparyayahetu*. *Niyata Atankaparyayahetu* is signified by inevitable disastrous factors. Harmful effects of Sun, Moon, Stars, and Planets., Irregularity in seasonal variations, floods, cyclones, landslides, earthquake, tsunami. *Aniyata Atankaparyayahetu* is understood by man-made evitable disastrous factors, wars, effect of Terrorism etc. Both these components are selective and predominant in all the causes of Covid-19 pandemic. The spread of disease was followed by a series of lockdown and stringent quarantine measures in various part of the world and India as travel restrictions, closure of educational institutes, offices, commercial setups etc. along with the high mortality rates, this pandemic has severe physical, emotional and psychological ramifications. Ayurveda has emerged out to be nectar amidst the uncertain medical interventions. The psychological stress entrained among the masses has grown to a large extent. Hence, the understanding of this pathogenesis is necessary through ayurvedic perspective.

Acharya Charak has explained the factors through which the mental status of an individual can be inferred with the help of *Anumana Pramana*. "***Krodha Abhidrohena***" The mental status of Anger is determined by the phenomenon of *abhidroha* which means inflicting harm or pain to someone by ones' action. Anger is a universal emotion, found across all cultures and nationalities. However, excessive uncontrolled anger and that triggered by trivial issues is often considered harmful. Anger has been thought to play an integral role in depression. Several psychoanalytic theorists and clinicians have suggested that conflicts and difficulties in coping with anger play a central role in the onset and persistence of depression. Depression has also been conceptualized as a kind of self-directed anger and noted a propensity toward hatred and hostility has been noticed in patients with depression, based on temperament or early experience. In line with this, a positive association has been found between the severity of depression and levels of hostility and anger experience, but could not be related to measures of expressed anger and could only be partially related to suppressed anger. The advent of pandemic had exposed the real status of the health infrastructure and management of a thickly populated country like India. Anger spurted in people as they were helpless in front of dreadful Pandemic situation and could not do even the basic to save their near and dear ones in severe cases of Infections. This sense of Anger Conglomerates with the grief of loss of near and dear ones which the family members of the deceased feel could have been averted.

"***Shokam Dainyena***" The phenomenon of *Shoka* is interpreted by *Dainyena* which is represented by wailing of the near and dear ones. According to Chakrapani, "***Shokai Putradi Vinashajam Dainyam***" means the immense grief of untimely demise of offspring or very near

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and dear ones. This was the most dreadful consequences of Covid-19 pandemic which resulted in horrific incidents of losing two or more members of family in a short interval of time. This caused severe mental agony to the grief struck sustaining members. “*Shoka Soshananam*” is also an important sutra quoted in the compendium *Shoka* or sense of grief when constant related to any of the above mention circumstances would lead to *dhatu kshaya and sosha* manifested clinically by weight loss, emaciation etc.

Active grieving produces a number of symptoms that suggest involvement of the respiratory, autonomic, and endocrine systems. The epidemiology of bereavement suggests that cardiovascular and immune function may be substantially altered by grief. And there are enough similarities between grief and depression to merit a comparison of neuroendocrine and other biological changes in the two conditions. Physiological reactions to bereavement include neuroendocrine, immunological and somatic changes. Psychological consequences include insecurity, anxiety, aggression and depressive and (psycho-) somatic symptoms, which result in a greater vulnerability to somatic or psychiatric problems, such as cardiovascular diseases or clinical depression. In a Recent example, systematic research revealed that social loss triggers the development of Takotsubo cardiomyopathy, or “Broken Heart Syndrome”. This syndrome is a reversible, stress-induced cardiomyopathy that mimics acute myocardial infarction and occurs after intense emotional or physical stress.

The first, psychoneuroimmunology, is based on evidence of an intimate link between the nervous, endocrine and immune systems, and explains the mechanisms by which stress and emotional disorders can modulate the immune response to infection. Viewed through these lenses, it is possible that such traditional measures can positively influence mental health and immune function. For some, there is already putative evidence of a cellular mechanism, at least *in vitro*, which could modulate psychoneuro-immune pathways in a positive way; in others, the effect can only be inferred from evidence of efficacy in alleviating psychological distress or in providing a symbolic meaning related to health, well-being and protection against specific diseases. While there is no direct evidence that the “meaning response” can affect immune function, it may be associated with alterations in immune-inflammatory activity *in vivo*, as well as with reduced stress, anxiety and mood, mediated through effects on mesolimbic and mesocortical brain circuits.

“*Bhayam Vishadena*” The state of *Bhaya*(fear) is clinically manifested by *Vishada*. “*Bhayam Apakarakanusandhanajam Dainyam*” means the fear of mishappenings in the near future resulting in meekness. *Bhaya* was the common mental phenomenon which was more or less experienced by a majority of the population specially the elder, upper middle age group individuals or those who are affected with systemic diseases. Absence of any definite treatment protocol, reliable medicines, proper medical care and overcharging of the health sectors was the biggest contributor of fear among the mass. The pathophysiology of fear leading to gradual depressive state can be explained in terms of the neuro-endocrine pathway in the brain. Acharya Charaka mentions *vishada* as one of the *Vataja nanatmaja vikaras* (mental disorders caused by exclusive involvement of *vata dosha*) whereas, Sushruta has mentioned it as a *manovikara* (mental disorder). According to Chakrapani, the commentator on Charaka Samhita, *vishada* is a mental state, contrast to that of *utsaha* (enthusiasm, initiative, perseverance). Dalhana, the commentator on Sushruta Samhita says, '*vishada* is that state where *mana* (mind) is afflicted by lack of perseverance due to un-accomplishment or disappointment'

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External auditory, visual, olfactory, or somatosensory stimuli are relayed by the thalamus to the amygdala and cortex. The basolateral complex (BLA) of the amygdala is the input side of the system, which also receives contextual information from the hippocampal formation (entorhinal cortex, hippocampus, and ventral subiculum). After intra-amygdala processing of the emotional stimuli, the central nucleus of the amygdala (CeA), on the output side, activates the locus ceruleus (LC) and central and peripheral noradrenaline systems (via corticotropin-releasing factor [CRF] neurons), and the hypothalamus (paraventricular nucleus [PVN] and lateral hypothalamus [LH]). The bed nucleus of the stria terminalis (BNST, part of the “extended amygdala”) is also a control center for the neuroendocrine system by integrating information originating from both the hippocampus and the amygdala. In addition, the CeA directly activates various midbrain regions or nuclei responsible for different aspects of the fear/anxiety response: freezing or escape (periaqueductal gray [PAG]), increased respiratory rate (parabrachial nucleus [PBN]), startle (caudal reticulopontine nucleus of the reticular formation [RPC]), and the dorsal motor nucleus of the vagus (DMN) in the medulla, which (together with the lateral hypothalamus) is responsible for the increase in heart rate and blood pressure associated with emotional events. The prefrontal cortex (PFC) processes more elaborate (“cognitive”) information; it modulates the physiological, neuroendocrine, and behavioral responses (via the amygdala), and it is also involved in the extinction of fear- and anxiety-related conditional responses. ACTH, adrenocorticotropic hormone; ANS, autonomous nervous system; BP, blood pressure; GABA,  $\beta$ -aminobutyric acid; Glu, glutamate; NA, noradrenaline (neurotransmitter) or nucleus ambiguus (structure); NTS, nucleus tractus solitarius.

Acharya Charak has also stated that *Vishado Rogavardhanam* which signifies that any disease gets into its more severe form due to *vishada* or perpetual sadness. Hence any patient who is in a constant sense of sadness and woefulness due to causes like death of near and dear ones, suffering from disease, fear of impending death in covid-19 afflicted individuals, financial crisis related to job and inflation would definitely result in severe form of diseases. This process can be correlated with decrease in serotonin levels of the body. Serotonin is a chemical nerve cells produce. It sends signals between your nerve cells. Serotonin is found mostly in the digestive system, although it's also present in blood platelets and throughout the central nervous system. Serotonin has an impact on every part of our body, from our emotions to motor skills. Serotonin is considered a natural mood stabilizer. It's the chemical that helps with sleeping, eating, and digesting. Serotonin also helps to reduce depression, regulates anxiety, speed up wound healing, stimulate nausea, maintain bone health etc.

A variety of evidence has accumulated suggesting that deficits in 5-HT neurotransmission can contribute to the development of Major Depressive Disorders (MDD). The earliest evidence reported decreased levels of 5-HT metabolites in the cerebrospinal fluid (CSF) of depressed patients, but much of the association may actually have been based on suicidal behavior rather than depression. Also, several reports found that the availability of L-tryptophan in plasma was significantly lower in subjects with MDD (Cowen et al., 1989; Maes et al., 1990) suggesting an overall reduction of 5-HT metabolism. Depletion of tryptophan, and lowering of brain 5-HT, can cause transient depressive symptoms in individuals that are vulnerable to depression, based on their personal or family history of depression (Moreno et al., 1999; Neumeister et al. 2004). In recently remitted depressed patients receiving Selective Serotonin Reuptake inhibitors (SSRIs), acute tryptophan depletion led to a rapid clinically significant return of depressive symptoms (Delgado et al., 1999). In contrast, remitted depressed patients

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maintained with tricyclic antidepressants were less prone to relapse following tryptophan depletion.

### SAMPRAPTI OF MANASIK VIKARA DURING JANAPADODHWANSA WITH REFERENCE TO COVID-19 PANDEMIC

Covid-19 infection worldwide is nothing but a condition of *Janapadodhwansa* caused to the vitiated *Vayu* (With disease Causing Virus/ *Visha Yukta*) as explained before. The advent of this pandemic has caused dreadful scenario of untimely death of humans across countries which can be taken as *Kalaja/Akalaja Mrityu* as quoted by acharya Charak in *Sharir sthana*. This principally affects the *Ahara* (Diet), *Vachana*(speech) and *Karma* (actions) of the individual which was completely deranged due to the stringent lockdown. *Ahara, Vachana and Karma Aniyamata* in various forms the *Pradhan nidana*. *Ahara* derangements is caused by *Vishamashan, Adhyashan, Ajirashan* or sometimes *Anashan* which was prevalent during covid times as home stay and lack of work made people follow deranged diets. *Vachan* anomalies is caused by *Asatmaindriyarthamamyoga*. The contribution of *Karma* as a factor caused in two ways- *Sharirika* (Somatic) and *Mansika*(Psychological). The *Sharirik* factors being the *Diwaswpna*(Day Sleeping), *Bhuktam Swapatam Diwa* (Sleeping after meals), *Avyayam*(Lack of Yoga and Exercises), *Achankrman* (lack of walking and daily outdoor activities) due to door step availability of basic goods etc contributed largely in vitiation of sharir and manas doshas. Psychological factors of *Krodha* or anger (due to *Para-Pida Pravritti*), *Shoka* or grief (excess wailing and crying), *Bhaya* or anxiety due to uncertainty of future, *Rajah Sangena* due to over indulgence of sexual activity during quarantine ultimately leads to *Vishada* (depressive state of mind). In Condition of depression the changes take place primarily in one's emotional, behavioral and thought process. All the mental phenomenon like *Krodha, Shoka, Bhaya, Rajah, lobh, Moha* etc contribute to Adharma which are the principal factors of *Janapadodhwansa*. All these factors contribute simultaneously towards the vitiation and disbalance of *Buddhi, Medha, Sangya, Smriti, Dhriti* constitutions of the mind and leads to *prakopa of Vatadi doshas*. This leads to gradual *mano vaha srota dusti* The *Sharir dhatus* and *Manas Doshas* are mutually connected with each other through their common site (*sthana*) i.e., *Hridaya* which is the root (*mula*) of *Mano vaha srotas* as well as *Prana and Rasa Vaha Srotas*. This can also be understood with concept of *Jvara* which causes *Deha -Indriya- Mana Santapi* and it is evident that Covid-19 manifests with *Jvara* (fever) as its prime symptom. Hence, we can see how a disease which is somatic in origin leads to psychological involvement and vice versa. This ultimately leads to the vitiation of *Raja* and *Tama* manas doshas. At first *Raja dosha* gets vitiated followed by *Tama*. *Raja* contributes to more *Udvega* and along with *Tama* precipitates *Vishada* in its severe forms. In long terms it can lead to precipitation of *Atatvabhinivesh* due to derangement of the mental factors.

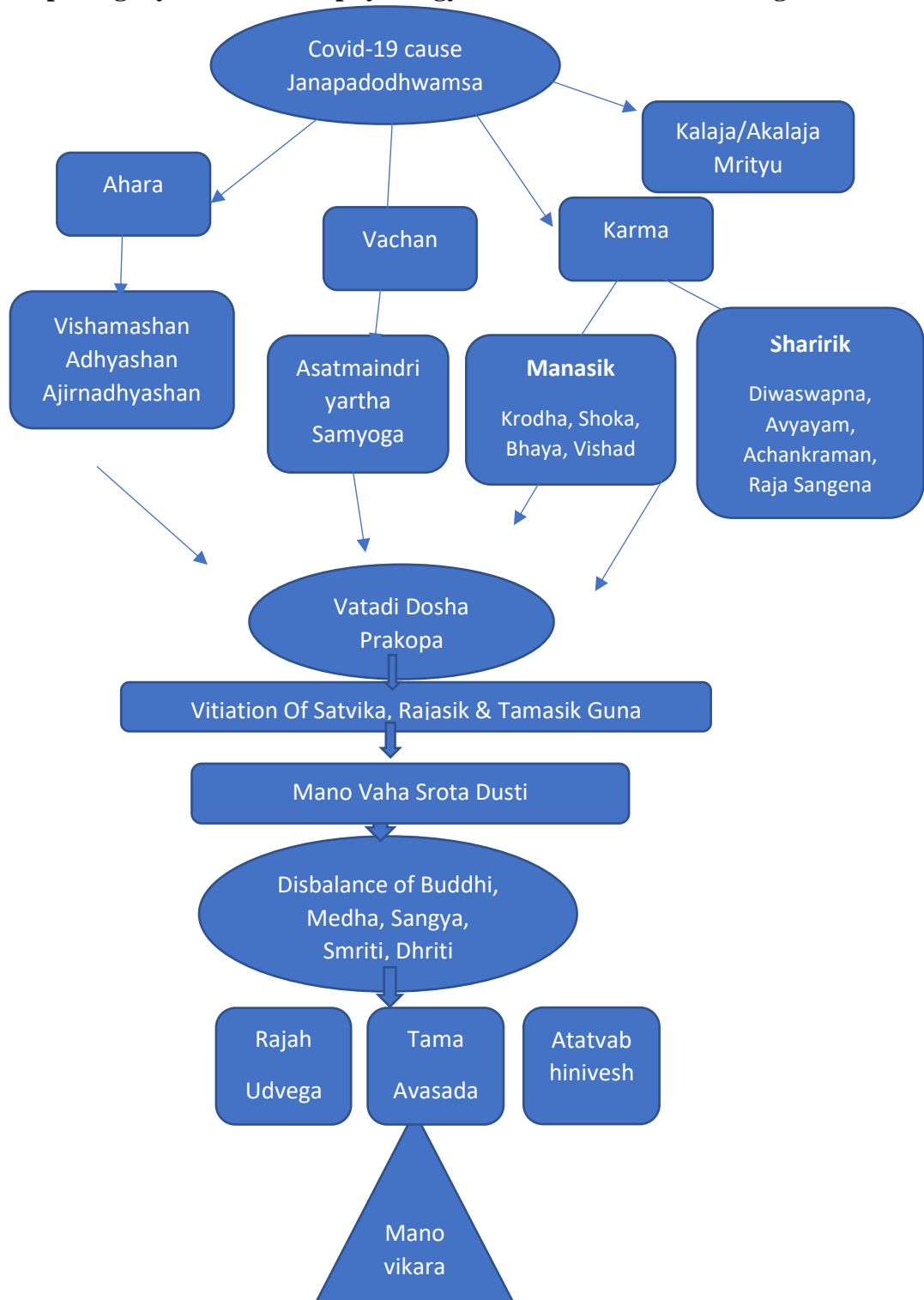
### CONCLUSION

The alteration of psychological phenomenon due to Covid-19 is rightly understood in the perspective of Ayurveda and accordingly considering the pathophysiology of the developed psychological disorders may be arrested following the respective ayurvedic protocols. The *chikitsa siddhanta* can be decided based on the previously described pathophysiology considering the *Daiva vyapashryaya, Yukti Vyapashraya and Sattvavajaya chikitsa*.



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**Flow Chart Depicting Ayurvedic Pathophysiology of Mental Ailments during Covid-19 Pandemic :**



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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## A REVIEW ON AHARA IN MENTAL HEALTH PROMOTION IN COVID-19

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### INTRODUCTION

Prasanna (healthy), Atma (soul), Manah Swasthya according to Ayurveda, includes mental wellbeing in the form of (mind) and Indriyah (senses).

The Covid-19 pandemic is defining the global health crises of our time and occurs to be the greatest challenge we have faced since the Second World War.

The outbreak of the current pandemic has affected the lives of people, their health and wellbeing. Due to Covid-19 mental health of people has been affected. The sudden disruption of daily routine, undesired laws of social distancing and receiving a flood of information puts all of us at risk of mental stress and dilemma. Emotional stress, depression, denial, tension, anger observed in person that could affect attention understanding and decision making capacity. Due to isolation and lack of contact with family, exhaustion was observed. Persistent fear, anxious mood, irritability, feelings of guilt, pessimism and worthlessness, insomnia, loss of appetite or weight gain, poor concentration and, worsening of chronic health problem may be an indication that stress is affecting our health and immunity.

Contribution of Ayurved in the management of various communicable and non-communicable diseases cannot be undermined. Ayurveda's intensive information on preventive care drives through the vastness of '**Dincharya**' (daily regime) a '**Ritucharya**' (seasonal regime) to maintain healthy life. The simplicity of awareness about oneself and the harmony each individual can achieve by uplifting and maintaining their immunity is highly emphasized across Ayurveda's classical scriptures. Ayurved emphasizes on '**Prevention**' first. It includes Swastha dravyas, Rasayana, vajikarana, Vyadhikshamatva.

### DIET / AHAR

Diet and life style management are the important integration in Ayurveda management. Ahara is mentioned in details in terms of (12) twelve Ahara Varga, Ashta Ayatanani, Ahara Vidhi Vidhana and Viruddha ahara. This comprehensive description of Ahara includes what to eat, when to eat, where to eat, how to eat, how much to eat etc. Amongst those the foremost thing is to advice what to eat. The diet should be balanced not only in terms of its calorie value or in terms of carbohydrates, proteins, lipids, vitamins etc. But from Ayurveda point of view, the balance should be of terms of '**Shad-rasas**', '**Panchabhautika Ahar**', '**Chaturvidh Ahar**' ( four forms of Ahara ) etc. Regarding the time to eat, the food chronobiology of nature's clock has to be followed .i.e., the Ahara consumption should be in presence of the Sun, as the solar energy representing Pitta component in the body, is responsible for digestion. Regarding the quantity of food, the patients may be advised to consume the amount of solid 50% of the capacity, liquids 25% of the capacity and 25% of the space to be kept empty for the circulation of the Doshas. Further, heavy to digest Ahara should be consumed less than the satiety and light things also upto the satiety only. In

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general, the Ahara quantity should be only that much which does not cause trouble or hamper the physical activities after its consumption.

The recommendation and guidelines have already been a part of the ancient healing system of India, i.e., Ayurveda, which suggests that life is standing on four pillars, namely, Aahar (Diet), Vihar (Lifestyle), Achar (Conduct of individual with the external world) and (Mental Health).

Ayurveda considers that of Ahara/proper food selection and dietary schedule help to maintain holistic with a calm mind. Bhagwad Gita and the Yoga Shastras divided food into three types based on their qualities (termed as gunas). They are Satva ('Satvaguna'), Rajasa ('Rajoguna'), and Tamas ('Tamoguna'). **A diet is meant to include foods and eating habits that are natural, vital and energy-containing and provides calmness, purity and promote longevity, intelligence, strength, health and delight.** Examples of Satvik food items are fruits, vegetables, sprouted grains, cereals, nuts and seeds, low fat milk and milk products, pure fruits juices, and cooked food that is consumed within 3-4 hours of cooking, etc.

**A Rajasic diet, the mode of passion, is one that is overly spicy, hot, or fried with pungent, sour, and salty taste. Rajasic food possesses attributes of the negativity, passion, and restlessness.** Examples of Rajasic food are caffeinated drinks (like coffee, fizzy soft drinks, tea), sugary foods (chocolate, cake, biscuit, chips, etc), or spicy food. As these foods are rich in glucose, they may **provide immediate energy but eventually destroys the mind- body equilibrium, feeding the body at the expense of the mind.**

A Tamsik diet, the mode of ignorance, is one that consists of overcooked, stale, fast, reheated, micro waved, frozen food; dead food such as meat, fish, poultry, eggs; alcohol, cigarettes, and drugs of addiction. **Tamsik foods are hard to digest and gift inertia, dullness, and induce sleep.** All these are an important cause of obesity, diabetes, heart, and liver diseases.

Rajasic and Tamsik foods, available as processed and junk foods, are full of carbohydrates, sugar and trans-fat in high proportions. Resulted in additional 30% increase in overall sweetener intake and inability to regulate the hormones insulin and leptin and to inhibit the production of gherlin, all factors that are known to affect the satiety centre in our brain, regulate blood glucose levels and appetite. Fast foods and fried foods like French fries, doughnuts, cakes, pies crusts, biscuits, frozen pizza, cookies, crackers, and stick margarines are made up by using hydrogenated or artificial trans-fats (or trans-fatty acids) which meets their food processing needs, easy to use, inexpensive and can be used many times in the commercial fryers.

On the other hand, food rich in prana ('life-force') are a combination of carbohydrates, fats, and rich in dietary fiber, vitamins, minerals and antioxidants with a limited amount of sugar, salt and oil, and no animal fat. It can be digested easily and utilize the six tastes in Ayurveda (sweet, sour, salty, pungent, bitter, astringent). Satvik food with recommended physical exercise, adequate rest, and a positive mindset is a source of energy and can reduce the risk of high body mass index, coronary artery disease, obesity, hypertension, type 2 diabetes, and osteoporosis. **Satvik food is pure, natural, strong, wise, and full of energy to provide calmness and peace to the mind, thereby resulting in longevity of life in an individual.**

**Rajasic and Tamsik food like onion, garlic, asafetida, caffeinated tea, and coffee; fried, spicy, high in sugar, and junk foods induce restlessness, lethargy, and sleep.** Food like garlic and

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onion may be good as medicine but not for daily consumption. The daily consumption of food, which stimulates the nervous system, may lower the possibilities of experiencing life.

### PREFERABLE DIET

Proper nutrition is to be ensured through freshly cooked hot food, considering individuals digestive power. Eat freshly prepared warm, Laghu-supachya ahara (easily digestible light diet) when hungry.

1. A piece of ginger with a pinch of rock salt 15 to 20 minutes before food to improve appetite.
2. Light to digest preparations like-
  - Soups of moong dal or lentils,
  - Soups of vegetables, Meat soups
  - Khichadi of rice and moong dal
  - Phulka with cow ghee.
  - Vegetables like gheya, turai, bhindi, sitaphal etc.
  - Use spices like jeera, black pepper, garlic, coriander, ginger and ajwan.
  - If appetite digestion improves; start with normal diet and quantity of food as per appetite.
3. **Liquids:** -Instead of Tea, either of the following are advised
  - Herbal tea prepared from 1/2inch ginger +2 black pepper +1/4 cinnamon or lemon grass.
  - Tulsi leaves in 2 cups boiled water reduce it to 1 cup and honey 1 teaspoon
  - 1 cup hot cow's milk+dry Ginger powder/haridra½ teaspoons.
  - Fresh warm liquids treated with medicinal herbs (preferably Shunthi, Dalchini, Trikatu) should be use as a regular maintain hydration.
4. **Cereals:** - Shalishashtika (old rice)/Laja/Godhuma (wheat)/Yava (Barley).
5. **Pluses:** -Mudga (Phaseolus radiates Linn),Masur (Lens culinaris Medic), Kulattha (Dolichos biflorus Linn.)Chanaka,Moth.
6. **Vegetables:** - Vaartak (Solanum Melongena L), Karkotak (Momordica Dioica Roxb. ex Willd),Karvellaka (Momordica Charantia Linn), Shigru (Moringa Oleifera Lam),Patola (Tricosanthes Dioica Roxb), Patha (Cissampelos Parietal Linn), Vaastuka (Chenopodium album L.),Jivanti (Leptadenia Reticulate Retz.) Wight and Arn,Tanduliyak (Amaranthus Spinosus L), Kakamachi (Solanum Nigrum Linn.), Guduchi (Tinospora Cordifolia. (Thunb.)Miers.)
7. **Fruits:** -Draksha (Vitis Vinifera L.),Kapittha (Feronia Linn),Dadima (Punica Granatum Linn) can be taken.
8. **Condiments and spices:** -Cardamom/dry ginger/black pepper/long pepper / garlic

Charaka has advocated 'Achar Rasayana' (code of behavioral conduct)for perfect mental, physical, social, spiritual health of human beings. Medhya Rasayana includes drugs which help in cognition enhancement and act as brain tonic or rejuvenators e.g. Mandukparni, Tashtimadhu, Guduchi, Shankhapushpi. The use of herbs of Brahmi, Shankh Pushpi, Giloy, Malkangni, Tulsi, Ashwagandha and the herbal formulations help in managing psychological conditions like

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negative social, economic as well as health effects due to global health emergency of corona pandemic.

### **1. BRAHMI (*Bacopa Monnieri*)**

It is adaptogenic, sedative, potent nervine tonic, anxiolytic and in psychic disorders. The Phytochemicals like Bacoside (Saponin-Glycoside), Brahmin (Alkaloid) establish anti-oxidant environment in the brain. Neuroprotective activities are attributed to the regulation of mRNA translation and surface expression of AMPA, NMDA and GABA neuroreceptors in various parts of brain. This herb is available as Brahmi Vati (tablet), Brahmi churna (powder), Brahmi ghrita (ghee), Saraswatarisha.

### **2. VACHA (*Acorus Calamus*)**

It is nervine tonic, tranquilizer, sedative (neuroleptic and anxiolytic), and analgesic. Alpha-Asarone (Phenolpropananoid), Acorin (Glycoside) and calamine. It produces neuroprotective effects by interactions with GABA<sub>A</sub> receptors and reducing AchE levels. Antidepressant action is observed on induction of Alpha 1, Alpha2, adreno receptors as well as 5-HT (1A) receptors. The formulation is Vachadi Taila, Saraswata churna, Chandraprabha vati.

### **3. SHANKHPUSHPI (*Convolvulus Pluricaulis*)**

It is brain tonic tranquilizer, anxiolytic, in mental aberrations and neurosis. Convolamine, Scopoletin (Alkaloid) are main phytochemicals. It provides protective action against memory dysfunction by free radical scavenging and antioxidant action on brain cells. It inhibits Ache significantly to avoid loss of Ach, responsible for cognitive function. It is available as Shankhapushpi Kashaya (Juice), Gutika (Tablet), Shankhapushpi arishta.

### **4. MALKANGANI (*Celestrus Paniculatus*)**

It is nervine and brain tonic used in mental depression and improving memory. Paniculatine (Alkaloid), Celapanin, Dipalmitoyl glycerol (Sesquiterpene) are main phytochemical. Oil of seeds produces significant antidepressant like effect by interaction with dopamine-D2 receptors, serotonergic and GABA(B) receptors. It causes reduction in plasma corticosterone levels. The formulations are Smritisagar-rasa, Jyotishmati Taila.

## **CONCLUSION**

- 1) An elevation in mental problems since the spread of COVID- 19 pandemic has been noted.
- 2) Since there are less chances of quick end of this pandemic, it is mandatory to adapt with the situation and life taking precautions.
- 3) Mental problems can be dealt with proper use of Ahara explained in Ayurved along with 12 Ahara Varga, Ashta Ahara VidhiVishesha Ayatanani, Ahara Vidhi Vidhana and Viruddha Ahara.
- 4) Ahara with Satvik, Rajasic, Tamsik ingredients affects the mind-body wellbeing.
- 5) Satva-guna pradhan Ahara,Spices,Laghu Ahara enhances the health of mind and body.
- 6) The proper use of herbs like Brahmi, Shankhapushpi, Vacha, Malkangani as well as herbal formulations can lessen the mental problems and heals the mental health.

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- 7) These herbs interact with neuroreceptors and help in maintaining the adequate levels of neurotransmitters like acetylcholine, Dopamine and other catecholamine.

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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## RESPIRATORY PREVENTIVE MEASURES TO CONQUEST COVID-19

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### ABSTRACT

*Ayurveda is the bunch of blooms having multiple spectrums to prevent health and immune to fight with present and future trends of viruses. The principles of Ayurveda make life span extensive and healthy. COVID-19 is the today's crisis situation, world-wide people are in dread to respiratory disease symptoms as primary indicators of corona virus. So, Ayurveda literature have the various remedies to strengthening respiratory system with preventive measures like Pranayama, Yoga, Meditation, Good sleep, Diet, Lifestyle and Medication. Prevention is the need of the time to fight with COVID-19 because there is no treatment and vaccines till date.*

**Keywords-** COVID-19, Pranayama, Yoga, Meditation, Lifestyle

### INTRODUCTION

The prevention is the better than cure is the today's principle followed by worldwide, which is even now mentioned in Indian ancient medicine. There are innumerable slants to think for COVID-19 pandemic. One of the preventive aspects is to make immune respiratory system for cope up the crisis period. As per WHO, Chronic respiratory disease is more likely to develop serious illness [1] and prone to COVID-19 virus. So, it is need to protect respiratory system organs from virus and to robust immune system with short term efforts as there are no specific vaccines or treatments for COVID-19.

### OUTLINE FOR PREVENTIVE MEASURES

Ayurveda comprising of effective principle to overcome today's pandemic issue. The foremost principle is prolonging life and promotes perfect health to human being. The health is greatly influenced by Life-Style which includes *Dinacharya, Ratricharya and Rutucharya*. In lockdown period everyone has to modify lifestyle as per guidelines prescribed by the government. But it is very tangential situation for the health workers to work in this situation. The common man as well as people exposing towards pandemic red zone or orange zone areas should take precautionary initiative with prescribed government guidelines. The remedies used for immune respiratory system in short term period are *Pranayam, Yogasana, Meditation, Medication, Diet & lifestyle and Sound sleep*.

#### ***Pranayama and Yogasana***

Pranayama improves respiratory functions by regularizing respiratory rate, increases in the forced vital capacity, forced expiratory volume, maximum voluntary ventilation, peak expiratory flow rate, and as well prolongation of breath holding time [2].

Within a period of four weeks patients of chronic bronchitis benefited with *Yoga and Pranayam* therapy [3].



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Same results were found in the pilot study of patients of chronic obstructive pulmonary disease (COPD) that pranayama was associated with improved exercise tolerance. Hence Kaminsky suggested Pranayama for symptomatic patients with COPD to get result in twelve weeks [4].

Pranayama and Yoga has a prime role in physical factors like mechanical stimulation and stretching; enable delays in senescence and improves the physiological functions of lung and makes the body elastic [5].

Thus, as finding stated by Abel et.al. That minimum 10 weeks of regular Yoga practice improved pulmonary function. So, less fit individuals suggested to engage them with regular Pranayama [6].

### **MEDITATION**

Meditation is very helpful in reducing apparent stress immediately and useful as a short-term mechanism for stressful condition, correspondingly Paudyal et.al said that meditation is beneficial in improving quality life of asthma patients [7]. Similarly, Harinath et. al. suggested three-month *Hatha Yoga* and *Omkar* meditation on disturbed cardiorespiratory performance, psychologic profile and for melatonin secretion. There were not significant results observed in systolic blood pressure, diastolic blood pressure, mean arterial pressure, and orthostatic tolerance, but it can be useful in psychophysiology stimuli to increase endogenous secretion of melatonin, which ultimately responsible for improved sense of well-being [8].

In case of COPD population, complex relation was observed in between breathing parameters, emotion, and mindfulness. Meditation is very useful intervention as it has good feasibility and acceptability [9]. Although the physiological and biochemical fluctuations occur during the acute stress response have been well-characterized, there was relaxation response induced with the help of meditation intervention, that may help to tackle the stressful crisis situation like COVID-19 [10].

### **MEDICATION**

The curcumin is the very potential component effective in pulmonary diseases and lung disorders, evidence received through in vitro and in vivo studies [11, 12]. The Ashwagandha is described as *Rasayana* (rejuvenator) in Ayurveda and research studies also labelled the same [13].

Ethanol extract of *Boswellia serrata* found significant effective as anti-inflammatory activity, supporting the treatment in lung disorders with allergy as well as asthma [14]. Most famous immune modulatory drug in Ayurveda, Chyawanprasha, facilitate current biomarkers of immunity pre and post consumption as well observed beneficial as an adjuvant therapy [15]. In vitro anticancer activity of *Abhrak Bhasma* on cell line of LungHOP62 shows positive effect at Tata Memorial Centre, Research Education in Cancer, Navi Mumbai [16]. Allergen induced Asthma can be preventatively treated by *Kanakasava* as traditionally people using since long time [17].

Aqueous extract of *Terminalia arjuna* prevented pulmonary hypertension as it may work as antioxidant and effective on pulmonary arteriolar wall thickening [18]. *E. sonchifolia* has properties like anti-tumour, anti-inflammatory and antioxidant activities and significantly

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effective on pulmonary metastasis which is also justifying conventional use in the traditional medicine [19]. *Tinospora cordifolia* extract proved its activity as anti-inflammatory and antioxidant activities in asthma, reduces asthmatic inflammation and other lung inflammatory conditions [20]. As per Dybey et.al. *Ashtangavaleha* and *Vyaghrehareetakee Avaleha* both are significantly effective with some difference on *Tamaka Shwasa* (Bronchial Asthma) in children [21].

### **DIET & LIFESTYLE**

The presented data suggest that some food and nutrients, having properties like antioxidant and anti-inflammatory consumed with balanced diet for better pulmonary function, improve lung functioning and reduction of COPD risk [22].

State of malnutrition and weight loss in the crisis of COVID-19 is more prevalent for respiratory disorders due to lack of nourishment. People should be provided with required food material and focused on more energy or protein rich food to overcome the problem that improves the nutritional status [23].

The Mediterranean diet is suggested to improve lung function parameters, which may protect the lung from respiratory dysfunction [24].

### **SOUND SLEEP**

Sleep is the restart of human system that helps to improve body functioning and recharging of terminal cells. Disturbed sleep leads to negative health impact on quality of life; which may mediate in between respiratory disorder and quality of life [25].

Similar finding was observed in the study by Wentz et.al. That sleeping less than six hours per night Military recruits more diagnosed with upper respiratory tract infection. So, proper sleep is very most important thing in between the services of COVID-19 [26].

### **RECOMMENDATION FOR AYUSH INITIATIVES**

The Ayurveda research in India is at fundamental stage, there is need to develop research attitude in the budding doctors, practitioner to change the reserved culture, and alteration of the leadership to develop Ayurveda globally and to get leadership role in the future healthcare system to defeat crisis like COVID-19 [27].

There are number of areas to be identified for research, education pattern, development of new ideas and collaboration through integrative approach to develop Ayurveda to fight with upcoming crisis situation [28].

Ayurveda is the science of life promotes the concept of biological aging. The panchakarma procedures and other proposed activities are suggested for successful health span like diet and conscious eating, sleep, regular routine, mindfulness activities, *Sadvritta* [29].

### **CONCLUSION**

COVID-19 is the pandemic situation; whole world is in various crises. The respiratory system related sign and symptoms are the indicative for corona virus. Ayurveda offers number of

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remedies which are useful for prevention of respiratory diseases and immune the system as well. So, with the help of AYUSH initiatives, all the Ayurveda scholars have the look towards preventive aspect of Ayurveda as life saver mechanism for COVID-19.

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**TENETS OF AYURVEDA PSYCHOTHERAPY TO MITIGATE POST COVID  
MENTAL HEALTH CRISIS**

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## **INTRODUCTION**

The 21<sup>st</sup> century witnessed a revolutionary boom in fields of science, medicine, technology, sociology and global culture. With the advent of worldwide web, the world came closer socially and virtually. However, every accomplishment often welcomes novel challenges and obstacles. One such adversity was faced by the entire ecosystem in the form of Covid-19 pandemic in the year 2020. This unknowingly emerged Covid crisis created a havoc pertaining to the physical, mental and social wellbeing of entire human race. Not only the physical health of millions across the globe was jeopardized but mental health also became a matter of concern. It won't be wrong to state that the mental health demanded its due importance during this period. With the development of vaccine and strategic treatment plans the situation seems to be in control however the mental health issues still persist. Ayurveda on the other has remained a persistent ray of hope for managing all the kinds of physical, psychological ailments by virtue of its eminent therapeutic principles and solutions. This article will try to throw light upon the various facets of post Covid19 crisis mental health and role the basic ayurveda treatment principles can play in tackling the same.

## **POST COVID PSYCHIATRIC ILLNESS TSUNAMI - UNDERSTANDING THE GRAVITY OF SITUATION**

Various issues of concern regarding the Quarantine, social distancing, isolation, social withdrawal, post Covid recovery emerged to a great extent. The economic recession, unemployment, stigma, social inequalities gave rise to fear, anxiety, stress, depression, impaired attention, impaired memory, cognitive defects, post-traumatic stress disorder, violence and even suicidal tendencies. The alcohol and substance abuse also lead to psychosomatic disharmony coupled with aggravation of sedentary lifestyle. This has also left a psychiatric and psychological impact over children, adolescent and geriatric populations. Sleep related disorders like insomnia and prolonged generalized fatigue are also found to be abundant. Studies on the impact of Covid19 on the Indian population revealed that 71% felt worried 25% felt depressed and 31.9% felt certain anxiety. It also proven that Covid 19 causes prolonged neuro-psychiatric disorders like headache, dizziness etc. Thus, it is important to understand analyse and address the psychological impact of Covid 19.

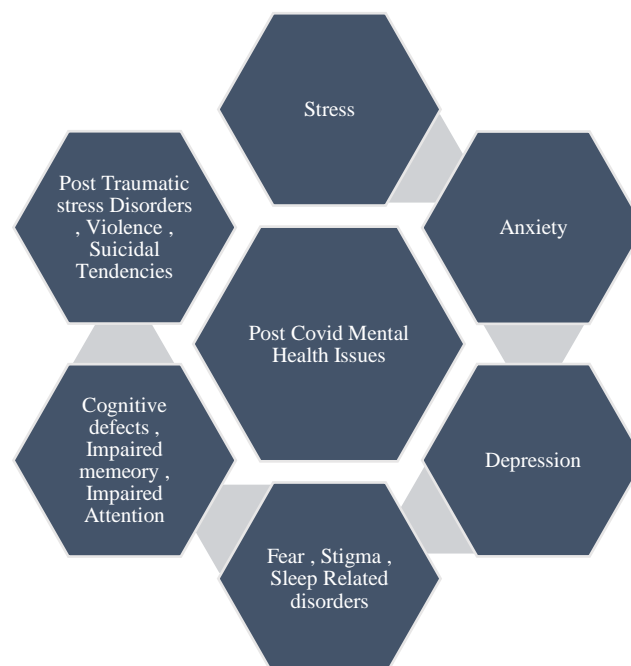
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### AYURVEDA PRINCIPLES FOR THE MANAGEMENT OF MENTAL HEALTH ISSUES-

Ayurveda has explained *Sharira* and *Manas* as two main types of *Vyadhi* or disease conditions. The *Sharira Vyadhi* (physical ailments) predominantly affect the Physiological aspects of body while *Manas Roga* affect psychologically. However, both of these have an effect on the prognosis and presentation of individual *Vyadhi* which can also be interpreted for Covid infection. The basic principles of management of various psychological conditions are explained at many instances in the *Ayurveda Samhita*. Brief overview of the same can help to combat the psychological crisis associated with Covid infection. Some of these are discussed below-



- **Janapadodhwansa-**



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The basics of epidemiology are explained under the umbrella of this term according to Ayurveda. The basic causative factors of epidemic and pandemics along with their prevention and management are well explained through the medium of this concept. It is important to note that enough emphasis is given on the psychotherapeutic factors. The important virtues like *Daya* (empathy), (*Devata-Archana*) spiritual practices *Daana* (charity), *Sankatha Dharmashashtran* (consulting the seniors and learned faculties), following the righteous path are advised to preserve the mental wellbeing. Practicing these can help in reducing the stressors and psychological burden pertaining to Covidsituation.

- ***TrividhaAushadh- Daiva-Vyapashrya, YuktiVyapashraya, Sattwavajaya-***

These are three main types of modalities directed towards the wholesome treatment of any ailment according to Ayurveda. The *Daiva-Vyapashraya* deals with the spiritual means to acquire balanced state of body and mind. These include the modalities like *Mantra* (Chanting prayers), *Aushadhi Dharana* (possessing medicinal herbs, contact or application of medicinal herbs on the body), *Mani Dharana* (possessing precious gems and jewels), *Mangala* (Performing auspicious deeds), *Homa (Agnihotra)*, *Niyama* (following the right code of conduct) etc. which can reap immense benefits through the means of spiritual care and behavioural modifications. The spiritual care has gained more importance during the testing times of Covid 19 as they provide coping abilities, better recovery avoiding the burnouts by modifying the beliefs, attitudes and behaviour. *Homa* and *Agnihotra* is believed to purify and cleanse the atmosphere by secretion of medicinal fumes. *Yukti- Vyapashraya* deals with diet and medication-based treatment modality; this also helps to cope up with the infection providing holistic health. The medications in this case involve different *Medhya Rasayana*, *Manasa Rogahara Dravya* or herbs that help in combating the psychological manifestations. *Sattwavajaya* is the most important modality that connects with the psychotherapy and psychological counselling. It involves the control over senses and mind thus avoiding the worsening of mental ailments.

- ***Components like Dnyana, Dhi, Dhairya, Smriti, Samadhi-***

These deal with the mental health faculties providing deeper aspects like acceptance of situation, patience, finding solutions, feeling content even with the minimal resources thus forming an important part of psychological counselling. These components are similar to the concept of logotherapy, which is the science that deals with finding the meaning in life despite the hardships one is facing. Thus these help to strengthen the mental forces of individuals promoting the positive outlook towards life.

- ***Doshabased Treatment modality (Doshabased Chikitsa)***

The three *Dosha* are the fundamental functional and physiological drivers of body. These are the major determinants of health and disease. The bodily *Dosha* directly or indirectly affect the mental health as they have an effect on the *Sattva*, *Raja* and *Tama* components of the

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*Manas*. For instance, the *Krodha* (Anger) aggravates *Pitta Dosha*, *Shoka* and *Bhaya* vitiate *Vata Dosha* thus also disturbing the physical homeostasis as well. Thus the treatment and diagnosis of *Dosha* vitiation can ultimately help in balancing the mental disturbance.

### • *Dravyabhoota, Adravyabhoota Chikitsa*

Based on the drug or medication modality adopted both the *Dravyabhoota* and *Adravyabhoota* i.e. drug based and counselling measures have wide application in the treatment of *Manas Roga*. Various herbal drugs like *Bramhi*, *Shankhpushpi*, *Jatamansi*, *Ashwagandha*, *Vacha* (*Acoruscalamus*), *Duralabha*, (*Fagoniacretica*), *Panchagavya* (Five products from cow- Milk, Ghee, Urine, Faeces, Curd) are used for the effective treatment of the mental disorders. These herbal drugs have potent psycho-neuro-immunological properties that can help in combating the Covidrelated stress. *Adravyabhoota Chikitsa* involves the non-pharmacological measures like *Bhayadarshana*, *Vismapana*, *Vismarana*, *Harshana*, *Swapna*, *Samvahana* etc. which are again the psycho-behavioural modifications to cope at different levels of stress.

### • *Medhya Dravyaas Rasayana*

Evidences suggest that there is potent “Brain Fog” or cognitive dysfunction resulting from Covid infection due to the neuro-inflammation involving the pathology of mast cells and astrocytes. This is the long-term side effect of Covid infection resulting in symptoms like confusion, difficulty in multi-tasking, dizziness, memory loss and Irritability. According to Ayurveda the *Medhya* Drugs are those medicines that have potent nootropic, neuroprotective, anti-neurodegenerative and cognitive enhancers that can help in the management of long Covid infection related cognitive disability. *Guduchi* (*Tinosporacordifolia*), *Mandukparni* (*Centellaasiatica*), *Yashtimadhu* (*Glycyrrhizaglabra*), *Shankhapushpi* (*Convolvulus prostatus*) are classically mentioned as *Medhya Rasayanain Charak Samhita* while *Medhya* effect of some other herbs like *Jyotishmati* (*Celastruspanicultus*), *Kushmanda* (*Cucurbita pepo*), *Aindri* (*Bacopamonneri*) is well explained. The medicinal preparation from these herbal compounds can help to manage the concerned mental health situation.

## CONCLUSION

These are very few references from the Samhita and ancient texts to support the range of treatment modalities and vistas that Ayurveda can provide for better management of Covid related mental health crisis. Ayurveda based scientific approach can help to tackle the situation more effectively.

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## THE PSYCHONEUROIMMUNOLOGICAL ACTIVITY OF *MUNDI* (*SPHAERANTHUS INDICUS* LINN.); A CONCEPTUAL REVIEW

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### INTRODUCTION

Science of Ayurveda defines human life as the cohesion of *Sharira* (Physical body), *Indriya* (developed sensory apparatus), *Sattva* (mind), and *Atma* (the conscious element). Thus, factors impacting any of these will surely have impact on other factors. This gives basis of Psychosomatics in Ayurveda. It believes that every disease which occurs in the body has two components; one is *Sharira* (Related to deviation in physiology and/or anatomy) and the other is *Manasa* (Related to the psychological component of the human). Charak Samhita in *JwaraC hikitsa* explains that the three *Shariradoshas* and the two *manasika* doshas are the natural factors responsible for the pathology of *Jwara* and it further clarifies that the whole body and mind are the sites of manifestation of *Jwara*. Thus, it is quite evident that the concept of psychosomatic diseases is well elaborated based on etiopathogenesis as well therapeutics of psychosomatic illness in Ayurveda. Further signs and symptoms of most of the Psychosomatic diseases are observed under two psychological disorders described in Ayurveda, viz, *Unmada* and *Apasmara*. Thus, basic line of treatment of psychosomatic illness can be drawn from management protocol of *Jwara* along with the treatment principles of *Apasmara* and *Unmada*.

Conventional therapeutics has not given importance to individualistic medicine and did not consider role of psychology in various infectious and non-infectious pathologies. In recent years, after the evolution of fields of psychiatry and psychology it is evaluated that, the effect of psychological disorders can be seen in physique and physical illness causes mental issues. The ultimate effect of these psychological and physical ailments is on neuronal regulation of which leads to endocrine and immunological variation in body.

Psychoneuroimmunology is the study of the interactions among behavioral, neural and endocrine, and immune processes. The brain communicates with the immune system through autonomic nervous system and neuroendocrine activity. Both pathways generate signals that are perceived by the immune system via receptors on the surface of lymphocytes and other immune cells. Conversely, an activated immune system generates chemical signals (cytokines) that are perceived by the nervous system. Thus, bidirectional pathways connect the brain and the immune system and provide the foundation for behavioral influences on immune functions. Pavlovian conditioning refers to the behavioral and physiological changes brought about by experiencing a predictive relationship between a neutral stimulus and a consequent biologically significant event. Such responses can suppress or enhance immune responses and stressful life experiences and emotional states (e.g., depression) are generally immunosuppressive. These effects are biologically meaningful in that they appear to be implicated in altering the development and/or progression of immunologically mediated disease processes.

Therapeutics of Ayurveda has given a class of herbs named *Medhya*, which means cognitive enhancers. These herbs are pharmacologically reported for their, anti-depressant, anti-anxiety, anti-parkinsonism, nootropic potential. Thus, use of *Medhyadravya* will be highly beneficial in dealing with psychological issues occurring in various stages of COVID infection.

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Various herbs like *Shatavari*(*Asparagus racemosus* WILLD), *Kashmari*(*Gmelina arborea* L.) ,*Jatamansi* (*Nardostachys grandiflora* DC.), *Pippali*(*Piper longum* L.), *Bhallataka* (*Semecarpus anacardium* L.), *Aparajita*(*Clitorea ternatea* L.), *Brahmi*(*Bacopa monnieri* (L.) PENNELL), *Mandukparni*(*Centella asiatica* (L.) URBAN)etc. are enumerated in Ayurveda classics for their *Medhyakarma* but *Mundi* which is botanically identified as *Sphaeranthus indicus* Linn is not evaluated thoroughly and not in extensive use as *Medhya* despite easy availability and classical Ayurveda indications.

The herb *Mundi* is also evaluated for various pharmacological activities like neuroleptic, neuroprotective, anti-convulsant, immunomodulatory, analgesic and anti-pyretic activity which indicates towards its potential for influence on psychoneuroimmunology. But there is no published literature to highlight the psychoneuroimmunology aspect of *Mundi*. In the present chapter an extensive review of *Mundi* is done from classical Ayurveda and contemporary literatures which indicate emphasis of herb *Mundi* on psychoneuroimmunology. This information may be helpful for applicability of *Mundi* in management of various psychological ailments and also to combat psychological issues during COVID and post COVID infection.

### MATERIALS AND METHODS

The review of COVID pathophysiology with special reference to psychological aspects like anti-anxiety, anti-amnesic, anti-psychotic was done. Review of herb *Mundi* was done from Charak Samhita, Sushrut Samhita, Ashtang hriday and Various lexicons viz. *Raj Nighantu*, *Bhavaprakash Nighantu*, *Kaiyadeva Nighantu*, *Madanapal Nighantu* and *Dhanwantari Nighantu*. Available contemporary literature in digital as well as print format, were searched with key words as *Mundi*, *Sphaeranthus indicus*, anti-anxiety, *medhya karma*, psychological activities and post-covid. Various studies conducted on *Mundi* (*Sphaeranthus indicus* L.) were gathered and obtained information was critically analyzed and presented systematically.

### OBSERVATIONS

The review revealed that COVID has a pathophysiology very similar *Jwara nidana*. Thus, both physical and psychological involvement is seen during COVID. The psychological component, during COVID can be understood at two stages, one which occur during the period of infection, mainly due to conditions like quarantine, and the other occurred after the infection (post-covid phase). The stages of psychological impairment in COVID can be divided in 5 stages-

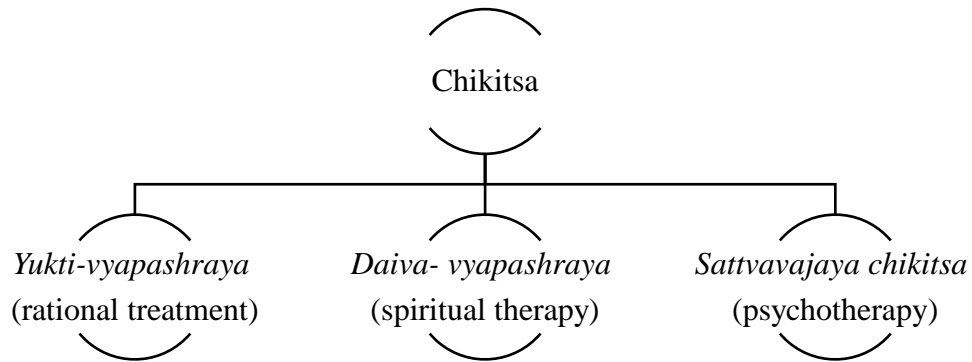
1. Stigma related to Covid-19 pandemic-  
Stigma against saviors COVID-19 infection has resulted in emotional disturbance, anxiety, depression and emotional disturbance
2. Mental health impact on frontline healthcare professionals-  
Psychological symptoms including anxiety, depression, insomnia is prevalent in up to 60 % among physicians, nurses and medical residents during Covid-19 pandemic
3. Mental health impact of quarantine and social distancing-  
Social distancing could lead to substantial increases in loneliness, anxiety, depression, domestic violence, child abuse and substance abuse. Behavioral changes leading to anxiety, anger, depression, post-traumatic stress symptoms, alcohol abuse,

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claustrophobia and obsessive-compulsive disorders. These psychological symptoms can last from several months up to three years after the quarantine period.

4. Mental health issues after Covid-19 recovery-  
Persistent psychiatric impairment with significant levels of anxiety, depression and post-traumatic stress disorder can be survivors of critical illness at 1 year after discharge. Neurocognitive impairment including impaired attention, concentration, memory, and mental processing speed can be found in majority of patients.
5. Post COVID-19 economic recession, social inequalities and impact on mental health-  
A potential economic recession with rise in unemployment following Covid-19 pandemic might have similar impact on suicide rate.

*Ayurvedic Chikitsa* (therapeutic measures) of psychological illness can be divided mainly into three parts as-



Use of various herbs comes under the context of *Yukti-vyapashraya* chikitsa. References of internal application of *Mundi* are available from the period of Samhitas also.

Charak Samhita	Sushrut Samhita
<ul style="list-style-type: none"> <li>•Mentioned in the Indrokt rasayan of Ayurved samutthaniya rasayanpada of chikitsasthana</li> </ul>	<ul style="list-style-type: none"> <li>•Mentioned in Soma samaveerya mahaushadhi in Nivrutta Santapiya Rasayan adhyaya of Chikitsasthana</li> </ul>

This explains the role of *Mundi* in enhancing the immunity and rejuvenating the body, as rasayana drugs mainly shows pharmacological actions similar to anti-oxidant and immunomodulatory activities of the conventional medicine.

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Pharmacodynamic attributes of *Mundi* according to various Nighantus-

Name of Nighantu	Rasa	Vipaka	Veerya	Guna	Doshghnata
Kaiyadeva nighantu	Madhur, Tikta, Kashaya	Katu	Ushna	Sthira	Vata-kaphahara
Dhanwantari Nighantu	Katu, Tikta	Katu	-	-	Vata-rakta hara
Madanpal Nighantu	Madhur, Katu, Tikta	Katu	Ushna	Laghu	
Madanadi Nighantu	Tikta, Kashaya	-	-	-	Kaphahara
Raj Nighantu	Kashaya, Katu	Katu	Ushna	-	Kapha-pittaghna
Bhavaprakash Nighantu	Tikta, Katu, Madhur	Katu	Ushna	Laghu	-
Priya Nighantu	Tikta	-	Ushna	-	-
Nighantu Adarsha	Madhur, Katu, Tikta, Kashaya	Katu	Ushna	-	Vata-kaphahara

Actions induced to Pharmacodynamic attributes-

Madhur rasa	Majja dhatu Vardhan, Kapha dosha vardhan
Tikta rasa	Ama pachan, Tama nashan
Katu Vipaka	Majjagat kapha dosha shaman
Ushna Veerya	Pitta Vardhan, Agni deepan

Therapeutic actions of *Mundi* as per various Nighantus-

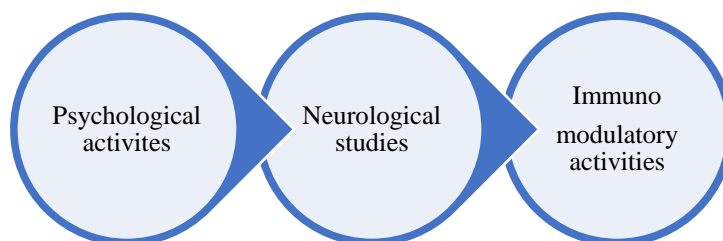
Disease	BPN	DN	KN	MPN	SGN	RN	PN	NA
<i>Apaśmar</i>	+	+	+	-	+	-	+	+
<i>Medhya</i>	+	-	+	-	+	-	+	+
<i>Unmad</i>	-	+	-	-	-	-	-	+

(B.P.N.- Bhavaprakash Nighantu, D.N.-Dhanwantari Nighantu, K.N.- Kaiyadeva Nighantu, M.P.N.- Madanpala Nighantu, SG.N.- Shaligram Nighantu, R.N.- Raj Nighantu, P.N.-Priya Nighantu, N.A.- Nighantu Adarsha)

This shows the wide applicability of *Mundi* in the management of various diseases and disorders involving numerous types of pathologies. It also justifies the *Rasayan karma* mentioned in Charaka and Sushrut Samhita.

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**CONTEMPORARY REVIEW**



<u>Name of activity</u>	<u>Plant part used (Extract)</u>	<u>Observation</u>
Anti-amnestic activity	Flower (Methanolic extract)	<b>Methanol extract showed significant effects on <i>Sphaeranthus indicus</i> L. learning behavior and memory enhancement as evidenced from the experiments performed. The activity may be attributed to the presence of 7-hydroxyeudesmanolides and sesquiterpenoids</b>
	Whole plant (Ether)	<b>Ether extract of <i>Sphaeranthus indicus</i> (EESI) at a dose of 150 and 300 mg/kg significantly (P&lt;0.01) enhanced the learning and memory activities against the scopolamine induced dementia after 9 days of treatment. Further, extract had produced a significant (P&lt;0.05) decrease in Acetylcholinesterase level in cortex, midbrain, medulla and cerebellum of brain in animals which led us to conclude that the memory enhanced activity</b>
	Flower heads (Petroleum ether)	<b>The petroleum ether fraction (10 mg/kg, p.o.) administration significantly reversed cognitive impairments in mice by passive avoidance test (P &lt; 0.05). It also reduced escape latencies in training trials and prolonged swimming times in the target quadrant during the probe trial in the water maze task (P &lt; 0.05).</b>
Psychotropic activity	Whole plant (Hydroalcoholic)	<b>Extract of <i>S. indicus</i> significantly reduced spontaneous motor activity and prolonged pentobarbital induced hypnosis. It might be working as a mild neuro sedative agent. The hydroalcoholic extract of <i>S. indicus</i> also</b>

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		reduced exploratory behavior and decrease sedative activity.
Anti-oxidant activity	Root (Ethanolic)	Administration of ethanolic extract of <i>Sphaeranthus indicus</i> root (EESIR) 100 and 200 mg/kg to the STZ-induced diabetic rats produced a significant increase in superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx), and decrease in thiobarbituric acid reactive substances (TBARS) levels than diabetic control rats. Administration of EESIR 200 mg/kg produced significant ( $P < .01$ ) higher antioxidant activity than EESIR 100 mg/kg
	Stems and leaves (Methanolic extract)	At the dose of 1ml/kg, CCl <sub>4</sub> induced liver damage in rats as manifested by statistically significant increase in serum alanine amino transferase (ALT), aspartate amino transferase (AST) and alkaline phosphatase (ALP). Significant decrease in total protein and antioxidant levels of SOD, CAT and GST were also noted in the liver injured rats. Among the extracts tested flower and leaf extracts were exhibited the highest scavenging activity at 150 µg/ml concentrations.
Anxiolytic activity	Flowers (petroleum ether, alcohol and water)	Petroleum ether extract of <i>S. indicus</i> flowers produces prominent anxiolytic activity in mice.
Neuroleptic activity	Flower (Petroleum ether)	Neuroleptic activity of extract of flowers was evaluated in apomorphine induced cage climbing and catalepsy in mice models. The petroleum ether extract (300 mg/kg, i.p.) reduced total time spent in apomorphine induced cage climbing. Aqueous and alcoholic extracts showed catalepsy while petroleum ether extract was devoid of it
Immunomodulatory activity	Flower head (Methanol)	Methanol extract, its petroleum ether, chloroform and remaining methanol fractions, of flower heads were found effective in increasing phagocytic activity, hemagglutination antibody titer and delayed type hypersensitivity, whereas only remaining methanol fraction was found active in normalizing total white blood cell levels in case of cyclophosphamide induced myelosuppression in mice.

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	Bioactive fraction of whole plant	The bioactive fraction exhibited dose dependent increase in immoral and cell-mediated immunity and offers protection against immunosuppression induced by the cytotoxic agent cyclophosphamide
	Flower head (Petroleum ether)	The petroleum ether extract from the flower heads of <i>S. indicus</i> Linn. was found to be effective in increasing phagocytic activity, hemagglutination antibody titre and delayed type hypersensitivity. The extract acts by stimulating both humoral and cellular immunity as well as phagocytic function.
Neuroprotective effect	Flower heads [Petroleum ether (SIP), methanolic (SIM) and aqueous extract (SIA)]	SIM and SIA were found to be an effective neuroprotective agents which could reverse Dgalactose-induced oxidative damage and acceleration of aging
Anti-viral activity	Aerial part	The minimum concentration of extracts required to completely inhibit viral cytopathic effect (CPE) that is MIC100 values (low MIC100 and broad spectrum of activity) was obtained from <i>S. indicus</i> which showed anti-MCV (mouse coronavirus, the surrogate for human SARS virus) and anti-HSV (Herpes simplex virus) activities at a concentration as low as 0.4µg/ml.

## RESULT AND DISCUSSION

Psychoneuroimmunology is a discipline that has evolved in the last 40 years to study the relationship between immunity, the endocrine system, and the central and peripheral nervous systems. Neurotransmitters, hormones, and neuropeptides have been found to regulate immune cells, and these in turn are capable of communicating with nervous tissue through the secretion of a wide variety of cytokines. It is evident from various studies that, chronic stress affects significantly the function of the immune system. Similarly, life threatening diseases, chronic pathologies and pandemics affect individual as well as social psychology.

Ayurveda has defined specific lifestyle pattern which includes *Dinacharya* (Daily regimen), *Ritucharya* (Seasonal regimen) and *Achara Rasayana* (specific code of conduct). Maintaining this lifestyle helps to the body free from several physical as well as psychological illnesses. But, when the pathogenesis gets triggered, it becomes mandatory to have some therapeutic measures to combat the situation. *Mundi* is one such drug which has the potential to counter various infectious and non-infectious pathologies causing psychological impairment. On the other hand, it has the potential to improve neurocognitive abilities. Thus, from the available experimental studies; it is evident that, *Mundi* can play a vital role in the management of psychological ailments that occurred during the period of COVID.



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Experimental analysis has revealed that *Mundi* is having the potential to improve Psychoneuroimmunological activities. Thus, it may work on all three components of Psychoneuroimmunology, separately. Though cumulative studies have not done to analyse the role of *Mundi*, individual studies may give lead to future research aspects. Similarly, no clinical study has been done to evaluate *Mundi* in any aspect of Psychoneuroimmunology. Thus, there is wide scope to evaluate this highly potential herb for its applicability in management of various psychological outcomes of COVID as well as its efficacy in maintaining the Psychoneuroimmunological balance of the body.

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## VACHA- MEDHYA DRUG TO COMBAT THE MENTAL HEALTH ISSUES DUE TO COVID-19

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## INTRODUCTION

A large emphasis has been given on long standing anatomical and physiological impact of post-covid 19 complications, but psychological aspect is relatively unexplored. The rapid global spread of COVID-19 has wide-ranging effects on mental health, especially for those with a pre-existing mental disorder. Various studies has showed that large number of patients suffering from Covid-19 could experience neurological or psychological complications during as well as after their course of infection. This effects ranges from headache, dizziness, impaired sense of smell and taste to mood disorders, anxiety, depression etc. This shows that the disease can have lasting impact on the brain and hamper cognitive abilities and may affect the quality of life of an individual. But conventional medicinal therapy used for mental health disorders have lots of side effects like weight gain, sleepiness, sexual problems, tiredness, confusion, nightmares, blurred vision etc.

In contrary to conventional medical science, Ayurveda incorporates holistic approach towards treating diseases which constitutes not only physical but psychological aspects also. Hence, to combat mental health aspects during covid 19 with the virtue of Ayurvedic concept, analysis and management of psychological status of person is needed for better prognosis. The concept of *MedhyaRasayana* (memory promoting rejuvenation therapy) is one among them. *Medha* means intellect and/or retention and *Rasayana* means therapeutic procedure or preparation that on regular practice will provide nourishment, health, memory, intellect, immunity and hence longevity. Ayurveda has mentioned various herbs under the umbrella of *Medhya Rasayana* which inclines more towards the maintaining the mental health. Most of the herbs mentioned under Medhya Rasayana like *Guduchi* (*Tinospora cordifolia*), *Shankhapushpi* (*Convolvulus pleuricaulis*), *Brahmi* (*Bacopa monieri*), *Mandukaparni* (*Centella asiatica*) are also evaluated with scientific rigor and reported to have anti-depressants, anti-anxiolytic, anti- anxiety, cognitive enhancer and Nootropic activities which clearly supports the positive psychological potential of herbs.

Among various herbs of Ayurveda, one of the well narrated herbs is *Vacha* (*Acorus calamus* Linn.) of family Araceae. The rhizome of herb is used for the management of variety of diseases especially the central nervous system (CNS) abnormalities. In *Sushruta Samhita* it has been mentioned in *Medhayukamiyarasayanam* and its administration is said to be useful for increasing the power of memory. Further in *Nighantus* also, *Vacha* is mentioned as a *Medhya* useful in *Unmada*, *Apasmara*, *Bhutavikara*. Contemporary study showed that *Acorus calamus* rhizome has been proved for its analgesic and anti-convulsant, hepato-protective, antioxidant, anti-mutagenic, sedative and hypothermic effects. In this sense, the intent of this review is to assemble and summarize applicability of *A. calamus* along with preclinical and clinical claims that are relevant to manage neurological disorders w.s.r to COVID. The present report is expected to produce a better understanding of properties of *Vachato* provide new leads to counter the noxious psychological effects of Covid 19.

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### MATERIAL AND METHODS

The literature available in the Ayurvedic classical texts like *Sushruta samhita*, *Ashtanga hridayam*, *Bhavaprakasha Nighantu*, *Kaiyadeva Nighantu*, technical reports, online scientific records such as Pubmed, Scopus, Google scholar, Web of Science were thoroughly reviewed using keywords like Covid 19, Mental health, Immunomodulator, Vacha, Acorus calamus.

### RESULTS

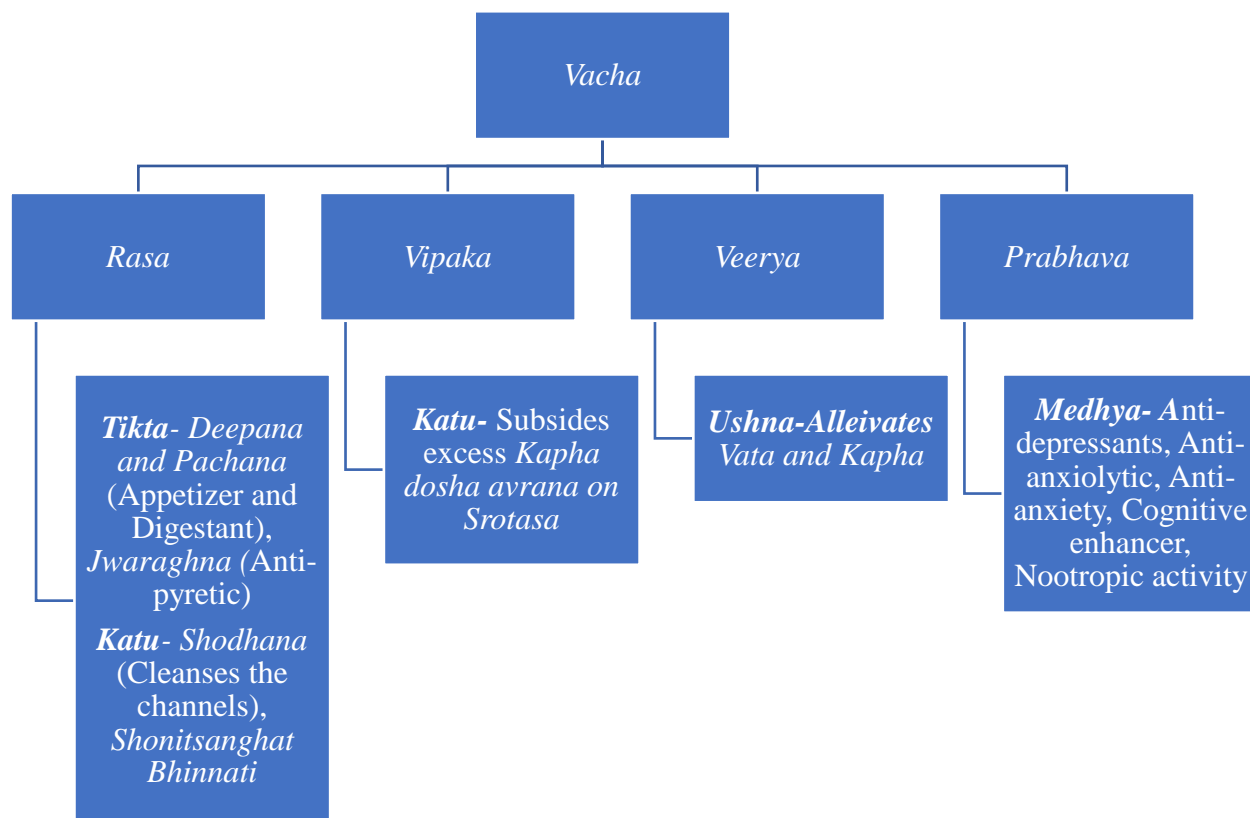
The review revealed that impact of Covid-19 was distributed among General Population, Patients infected with Covid, Family members or Closed contact with infected person, Healthcare professionals, Children, Old persons and People with Co-Morbidities.

Table1; Showing the vulnerable population and reported psychological symptoms during COVID and in COVID patients are as follows:

Sr. No	Population	Symptoms
1.	General Population	A wide range of psychiatric disorders can be found such as depressive disorders, anxiety disorders, panic disorder, somatic symptoms, self-blame, guilt, posttraumatic stress disorder.
2.	Patients infected with Covid 19	The suspected and/or confirmed COVID-19 persons largely experience fear regarding the high contagiousness and fatality. The quarantined people feel boredom, loneliness, anger, depression, anxiety, denial, despair, insomnia, harmful substance use, self-harm and suicidality.
3.	Family members and Closed contacts	The family members and close contacts face psychological problems as they have been traced, isolated or quarantined which makes people anxious and guilty regarding the aftermath of the contagion, quarantine and stigma on their family members and friends. The family members who lose their loved ones from the pandemic results in anger and resentment.
4.	Healthcare professionals	Increased workload, isolation and discrimination are common which result in physical exhaustion, fear, emotional disturbance and sleep disorders. Along with the physicians, the frontline healthcare providers can develop mental disorders such as depression, anxiety and PTSD
5.	Children	Children who have been isolated or quarantined during the pandemic have higher chances to develop acute stress disorder, adjustment disorder and grief. Also, early loss of or separation from parents during childhood also has long-term adverse effects on mental health, including higher chances of developing mood disorders, psychosis and suicidality
6.	Old age and people with co-morbidities	Huge degree of fear, worry and concern among few certain groups particularly, in older adults and people with underlying comorbid disorders. It has a potential impact on the existing diseases, and the affected persons may lead to psychiatric symptoms which possibly related to the interplay of mental disorders and immunity.

The objective of *Ayurvedic Chikitsa* is to not only cure the diseased person but also maintaining the health of a healthy individual. Thus, keeping the holistic approach in mind, *Vacha* can be a useful herb in combating the health issues arise with Covid-19. Properties of *Vacha* is as follows-

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*Karma* exhibited by *Vacha* according to various Ayurvedic classical texts-

Sr. No	<i>Nighantu</i>	Properties
1.	<i>Dhanvantari Nighantu</i>	<i>Medhya</i> (Cognitive enhancer), <i>Hridya</i> (Cardioprotective), <i>Shool</i> (Analgesic)
2.	<i>Kaiyadeva Nighantu</i>	<i>Medhya</i> , <i>Jeevani</i> (Immunomodulator), <i>Unmada</i> (Psychosomatic disorder), <i>Apasmara</i> (Epilepsy).
3.	<i>Bhavaprakasha Nighantu</i>	<i>Apasmara</i> , <i>Unmada</i> , <i>Bhutavikara</i> (Psychosis).
4.	<i>Raja Nighantu</i>	<i>Unmada</i> , <i>Bhutavikara</i>

Contemporary work-

1.Pre-clinical Studies

Sr No.	Activity	Extracts	Animal Model	Dose	Observation reported
1.	Antioxidant effects	$\alpha$ -asarone	Noise stress induced to rats	3, 6, and 9 mg/kg, i.p. to rats	Increased superoxide dismutase, Decreased Glutathione peroxidase, Reduced glutathione; vitamins C and E, protein thiol levels

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		Ethyl acetate and methanol	DPPH radical scavenging chelating ferrous ions	200, 100, 80, 60, 40, 20, 10, and 5 µg/mL	Prominent DPPH scavenging activity, chelating ferrous ions, and reducing power
2.	Anticonvulsant effects	Ethanol and β-asarone	Kainic acid-induced convulsion	35 and 20 mg/kg	Decreased Epileptic seizure, neuroprotective, and regenerative ability
		Methanol	PTZ-induced convulsion	100 and 200 mg/kg, p.o. to mice	Increased Latency period and decreased PTZ-induced seizure time
		Ethanol	MES and PTZ-induced convulsion	250, 500 mg/kg, p.o. to mice	Decreased Hind limb extension and tonic flexion of forelimbs
3.	Antidepressant effects	Aqueous	TST and FST	50 and 100 mg/kg	Decreased Immobility time
		Hydro-alcoholic	TST and FST	75 and 150 mg/kg, p.o. to mice	Decreased Corticosteroid levels
		Methanol and acetone	Behavioural despair test	5, 20, and 50 mg/kg, p.o.	Decreased Spontaneous locomotor activity
4.	Neuroprotective	Hydro-alcoholic	CCI of sciatic nerve-induced neuropathic pain	10 mg/kg to rats	Significantly ameliorated CCI-induced nociceptive pain
		Hydro-alcoholic	CCI of sciatic nerve-induced peripheral neuropathy	100 and 200 mg/kg to rats	Prevented CCI-induced neuropathy through decreased oxidation and inflammation
		Methanol and acetone	Apomorphine-induced stereotypy and haloperidol-induced catalepsy	20 and 50 mg/kg to mice	Reversed stereotypy induced by apomorphine and significantly potentiated catalepsy induced by haloperidol
		Ethanol	Spontaneous electrical activity and monoamine levels of the brain	200 and 300 mg/kg to rats	Depressive response by altering electrical activity, including changing brain monoamine levels
		Hydro-alcoholic	MCAo produced brain ischemia	25 mg/kg to rats	Improvement in neurobehavioral performance, decreased levels of GSH, SOD,

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					and Increased LPO level
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## 2. Clinical Studies

Sr. No	Formulations/Dosages	Subjects	Study Design	Activity reported
1.	70% hydro-alcoholic extract of A. calamus, 500 mg extract of one capsule twice daily for 2 months	Anxiety disorder	Non-randomized, open-label, single-arm study	Significant reduction of anxiety and stress-related disorder
2.	Acorus calamus rhizome powder, 250 mg rhizome powder twice daily for 1 month	Obese patients	Randomized single-blind study	Significant improvement in extreme sleep, body heaviness, fatigue, and excessive hunger
3.	Vachadi Ghrita, 10 g twice daily for 1 month	Assessment of cognition	Non-randomized positive-controlled study	Significant change in the mental balance score, holding of like and different pairs, late-immediate memory, and also improved digestion
4.	Guduchyadi Medhya Rasayana, 3 g granule thrice daily after meal for 3 months	Senile memory impairment	Randomized, two-parallel-group study	Significant improvement in terms of recall memory, cognitive impairment, amnesia, concentration ability, depression, and stress
5.	Tagaradi Yoga, 500 mg hydro-alcoholic extract capsule twice daily after meal for 15 days	Insomnia	Non-randomized positive-controlled study	Significant improvement in sleep duration, in the initiating time of sleep, and in quality of sleep
6.	Brahmyadiyoga, 4 tablets thrice daily for three months	Schizophrenia	Non randomized, open-label, single arm study	Significant effect as a brain tonic, tranquillizer, hypnotic, and sedative

## DISCUSSION

The mental health issues associated with the COVID-19 pandemic can be short-term or long-term. The studies available regarding impact of Covid 19 addresses the immediate mental health concerns only. It is important to see the long-term mental health sequels of COVID-19 infection on various social, economical, cultural factors consisting the various populations. Similarly, it is the need of the hour to understand the mental healthcare needs of patients with COVID-19, close contacts, health professionals dealing with COVID-19 patients and the general population specially in the low and middle-income countries. If appropriate precautionary measures taken, one may reduce the psychological distress caused by the Covid 19. Owing to this, the conventional therapies have a limited applicability concerning the curative measures of mental health aspects. Thus, Holistic approach of Ayurveda should be used to find the answer for effective management.

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*Vacha* (*Acorus calamus* L) is an herb which is used for the treatment of various ailments in traditional and folklore medicine. Compelling in vitro, in vivo and clinical evidence suggests that the potential role of *A. calamus* rhizomes for modulating metabolic and neurological disorders could be due to their richness in several classes of active phytoconstituents. The predominant compounds present in rhizomes and leaves responsible for expression of potent bioactivities include  $\alpha$ -asarone,  $\beta$ -asarone, eugenol, and calamine. *Vacha* has been reported for its memory enhancing activity in rodents. It is also widely used in herbal medicinal practice for its sedative, anti-epileptic and anti-oxidant properties. It has also been reported that *Vacha* exerts neuroprotective effect.

Ayurveda a holistic science provides solutions for mental health related disorders in a fruitful way. In the present scenario *Medhya Rasayana* drugs of Ayurveda such as *Vacha* can be used to obtain effective results in Psychological issues caused due to Covid 19. Hence, present review may give new insight regarding use of *Vacha* in maintaining the mental health in this Covid 19 era which may be useful in holistic management.

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**YOGA APPROACHES TO COMBAT MENTAL HEALTH ALIGNMENTS IN  
COVID-19 PATIENTS IN DIFFERENT POPULATION**

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## **INTRODUCTION**

As per WHO, health is a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity. Ayurveda also states that the balance between the Doshas, Dhātu, Mala, Agni and their natural processes and the *Prasanna Atmendriya Manah* i.e., good coordination of mental status with the five senses which present in a human that human is healthy or *Swastha*. Mental health as well as Physical is interlinked with each other and both are equally important to lead a healthy life. Charaka has advocated *Achara Rasayana* (code of behavioural conduct) for perfect mental, physical, social, spiritual health of human beings. It includes moral, ethical, and benevolent conduct: truth, nonviolence, personal and public cleanliness, mental and personal hygiene, devotion, compassion, and a yogic lifestyle.

Novel Corona Virus Disease 2019 (COVID 19) pandemic crises affected many people worldwide mentally as well as physically. With the immediate spread of the COVID-19, global health systems are undergoing critical challenges in preventing infections, identifying and management COVID-19 cases, and ensuring effective strategies to protect public health. People around the world are dealt with fear and worry about their personal safety, a lack of effective treatment or vaccine, and adverse socioeconomic consequences like unemployment and lack of access to necessary supplies resulting from quarantine and lockdown measures in different contexts. In Ayurveda this COVID 19 pandemic taken as *Janapadodhwansa* means which affects mass community and causes death of large population, which can spread through Vayu (air), Jala (water), Disha (direction) and Kala (time). In Ayurvedic literature it is clearly mentioned that the fear of disease can aggravates the progression of disease and severely affects the mental as well as physical health of the individual i.e., "*Vishado Rogavardhananam*" and this can be practically experienced and proved by the emotional and mental behaviour of affected people, general public, health care professionals towards the disease.

## **IN GENERAL PUBLIC**

Rising number of COVID cases, Death rate, Unemployment, Migration of workers, labours on foot for several kilometres along with their families, News channels continuously bombarding about the COVID, social media showing weakness of government, hospital administration all created an atmosphere of fear among the general public. The disturbance of a normal life as a result of a government-imposed lockdown or home stay orders has significantly impacted the mental health of the affected individuals. Recent studies, review of mental health outcomes of quarantine and similar prevention strategies has found that depression, anxiety disorders, mood disorders, posttraumatic stress symptoms, sleep disorders, panic, stigmatization, low self-esteem, lack of self-control are highly prevalent among individuals impacted with physical isolation. Another rapid review suggested that stressors like prolonged quarantine, fear of infection, frustration, boredom, inadequate supplies, inadequate information, financial loss, and stigma have resulted in long-lasting posttraumatic stress symptoms, confusion, and anger in the mass population. All these brought to society a potential

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state of trauma. Fear of health, loved ones, financial situations, difficulty in concentration, sleeping, increased use of alcohol, tobacco and smoking together imposed the 'MENTAL HEALTH TSUNAMI' to the globe. The psychological effects of persistence stress or tension among the general population and aggravation of several mental health disorders among the susceptible individuals will further strain the current health care system.

### **IN THE PATIENT WHO DIAGNOSED WITH COVID 19 POSITIVE**

The psychological impact of COVID-19 among individuals who are tested positive is another global health concern. The mental health of the patients who may experience anxiety symptoms, fear, and a lack of hope regarding the uncertainties in treatment and health outcomes. Several factors influence mental health in this vulnerable population, which include isolation after being diagnosed with the disease, stigma and discrimination, prolonged hospitalization, and a lack of social support as well as the near ones due to the fear of death and sudden change of behaviour of the society and make them outcaste from the society gives the very deep negative impact on the person's mind and affected person thought of worthlessness and the suicidal feeling is the main concern. COVID-19 may critically impact psychosocial wellbeing and influence suicidal attempts among the affected individuals, which may also aggravate if the patient has other co morbid diseases. According to the studies many people's lose their lives not because of disease but due to the behaviour of society and fear of death. If a patient is found in a remote part of India where there is not even a simple hospital or health care provider system, the hope or thought that he will survive is far away and the mentality at that time was worst and it affects patient as well as his family and loved ones.

### **AMONG THE HEALTHCARE WORKERS OR FRONT-LINE WORKERS**

COVID-19 also affects the mental health and wellbeing among healthcare professionals, especially among those who are working as frontline providers. As COVID-19 cases are impacting the capacities of health systems globally, many of the healthcare providers are working beyond their regular schedules to meet the increased demand for critical care. This makes those healthcare providers susceptible to anxiety, depression, burnout, and insomnia. The condition is even worse as Health Care workers do not have adequate number of PPE Kits, not abundance number of medicines, feeling of helplessness all this created a depressing atmosphere among doctors and nurses. Studies shows that frontline healthcare providers with close contact with COVID-19 patients were 1.4 times more likely to experience fear and nearly twice more likely to experience anxiety and depression compared to the non-clinical staff. One study also found 6.3% of the participating doctors felt nervous after listening to the news on mass media that some doctors were positive for COVID-19, whereas 52.6% of the participating nurses reported negative emotions, worrying about family, fear of infection, and stress about heavy workload. Addition to this the front line workers or health care system departments and the various public health sector workers have a lot of physical as well as psychological burden during this pandemic. For those workers who prolonged exposure or contact to persons with COVID-19, pre-existing psychosocial challenges, and low institutional and social support contributed to the deterioration of mental health status.

All these above factors in the individual as well as community due to stress and emotional trauma or fear releases the stress hormone which is directly proportional to the Depression and it leads to improper immune status of the body and person felt low and

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helplessness. To overcome these Yoga, Exercise, Meditation, laughing therapy as well as in contact with loved ones and keep motivating ourselves helps to beat this COVID pandemic.

### **YOGA AND COVID**

Yoga is an ancient Indian science and its objective is to attain the state of equilibrium of mind and body by controlling person's sentiments. 'Yoga' is a Sanskrit word that can be translated as 'to join' or 'to unite,' symbolizing the union of body and mind. yoga/meditation facilitates the coordination among the set of homeostatic responses involving the interaction among the nervous, endocrine, and immune systems. Yoga is globally accepted as a potential regimen in order to address emotional, physical and mental traits. It is a multi-component discipline that includes three forms of practice, namely postures and physical exercises (Asana), breathing regulation techniques (Pranayama), and meditation-based (control of attention, dissociating oneself from the disturbing thought) activities. The World Health Organization (WHO) describes Yoga as a valuable tool, one that increases physical activity, mental wellbeing, and decreases non-communicable diseases. In the current era, yoga is recognized as a form of alternative medicine that implements mind-body practices and has been interpreted as a process of uniting the body via mind and spirit to promote physical and mental wellness. The positive physical or psychological outcome of Yoga intervention has been hypothesized to be a result of complex pathways involving relaxation, physical flexibility, breathing exercise, coping strategies, acceptance, and self-efficacy.

Lockdown has adversely affected the daily routine and sleep cycle, thus affecting the circadian rhythm with a bearing on the immune system. This highlights the importance of self-regulatory mind-body interventions such as a structured daily schedule of Yoga therapy. Yoga emphasises on modulation of host factors such as regulation and moderation of the lifestyle factors. Host immunity is down regulated due to altered lifestyle patterns such as consumption of unwholesome food, physical inactivity, improper sleep-wake cycle, and increase in workload, stress and addictions. These results in fragility of the immune resilience that makes the host succumb to the virulence of the virus. Thus, the aim of Ayurveda and Yoga therapeutics is to enhance host immunity and reduce the extent of infection and inflammation in the body by balancing body humors and lifestyle factors.

Therapeutic techniques of yoga have been reported to be beneficial against the management of acute stress as in posttraumatic stress disorder after tsunamior in chronically stressed people with depression or anxiety and in many noncommunicable diseases such as asthma, hypertension, heart disease, and diabetes. These mentioned diseases are one of the co-morbidity factors for the COVID patient thus Yoga has been considered as one of the home-based activities that can be utilized to improve mental wellbeing during the pandemic.

Yoga therapy mainly breathing exercises gives strength to the respiratory system specially to the expiratory and inspiratory muscles. There are many research papers available who states that the role of Yoga as add on strategy in many communicable diseases such as Influenza, Tuberculosis, HIV in which patients' immune status is very low or immunocompromised and with the help of medication and Yoga patient's quality of life can be drastically improved.

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**PROBABLE MODE OF ACTION**

1. Yoga maintains a balance in the autonomic nervous system through enhancing the parasympathetic activity and lowering the sympathetic activity else it can result in a state of depression and stress. The practice of Yoga also enhances GABA, the inhibitory neurotransmitter system in part via the stimulation of vagus nerve.
2. Yogic Practises have been found to reduce inflammatory cytokines such as IL-6, IL-1b, TNF-a which are part of the ‘cytokine storm’ reported in COVID-19.<sup>24</sup> Melatonin is known anti-oxidant that plays an important role in improving sleep quality and ameliorating stress and anxiety. Yogic breathing techniques have also been found useful in improving lung functions in conditions with respiratory distress such as COPD and bronchial asthma suggesting a probable role in reducing respiratory distress in patients with COVID-19 infection.
3. The stress hormone such as cortisol which compromises the immune system can be balanced through Yoga practice because of its inclusion of slow breathing practice which improves the lung capacity and respiratory health for optimal performance and wellness.
4. In addition, it has been shown that Yoga assists in improving the blood circulation in order to supply the oxygenated blood to multiple organs for smooth optimal function practice of yoga has been associated with increased immune surveillance in terms of the modulation of the frequency of blood lymphocytes.
5. Yoga techniques have produced some interesting findings about their key role in reducing the levels of inflammatory cytokines. This includes IL-1 $\beta$ , IL 6 and TNF  $\alpha$  which implicates risk reduction for diseases with inflammatory component.
6. The modulation of Hypothalamic–Pituitary–Adrenal (HPA) axis through practice of yoga could alleviate stress and could aid in the strengthening of the antiviral immune responses.

**YOGA ON ONLINE/ VIRTUAL PLATFORM**

Advancement of Science and technology in this era made everything available to people very easily through the online platform via internet. Various online platforms, for example Yoga Scholars PGIMER on Facebook, are providing uninterrupted live sessions which focus on an interface between public and healthcare workers. These sessions comprise experts from Yoga, science and spiritual fields to promote the philosophy of Yoga practice and to provide demonstrations of Yoga practices, seemingly helpful in anxiety and stress management.

Table – Yoga Exercises During the COVID

Sr. No.	Category	Name of the Yoga Practise			
		Children 6-18 years	Adult 18-60 years	Elderly > 60 years	
	Prayer	<i>Vinayaka</i> Remover of all obstacles	<i>Maha Mrityunjaya</i> Remover of fear of Death	<i>Dhanvantari</i> Lord of Health	
1	Loosening Exercises ( <i>Shithilikarana Vyayama</i> )	Forward and Backward bending (1 min) Spinal Twisting (1min)	Spinal Twisting (1 min) Forward and Backward bending (1 min)	Spinal Twisting (1 min) Forward and Backward bending (1 min) Mukha Dhouti (1/2 min)	Spinal Twisting on chair (1 min)

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		<i>Mukha Dhouti</i> (1/2 min) <i>Surya</i> <i>Namaskar</i> (2 Rounds - 2 min)			
2	Breathing exercises and <i>Asana</i>	Hands stretch breathing (1 min) Tiger breathing (1 min)	Hands in and out breathing (1 min) Hands stretch breathing (1 min each variation) Matsyasana/Sulabha Matsyasana (1 min)	Hands in and out breathing (1 min) Hands stretch breathing (1 min each variation) Chair Vakrasana (1 min) Sulabha Matsyasana (1 min)	Hands in and out breathing (1 min) Hands stretch breathing (1 min)
3	Kriya (Cleansing Techniques) and Pranayama	Kapalbhati Kriya (30 strokes – 1 min) <i>Nadishuddhi Pranayama</i> (2 min)	Kapalbhati Kriya (30 strokes – 1 min) Abdominal Breathing (1 min) <i>Nadishuddhi Pranayama</i> (2 min)	Kapalbhati Kriya (30 strokes – 1 min) Abdominal Breathing (1 min) Surya Anuloma Viloma Pranayama (1 min) <i>Nadishuddhi Pranayama</i> (2 min)	Kapalbhati Kriya (15 strokes – 1 min) <i>Nadishuddhi Pranayama</i> (2 min)
4	Meditation	Sun meditation (2 min)	Sun meditation (2 min)	Sun meditation (2 min)	Sun meditation (2 min)

Some Yoga practices which are a part of the Common Yoga Protocol have been described to successfully decrease stress and anxiety levels, and strengthen the body as well. These practices include: *Anulom Vilom Pranayama* (alternate nostril breathing), *Bhramhari Pranayama* and meditation. Practices like *Kapalbhati* (forceful exhalation by contracting the abdominal muscles) have been found useful to purify the frontal air sinuses and also aid to overcome cough disorders which maintains the health of respiratory tract and boosts immunity. Along with the above-mentioned Yoga practices, certain *Asanas*, if practiced under supervision, have also been shown to relieve stress. This includes *Sasankasana* (hare posture), *Bhujangasana* (cobra posture), *Makrasana* (crocodile posture) and *Setubandhasana* (bridge posture). The practice of some of these protocols at workplaces/offices can enable risk reduction for COVID-19.

## DISCUSSION

Yoga helps a person to manage the stress. To keep the body healthy or to have longevity there is need to be the union of *Satva* i.e., *Manah* and *Atma* and this can be achieved through the *Yogabhyasa* i.e., regular practise of Yoga.

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“Yogah Karmasu Kaushalam”

Yoga has capability that a human can acquire ultimate skill in his work and with this can activates his immune system as well as *Kundilini Shakti*.

*Yogabhyasa* has the power to control thoughts which lead to purely mental disorders such as *Kama, Krodha, Lobha, Dwesha, Matsarya, Iccha* etc and with this person can achieve ultimate happiness. Yoga become effective to develop coping skills as well as reaching a more positive outlook in life. So with the help of Yoga and other exercises if we nourish our mind with good thoughts the negativity, stress, anxiety rarely hampered the individual and person can bring happiness to himself and motivates the society to live joyful and enjoyable life. There are several mechanisms in yoga that have an effect on stress levels, meaning there are multiple ways that yoga can minimize your stress levels. Studies show that the most effective ways in which yoga targets stress are by lifting your mood (or positive affect), by allowing for increased mindfulness, and by increasing self-compassion. With the help of Yoga and Meditation person can achieve the ‘*Manomaya Kosha*’ it means the entire body its mind of its own i.e., cells, tissues, muscles, organs have their own mind activates which lead to pure form of knowledge – ‘*Vigyanamaya Kosha*’. With this person can take wise decisions and keeps himself away from the negativity and becomes stressless or overcome the difficulties, negativity very easily.

### CONCLUSION

COVID 19 is a global health pandemic with highly affects the mental health of individuals. It having enormous burden on mental health issues such as depression, anxiety disorders, stress, panic attack, somatisation disorder, sleep disorders, emotional disturbance, PTSD symptoms, and suicidal behaviour. In this pandemic many vulnerable groups suffer a lot and suicidal tendency and many negative thoughts observed among them. With stress removing therapies such as Yoga, Exercises, Music, talking with family members and friends helps to keep stress away. Yoga is cost neutral, easy-to-learn and practice, and largely a safe form of exercise. Yoga has major role in this pandemic because it helps the people to increase the lung capacity, activates the immune status of the body, give strength to the body physically as well as mentally and keeps lethargy away. Regular Yoga practise alone as well as with many more brings the happiness and helps to forget the fearful scenario caused by this COVID. Yoga may prove an effective, evidence-based preventive or therapeutic supplementary or alternative intervention for COVID-19 related mental health issues. Now with the help of online platform Yoga module can be practise with the Application launched by the ministry of AYUSH i.e., it can be done in workplace as well as in home routinely with ultimate aim to relieve the stress of individuals and keeps negativity away.

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**BASTI – AN IMPORTANT TREATMENT FOR MENTAL ISSUES IN POST COVID-19 FOR FRONTLINE WORKERS**

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**ABSTRACT**

*The pandemic i.e., COVID-19 has affecting worldwide population. During pandemic many people get affected by severe mental crises, anxiety, depression, fear, insomnia, and post-traumatic stress disorder. The pandemic has created depression anxiety and fear in health care providers, from physicians and nurses to allied professionals and first-line responders and general population also. SARS-CoV-2 also affected in female reproductive system, menstrual cycle irregularities and psychosexual health.*

**Method and material:** *Aim- The aim is to evaluate the importance of Basti treatment in mental crises faced by frontline worker during and after COVID 19. Literature search- The literature search was conducted in the following databases: Pub Med, Google Scholar, Granthas like Charak Samhita, Sushrut Samhita . Search terms used for rectifying the articles were: mental health, psychological, stress, mental or psychiatric crises, Pandemic, COVID19, Post COVID 19, corona, novel corona virus , health care workers, female doctors, medical staff.*

**Result:** *Review of 4 articles suggest that frontline worker facing more mental health issue during pandemic like anxiety, depression, post traumatic trauma. Women health care worker facing more problem due to family care, child care and toughened situation with facing problem like Menstruation , pregnancy, lactation with fear of COVID 19 infection and mental stress.so women facing more mental problem during pandemic and Basti therapy which is useful in all kind of condition .*

**Conclusion:** *Regular Screening of covid 19 and post covid 19 patient for evaluating stress, anxiety, depression. it will be concluded that Basti therapy has most effective in All kind of vata related disorder it also acts upon Manovaha strotas Basti therapy has property to spread all over body and synthesizes their action on gut brain axis and gives effect on Anxiety , Depression like mental disorder.*

*Basti act modulates to immune responses by regulating pro inflammatory cytokines, immune globulins and functional properties of T-cell.so we concluded that Basti has effective in mental crises facing by frontline worker during COVID 19 and Post COVID 19 .*

*Keywords – COVID 19, Post COVID 19 Syndrome, Unmad, Apasmar, Basti , frontline worker.*

**INTRODUCTION**

March 2021, about 117 million people have been diagnosed with COVID-19 worldwide, with more than 2.6 million deaths. It is caused by SARS-CoV-2 i.e., novel severe acute respiratory syndrome corona virus 2. This virus is heterogeneous in nature and manifests itself with a wide spectrum of symptoms, from asymptomatic to life-threatening, fatal disease, other critical condition and severe complication of covid 19. Some patients suffering from symptoms after COVID 19 i.e, SARS-CoV-2 infection which are termed as a Post COVID-19 Syndrome.

Post COVID 19 Syndrome can be affected different systems like neurocognitive post COVID (i.e., brain fog, dizziness, loss of attention, confusion) , Psychological related post COVID (i.e., post-traumatic stress disorder, anxiety, depression, insomnia). Many people deal

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with health, social and mental crises during covid 19 pandemic and after covid 19 still people experience about health and mental related issue. The pandemic has created depression anxiety and fear in health care providers, from physicians and nurses to allied professionals and first-line responders and general population also. We fear about our safety and the safety of our families and patients. All around the world front line workers and healthcare workers have been at the in front of each and every country response, a dramatically increase in demand and during pandemic workload are increase across many areas of healthcare centre and provision and also increases responsibility about our family and patients.

20 years ago, epidemic like other outbreaks of novel infectious diseases occurred all around the globe .the recent examples are, the outbreak of severe acute respiratory syndrome (SARS) in 2002 and pandemic like A/H1N1 influenza in 2009-2010.In pandemic situations require more intense and immediate response in terms of frontline worker, with thousands of healthcare workers, directly (e.g., physicians, nurses) or indirectly (e.g., paramedical staff, aides, laboratory technicians, and medical waste handlers, social worker) care to patients, fighting at the frontline of world to address the challenges posed and safe to healthcare systems of many people.

During Pandemic, people having exposure of altering the function of brain circuits involved in cognitive performance, fear detection mood regulation and decision making. For short time, these changes are adaptive because they shift our systemic physiology, altering autonomic, endocrine, and immune system function. <sup>[3]</sup> The COVID-19 pandemic placed a mental health burden on the world population. Quarantine and self-isolation were the main measures accepted to prevent the spread and manifestation of the disease, but it changes in people's lifestyles will get more panic and anxiety, depression to a significant number of people. Frontline worker working during pandemic faces more tough situation and severely affected by mental disorder like anxiety, depression, insomnia, stress, and indirect trauma than other occupational groups. In a meta-analysis with 10,267 health professionals are in front of the pandemic. Most of female was affecting (69.31%), aged 21 to 30 years (23.84%), married (59.37%) and non-smokers (81.46%)

During pandemic not only female frontline worker but also other women experienced stress which ultimately disturbed their menstrual cycle. Irregular menstrual cycle i.e., amenorrhea, changes in menstrual and premenstrual symptoms with mood disorders such as anxiety and depression are seen in women. Psychological distress is also associated with psychosexual health i.e., lower libido can be seen due to high stress level

Some study shows that female fertility and female reproduction are affected by SARS-CoV-2 because it has been accompanied by variation in tumour necrosis factor- $\alpha$  , high level of interleukin ( IL-6,IL-8) and other cytokines which is not favourable for development of ovarian cell, blastocyte or foetus. Pregnant women and lactating mothers are experience mental illness like anxiety, depression during pandemic.

In our ancient sciences, *Samhitas* and *Grantha*, mental elements like anxiety, depression, post-traumatic stress disorder are corelated with *Unmad* and *Apasmar* . *Manas rog* describing in *Charak Samhita* i.e., *Shok*, *Bhaya*, *Abhiman*, *Dewash* etc are considering *Manovikar* which cause by *Pradnyapradh* In COVID 19 and after COVID 19, people experience loss of patience, loss of memory and many more mental crises which termed as *Dhrutibhransh* and *Smrutibhransha*.

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In *Granthas*, like *Sushrut Samhita* mentioning about *Artav*, *Rajsawala*, *Rajnivrutti* concept *Garbhini Paricharaya* and *Sutika Paricharaya* described by *Acharaya Sushrut*. In *Unmad Adhyaya*, *Acharaya Charak* mention *Panchakarma Chikitsa* i.e, *Niruh Basti*, *Anuvasan Basti*. After *Panchkarma* procedure experiences detoxification of *Indriya*, *Shir* and *Koshtha*, and also increases grasping power. *Charak* also describing *Panchkarma, Basti Chikitsa* in *Apasmar* also. *Inyogratnakar Basti chikitsa* mentioning in *Unmad* and *Apasmar* *Acharaya Charak* describing *Bastichikitsa* in *Striroga*, *Yonirog*. Elevated *Vata* dosha will be seen in *Vataj yonirog* and *Basti* is best of treatment for *Vata Dosha*, *Basti Karma* will advise in *Vataj Yonirog*. In *Sutika Basti* treatment is given

*Basti* is an important intervention for many disorders; best treatment for *Vata dosha* mentioning by *Acharaya Charak*. it has multi targeted action and hence, termed as '*Ardha Chikitsa*'. *Acharaya Sushrut* mentioning *Basti* is most important *Karma* than other because it gives with various type of herbs and gives *Sanshodhan*, *Sanshaman* and *Sangrahi* effect in body, also has *Vajikaran* effect, and also increase lifespan. *Basti* removes toxins and also rejuvenates body. *Basti* is an intervention for various diseases it is also treatment of *Unmad*. Thatte U et al have shown that *Basti* modulates immune responses by regulating pro inflammatory cytokines, immune globulins and functional properties of T-cell. In Ayurveda *vayu* dosha has given much importance because it controls all physiological functions in the human body. *Pakvashaya* is main site for *vayu*. also in *pakvashaya* gut flora is present. The human intestinal flora has more than 400 bacterial species highly complex isolated from stool. In colon both aerobic and anaerobic microorganisms are present. The nervous control of the gastro-intestinal system through by central nervous system (CNS) and enteric nervous system (ENS). Nerve supply being derived from midgut and hindgut which is present in *pakvashaya*. *Basti chikitsa* is important treatment upon *Vata* dosha. it controlling and regulating mechanism over the enteric nervous system (ENS). ENS of gut brain is an independent integrative system with structural and functional properties similar with CNS and *Basti* has pharmacological and physiological action on gut

*Unmad* and *Apasmar* are *Manovaha Strotas* disease, in this primarily *Vata dosha* get affected and with other *doshas* it goes on *Mastishyak* [*shir*] and affect *Manovaha strotas* and causing symptoms like stress, *Bhaya*, *Shoka*. therefore *Basti* is a best treatment upon *Vayudosh* and *dosh* involving in *Unmad* is *Vayu* so *Basti* is useful to reduces elevated *doshas* and improves health, mental crises and increases ability to grasp and improves loss of memory.

*Acharaya Charak* describing about *Prabhav* of *Basti* is the active principle of *Basti Dravya* are spread up to finer *Strotasa* and gives their synergetic effect in all over body it will give in *Pakvashaya* but spread all around body to treat disease and decreases elevated *doshas*. So we conducted that *Basti* treatment is effective in Post COVID 19 syndrome for mental crises faced by especially Female Frontline worker.

## MATERIALS AND METHODS

### Aim and objectives

The aim is to evaluate the importance of *Basti* treatment in mental crises faced by frontline worker during and after COVID 19. The objective is to see the effect of *Basti* in mental crises faced by frontline worker in Post COVID 19 Syndrome.

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## Literature search

The literature search was conducted in the following databases: PubMed, Google Scholar, *Granthas* like *Charak Samhita*, *Sushrut Samhita*. Search terms used for rectifying the articles were: mental health, psychological, stress, mental or psychiatric crises, Pandemic, COVID-19, Post COVID 19, corona, novel corona virus, health care workers, female doctors, menstrual cycle, and pregnant women. All types of articles published in the last 1 year, (March 2020–September 2021) like reviews, original research article relevant to the subject of the review were searched.

## Selection of articles

From all the articles that were applicable to the topic of the review, original research articles, cross sectional study that assessed the mental health issues faced by frontline workers were included in the narrative review. A total of 29 articles were selected by initial screening. Out of these 3 was original research articles, 1 was editorials, 5 were review articles, 1 was correspondence articles/commentaries, 1 was letters to the editor, 7 were RCT, 3 were cross sectional, 2 were systemic review and meta-analysis, 2 were narrative review, 1 was survey study, 1 was observational study and 2 was conceptual study. The final number of articles included was 6, one article was from India and two of them are from the research conducted in China, one article was from Italy, one article was from turkey, one article was from Ireland.



Figure 1 selection of article for review.

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**DISCUSSION**

Table 1 summarizes the articles included in the review. It shows the type of study design, sample size, assessment, and main findings of the 5 studies included in the review.

<b>Authors</b>	<b>Sample size</b>	<b>Study design</b>	<b>Assessment used</b>	<b>Findings</b>
<b>Fattori et al.</b>	<b>n=550</b>	Observational and longitudinal, non-pharmacological.	General Health Questionnaire (GHQ-12), Impact of Event Scale-Revised (IES-r), - Generalized Anxiety Disorders (GAD-7) GAD-7 is a valid and used as a screening tool for assessing anxiety symptoms and disorders in both research and clinical practice, Symptom Checklist-90-Revised (SCL-90-R), Psychosocial Safety Climate (PSC), Dissociative Experiences Scale II (DES II), Patient Health Questionnaire-9 (PHQ-9)	39% of the subjects expressed general psychological discomfort (GHQ-12), 21% symptoms of anxiety (GAD-7). And 22% post-traumatic stress symptoms (IES-R).
<b>Ying et al</b>	<b>N=845</b>	<b>Cross sectional study</b>	Chinese versions of the Generalized Anxiety Disorder-7 (GAD-7) and Patient Health Questionnaire-9 (PHQ-9)	The prevalence rate of depression and anxiety symptoms were 29.35% (95% CI: 26.27–32.43%) and 33.73% (95% CI: 30.53–36.92%) when a cutoff score of 5 was used for GAD-7 and PHQ-9.
<b>Liu et al</b>	<b>N=205</b>	<b>Cross sectional online survey</b>	Symptom checklist-90 (SCL-90).	the prevalence rate of psychological symptoms in all pregnant women was 6.83% (psychosis symptoms) and 17.56% (obsessive-compulsive symptoms). pregnant frontline workers experienced more prevalence of psychological

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				symptoms of anxiety disorders (16.87 vs. 6.56%, $p = 0.016$ , aOR = 3.54) somatization (18.07 vs. 5.74%, $p = 0.006$ , aOR = 4.52), and hostility (24.10 vs. 10.66%, $p = 0.027$ , aOR = 2.70) than those among pregnant non-frontline workers .
<b>Takmaz et al</b>	<b>N=952</b>	<b>Cross sectional study</b>	COVID-19 Stress Scales (CSS), and a short version of the Depression Anxiety Stress Scale (DASS-21)	The prevalence of irregular menses among Turkish women healthcare workers aged 18–40 years was 28.7%. higher DASS-21 in women with irregular menstruation ( $p < 0.001$ ).
<b>Thattee et al</b>	<b>N=32</b>	<b>Clinical study</b>	BMI, waist circumference, upper arm circumference, Abdominal circumference. Investigations like cytokines interferon gamma (IFN- $\gamma$ ), interleukin (IL)- 10, IL-4, IL-8, TNF- $\alpha$ , IL-6 and IL-1 $\alpha$ , Immunophenotyping of peripheral blood lymphocytes (PBLs) with phycoerythrin (PE) labelled mouse anti-human monoclonal antibodies (MAb) targeted against CD3, CD4, CD8, CD14, CD19, CD56, CD80, CD86, CD209, CD11c, $\alpha\beta$ -T cell receptor (TCR) and $\gamma\delta$ -TCR, Complete blood count (CBC), erythrocyte sedimentation rate (ESR) . Fasting blood sugar, liver function tests , renal function tests , minerals (serum calcium, phosphorus, iron and copper), lipid profile . vitamin B12, Fasting insulin and endocrine markers (T3, T4, TSH, cortisol) . Homeostatic model assessment insulin resistance (HOMA-IR) index , Glycosylated haemoglobin and highly sensitive (hs)-CRP .	significantly decrease in levels of IFN- $\gamma$ ( $3.771 \pm 4.63$ to $1.54 \pm 2.23$ pg/ml; $P < 0.02$ ) and IL-6 ( $111.2 \pm 152.05$ to $52.85 \pm 111.24$ pg/ml; $P < 0.02$ ) was observed a. IL-6 levels remained significantly low in serum even at ( $27.79 \pm 79.29$ pg/ml; $P < 0.002$ ). A reduction in IL-1 $\beta$ levels was observed and a gradual decrease in IL-8 levels was noted, significantly. No significant changes in levels of TNF- $\alpha$ , IL-4 and IL-10 were noted.



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			Vitamin A levels sr. Ferritin levels can be held on before (S1), immediately after (S2) and 90 days after the completion of therapy (S3).	
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**Covid 19 related mental health:**

out of above article study, one study reveals that, frontline health care workers family facing more mental stress during pandemic. Frontline workers are shift workers, an occupation is a higher risk for negative impact on family life and family members, their families are prone to mental health problems caused by family conflict during pandemic. They found 33.73% (95% CI: 30.53–36.92%) and 29.35% (95% CI: 26.27–32.43%) of family members of frontline workers reported symptoms of anxiety and depression, posttraumatic stress disorder respectively, which was much higher than the general population of China (Ying et al). the pregnant frontline worker was 4.52, 3.54, and 2.7 times more facing somatization, anxiety, depression and hostility symptoms than pregnant non-frontline worker during the early stage of the pandemic. pregnant women have been experiencing high level burden of mental crises during the COVID-19 , stressful events like, death of relatives, lack of contact with relatives, self-confidence and occupational problems. the rate of depressive symptoms among pregnant women in late pregnancy in Hengyang City was 9.2% (95% CI, 7.2–11.2%), the detection rate of anxiety among pregnant women in Beijing was 6.8% during the COVID-19 epidemic, insomnia of 37.9%, psychological distress of 37.8%, burnout of 34.4%, anxiety features of 29%, depressive symptoms of 26.3%, and PTSD of 20.7% (Liu et al) above study will conduct to explore the mental health problems and related factors among family members of frontline worker during the pandemic. the maternal psychological disorders were associated with the mental health and behaviours of their foetus and children therefore its necessary to provide guidance and safety practices for pregnant women specially on frontline workers.

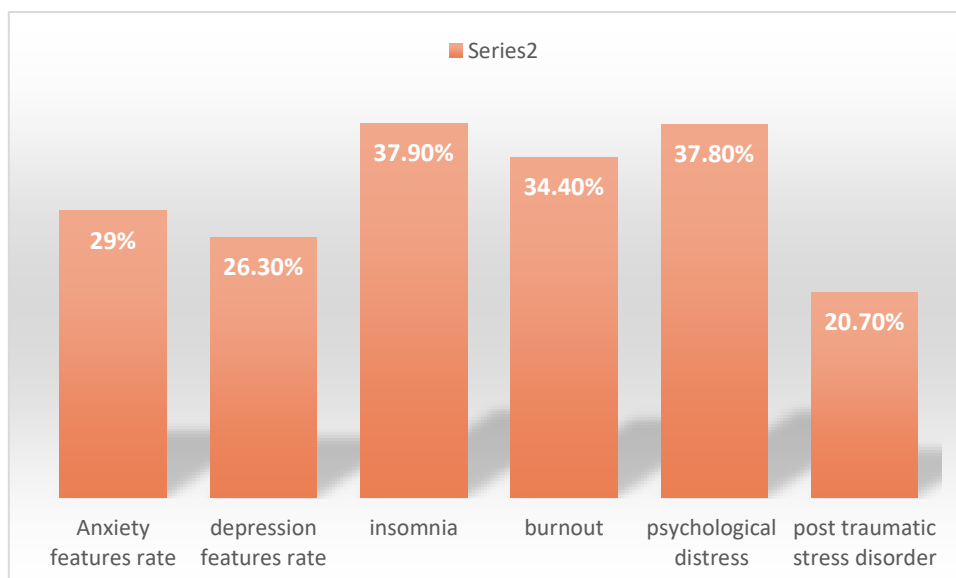


Figure 2. shows COVID 19 related various mental disorders facing during pandemic by frontline workers.

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### **Socio demographic changes:**

The median age of participants was 37 years (IQR 32.00– 44.00); 52.66% were male. Nearly half (46.98%) were also HCWs and 65.44% were in a spousal relationship with the HCWs; and most of the participants (approximately 87.81%) had an education of junior college, bachelor's degree (Ying et al). In Takmaz et al analysis, 10.7% (n = 102) of women reported short or long periods. A total of 12.9% (n = 123) women had a change in menstrual cycle. Participants with prolonged menstrual flow made up 5.8% (n = 55) of the study sample. About 11% (n = 102) of the women reported experiencing light or heavy bleeding. Intermenstrual bleeding occurred in 6.5% (n = 62) patients. 76.9% (n = 732) of all women had kept track of their cycles with period tracking application on their smart devices (phone or tablet).

### ***Basti* and Immunological responses and Metabolism –**

One study can be shows that *Basti* can modulates immune responses by regulating immunoglobulins, pro-inflammatory cytokines and functional properties of T cells, study reveals by Thatte et al. they can prove that *Basti* has property to act on various immunological markers. They show that *Basti* acts on BMI, Upper arm circumference, abdominal circumference after taking *Basti* treatment. Gradually decrease in level of (IFN)- $\gamma$  ( $p < 0.02$ ) interleukin (IL)-6 ( $p < 0.02$ ). ferritin ( $P < 0.05$ ), reduction in level of IL-1 $\beta$ , IL-8. Marginal decrease in level of IgG, Serum insulin, Serum cortisol and Serum ferritin They shows no any significant changes in following i.e., in level of TNF- $\alpha$ , IL-4, IL-10 and T-cells subsets like (CD3, CD4, CD8,  $\alpha\beta$ -TCR and  $\gamma\delta$ TCR), macrophages (CD14), B cells (CD 19), dendritic cells (CD209), natural killer (NK, CD56) and regulatory T cells (CD4 CD25). And no significant change was observed on metabolic parameters like FBS, HbA1C, HOMA-IR, LFT, KFT, Serum phosphorus, iron, sodium, Potassium, Copper, Vitamin B12, T3,T4,TSH. Peripheral blood lymphocytes (PBLs) stimulated with anti-CDS monoclonal antibodies shows that after taking *Basti* there was significant increases in reactive oxygen species (ROS) generation and Calcium flux.

*Basti* reached up to small intestine and get absorbed by gut wall and spread all over body and gives systemic effects. *Basti* treatment improves Th1 type inflammatory cytokines, Adipose tissue inflammation and insulin resistance without disturbing other immune functions. Due to SARS-CoV 2 infestation many changes are seen in human body cytokine strome, inflammation, increases in level of cytokine, tumour markers etc, so Thatte et al mentioning that *Basti* is best treatment for all this .so we concluded that *Basti* treatment is important for Post COVID 19 Syndrome.

### ***Basti* and COVID 19-**

Nair et al has shown that *Basti* treatment can afflicted covid 19 infection. *Basti* therapy a medicated enema which is used in *Vatadosha* disorder or in elevated *Vatadoshas*. *Basti* has a quicker immunomodulation property because it is spread up to *Saptadoshas* and bring immune homeostasis. In *Vata* predominant *Prakruti* of covid 19 infected patient suggest prophylactic *Basti* therapy with all precautions. All type of *Prakruti* which triggered by covid 19 infections has suggested for *Basti* treatment.

### ***Basti* in pregnant women-**

One study shown that in premature labour action of *Basti* therapy was described. a, *AkalaPrasava* i.e., preterm labour results due to the malfunctioning of *ApanaVata*. *Basti* is considered the best for managing the elevated *ApanaVata*. According to Samhita *Basti* is also

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indicated in *GarbhiniParicharya* after seven months of pregnancy. In Kunjibettu et al shows that *ShatavaryadiKsheerapakaBasti* was administered. *Shatavaryadi KsheerapakaBasti* matra 450ml administered for 2 consecutive days and found to be effective in preventing the uterine contractions and preterm labour.

### **Basti in female infertility:**

Mahdin et al shown that Basig in has an important role on male and female reproduction and also one of the most important receptor for SARS CoV 2 virus mediates entry to host cells. Basiginplays important role upon uterus during embryo implantation and successful implantation. The invasive route of COVID 19 Mediated by basig in hypothetically covid 19 infection can effect on reproduction.

In Balat et al shows that, according to *AcharyaSushruta*, among four essential factors required for conception, i.e., *Ritu, Kshetra, Ambu and Beeja*. *Beeja* (ovum) is important part for female reproduction system and conception cannot be done in its absence, The ovulation phase is regulated by *Vata*, especially *ApanaVayu*. In *Ayurveda*, *Basti* is indicated for correction of *ApanaVayu* which is the main vitiating factor of the reproductive system. *AcharayaCharak* described *YapanaBasti* in infertility in *Siddhithana*. results show that In the *BrihatyadiYapanaBasti* conception rate was 26.66% and ovulation was found in 80% of the patients .

### **Basti and dysmenorrhea-**

During pandemic many women experiences pain, intensity of pain, childcare and household chores, social distancing, socio economical problem. Schwab et al, shows that occupationally and sexuality improved during the social distancing period of COVID 19 and improve global PDI Score during pandemic. Menstrual pain assessed by VAS score, during COVID 19 pandemic decreased significantly which compared to the period prior to social isolation on pandemic.

*Kashtartava* can be co-related with all the types of dysmenorrhea in *kashtartava* mostly *Vatadosha* was vitiating and *Basti* treatment has effect on vitiating *Vatadosha* . Karunagoda et al, shows that *MatraBasti* is effective in the whole symptom complex of *Kashtartava*. *Tila Taila MatraBasti* and *DashamoolaTaila Matra Basti* both are effective in *Kashtartava*. To prevent recurrence of dysmenorrhea *Dashamoola Taila Matra Basti* was helpful. With further research, *Matra Basti* can be affected in treatment of *Kashtartava*.

### **Basti and PCOD:**

Subramanian et al shows that Women with polycystic ovary syndrome (PCOS) and polycystic ovarian disease can be been highlighted as a high-risk infestation for COVID-19 complications. PCOS is a lifelong metabolic condition associated with androgen excess, anovulatory infertility and polycystic ovarian morphology on ultrasound in most cases .the prevalence population estimate of PCOS between 8–16% of all women. PCOS are at significantly increased risk of type 2 diabetes mellitus (T2DM), non-alcoholic fatty liver disease (NAFLD) and cardiovascular disease in many women . PCOS prevalence is higher in black and South Asian women than in white women they had higher risk of covid 19 infection.

As per Patel et al, *Basti* stimulates Enteric nervous System because it will give via rectal route and absorbed by mucosal layer of rectum and enters into systemic circulation and Gastro Intestinal Tract and generates signal to CNS i.e., Central Nervous System. Signal stimulates endogenous opioids like  $\beta$ -endorphin present in GIT. *Basti* acts on Hypothalamic-Pituitary-Ovary axis which regularizes ovarian cycle and menstrual cycle. Para sympathetic nerve

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supply stimulated by Basti which helps to develop follicles and release ovum from ovary. Basti also normalize the vitiated *ApanaVata* for regular *Rajahpravritti* and *Beejanirmana*. the combination of *PathadiKwatha* and *Shatpushpa Tail Matra Basti* may decrease the level of androgen, and allow oestrogen to work on endometrium.

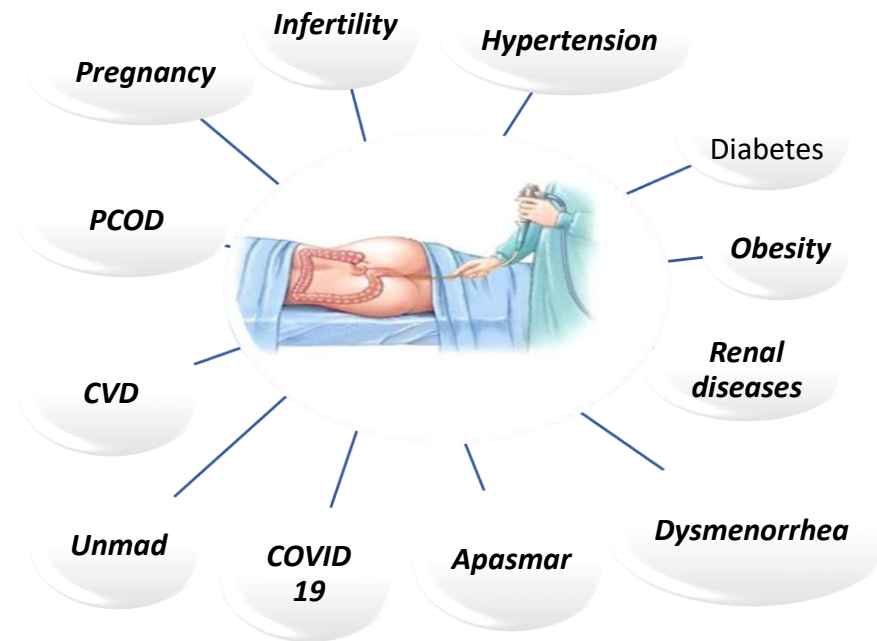


Figure 3 Basti acts on various diseases related COVID 19

### COVID 19 and Comorbidities and action of Basti –

H Ejaz et al shows that SARS-CoV-2 infection infected by all age group people, but more than 60 years, along with comorbidities such as diabetes, chronic respiratory disease, and cardiovascular diseases, are at a higher risk of developing infection COVID 19 .

**Diabetes mellitus-** The entry of SARS CoV -2 virus leads to a life-threatening situation for diabetic patients, its impaired the function of T-cell and increase level of interleukin-6 (IL-6) and also plays a role in developing COVID-19 disease. 11–58% of all COVID-19 patients have diabetes, and an 8% COVID-19 fatality rate has reported in diabetic patients. In ICU admitted COVID-19 individuals with diabetic has on higher risk and comorbidity rate is 14.2% which is higher than individuals without diabetes.

Madhumeha may be correlated with the DM. Acharaya Charak explain it as a life-style disorder, due to over intake of heavy and richly nutritious food, *Diwaswapa* , lack of exercises other sedentary habits and not doing *Panchakarma* . Basti eliminates the excess of deranged metabolic waste and clears the Avarana of Vata which is obstructed by kapha and meda and normalizes the functions of Apana and Vyana Vata due to its Purification property. Based on these qualities Gokshura-Punarnava Basti was selected for Diabetes patient. (Ramteke et al)

**Obesity-** obese patient is linked with reduced oxygen saturation of blood by compromised ventilation at the base of the lungs. In obesity low grade inflammation may occur, such as the abnormal secretions of adipokines, cytokines and interferon consequences in compromised to

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immune response. 47.6% of obese patient get infected due to COVID 19 and out of these 68.6% receive ventilation in a critical situation. High body mass index (BMI) is a risk factor in COVID-19 severity, and obese peoples should take extra care to prevent from pandemic.

In Ayurveda, obesity is described as Sthoulya. Sanshodhana Karmalike Basti Karma are described as major management in sthoulya .Specifically Lekhana basti indicated in Sthoulya .It breaks the Strotorodha with its Katu, Tikta and Kashaya Rasa and shows Lekhana, Amahara, Deepana and Pachana Karma. It works on Agni and corrected the MedoDhatvagimandhyata and checks the progression of Meda Sanchaya by preventing the formulation of Meda. Triphala taila Anuvasana Basti is helpful in regulating to decreases the elevated Vata Dosha. Singh et al.

**Hypertension-** In COVID 19, 23% of hypertensive cases were reported with the number continuously increased due to pandemic anxiety . In patients suffering from hypertension, angiotensin receptor blockers (ARBs) and ACE-2 inhibitors are used for the treatment. When high amount of inhibitors used it up regulate expression of the ACE-2 receptor, therefore leading to increase in risk of SARS-CoV-2 infection. Higher expression of receptor cells on the lungs makes the infection more vulnerable, and causes severe lung injury and respiratory failure.

Hivale et al shows Hypertension may be considered as Tridoshaja Vyadhi with the dominance of Vata and Pitta Dosha, Dushti of Rakta, Rasaand Meda with Srotorodha and Sirashaithilya. Basti procedure is the best treatment for correction of Vata Dosha.it also acts on Pitta and Kapha dosha and Sarvadhātu Ashrita Vyadhi, Koshtha and Marma , Asthi and Sandhi Ashrita .Basti therapy was effective in decreasing in range of systolic and diastolic blood pressure. After Basti mean value of diastolic blood pressure before treatment was 102 mmHg which was reduced to 85.33 mmHg with 16.34% of relief which was statistically highly significance (P < 0.0001).

**Cardio vascular Disease** – Cardio Vascular Diseases has been strong relationship with SARS (8%) and MERS (30%). the increased prevalence rate of CVD observed in COVID-19 patients, A study in Wuhan noted that 6.8% CVD non-survivors from COVID-19 patients, other research study reveals that 17% of the COVID-19 non-survivors had CVD.COVID 19 patient on high risk because of ACE-2 receptor present on cardiac muscle cells and involvement of cardiovascular system in SARS CoV-2 Infection. Increased rate of inflammatory cytokines in COVID-19 cases, causes atherosclerosis, hemodynamic instability and procoagulant activation leads to thrombosis and ischemia.

Sane et al shows that According to Acharya Charak if agni is vitiated, the entire metabolism of body gets disturbed and the person suffers from disease. In Ayurveda ‘Hrudrog’ term use for cardiac problems. All causes of heart disease are vitiated rasa dhatvagni which causes poor quality formation of rasa dhaatu which when goes in heart cause various cardiac diseases. This dhatvagni or bioenergy can be described as metabolic rate. Ratio of metabolic rate at rest and during exercise is denoted as metabolic equivalent (Met) value of Met is 3.5 ¼ MAC.MAC can be correlated with rasa dhatvagni and Rasa Dhatvagni Maandya cause by reduction in MAC which may lead to Hrudrog. Basti therapy which have a nourishing effect on the body. Therefore, this treatment given on rasa dhatu as shown by changed serum lipid levels.

**Renal diseases-** SARS-CoV-2 infection affects the kidneys by direct cellular injury or sepsis, leading to a cytokine storm. Patients with renal diseases are more prone to COVID 19 infection.

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Acute kidney injury (AKI) observed in 3–9% of the COVID-19 cases it was reported in SARS (5%) and MERS (15%). There are chances of mortalities in risk of AKI in COVID-19. Some studies suggest that 26.7% of patients develop haematuria, 34% albuminuria, 63% proteinuria.

Patel et al shows According to Ayurveda, Chronic Renal Failure is a disease of Mutravaha Srotas. Though all the three Doshas and Dushyas are involved in the disease, Vata is responsible for degenerate structure of kidney and Kapha is responsible in blocking micro vessels and developing microangiopathy. Niruha basti has effective in renal disease. In this study, Serum creatinine, blood urea and albuminuria reduced 20.71%, 32.15% and 36.70%, respectively. Reduction in edema of feet, leg cramps, increase in appetite, relief from nausea, pruritus, weakness and breathlessness were statistically highly significant

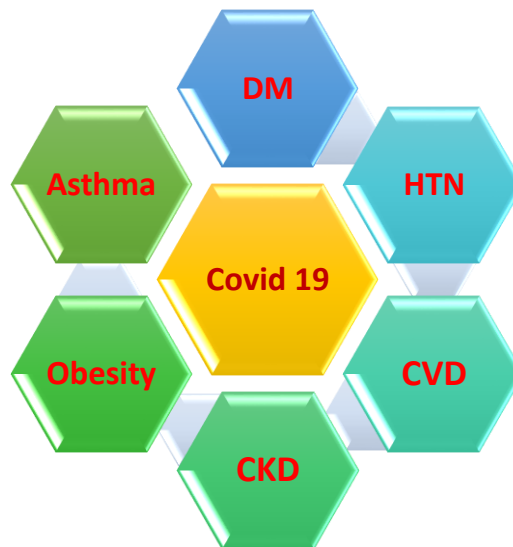


Figure 4. shows that comorbidities related with COVID 19

### CONCLUSION

1. In today's situation most important thing is to safe menstrual hygiene, socioeconomic situation, mental crises regarding pandemic. Health authorities should consider to spread awareness about mental health and mental health related disorder with multidisciplinary mental health team at society, regional and national levels. And give psychological support who dealing with mental health crises i.e., in Front line worker and general population also.
2. Regular Screening of covid 19 and post covid 19 patient for evaluating stress, anxiety, depression.
3. Basti therapy has most effective in all kind of *vata* related disorder it also acts upon *Manovahastrotas*. Basti therapy has property to spread all over body and synthesizes their action on gut brain axis and gives effect on Anxiety, Depression like mental disorder.
4. Basti act modulates to immune responses by regulating pro inflammatory cytokines, immune globulins and functional properties of T-cell. so we concluded that Basti has effective in mental crises facing by frontline worker during COVID 19 and Post COVID 19.

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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## AHARA IN MENTAL HEALTH PROMOTION IN COVID & AFTER COVID

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### INTRODUCTION

As the Corona Virus pandemic rapidly sweeps across the world. It is creating a considerable degree of fear, worry and concern in the population at large and among certain groups in particulars, such as older adults care providers and people with underlying health issues.

The sudden disturbance of the routine, undesired social distancing rules, and receiving bundles of information through media put all of us at risk of mental stress and Dilemma. As new laws and measures are implicated especially quarantine triggering many people's visual activities, routines, livelihood – level of loneliness, depression, persistent fear, anxious mood, feeling of guilt, worthlessness, insomnia, loss of appetite or weight gain, poor concentration and worsening of chronic health problems are expected to rise.

Though vaccines and the rapetic recommendations being available against COVID 19, in the absence of prescribed sure treatment. Government of most countries and several authorized international health agencies like WHO, the British Dietic Association and the UD Food and administration are focusing on maximum use of Raw vegetables and fruits, Nuts and seeds; pulses and wholegrain foods, unsaturated oils, limits the intake of soda, salt, sugar and trans fats and stop eating sugary and junk food. Along with diet management, guidelines also suggested physical exercises, meditation, *Pranayama*, proper sleep and sunlight exposure.

Above mentioned advices and guidelines is already a part of Ayurveda. An ancient healing system of India Ayurveda – An Ancient healing system of India.

Ayurveda suggests Trayopstambha – three Sub pillars of Healthy life – *Ahar*, *Nidra*, *Brahmacharya*. According to Ayurvedic *Acharyas* food is considered as '*Mahabhaishajya*' means is like a medicine that can convalesce an individual by re-establishing connecting link between elements of life, food and body. Food or type of diet we choose influence our temperament, physical and emotional states can be determined. It has been proved that there is a close relationship among genes environment food and emotional factors that lead to a bidirectional vicious cycle of mood, food and lifestyle disorders.

To have a healthy peaceful life and fight against pandemic like COVID 19 Ayurveda recommends interventions of healthy life styles, meditation, *Pranayama*, adequate sleep and *Sattvika* food

Ayurveda defines importance of *Annas* as-

प्राणाःप्राणभृतामन्नमन्नलोकोऽभिधावति।

वर्णःप्रसादःसौस्वर्यजीवितंप्रतिभासुखम्॥३४९॥

तुष्टिःपुष्टिर्बलंमेधासर्वमन्नेप्रतिष्ठितम्।

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लौकिकं कर्म यद् वृत्तौ स्वर्गतौ यच्च वैदिकम् ॥३५०॥  
कर्मापवर्गे यच्चोक्तं तच्चाप्यत्रे प्रतिष्ठितम् ।

food is vital breath or sustainer of life, thus all living beings of universe rush towards cereals (food), complexion, prosperity, good voice, longevity, brilliancy or geniuses, happiness, satisfaction, nourishment, strength/ energy and intellect all are based or depend upon cereals.

The worldly activities done to earn livelihood, *Vedic* recitations etc. done for attainment of heaven and those done for attainment of heaven and those done for final beatitude or emancipation all depend upon food.

*Bhagwat Gita & Yoga Shastra* divided food into 3 types based on their qualities-

1. *Sattva*
2. *Rajasa*
3. *Thamasa*

***Sattvika diet*** – it includes foods and eating habit that are natural, vital and energy containing, gives calmness, purity. Promote longevity, intelligence, strength, health and delight.

E.g.,- fruits, vegetables, sprouted grains, cereals, nuts and seeds, low fat milk and milk products, pure fruit juices and cooked food i.e., consumed within 3-4 hours of cooking etc.

***Rajasika diet (the mode of passion)*** – overly spicy hot or fried with pungent, sour and salty taste. Rajasic food possesses attributes of negativity passion and restlessness.

E.g.- Caffeinated drinks, sugary foods or spicy food. Rajasic diets are glucose rich so they provide immediate energy but eventually destroy mind- body equilibrium, feeding the body at the expense of the mind.

***Tamasika diet (mode of ignorance)*** – overcooked food, stale fast, reheated, microwaved or frozen food; Non- veg (dead food) Alcohol, Cigarettes and drug of addiction. *Thamasika* food is hard to digest and induce sleep. Such food habits cause obesity, diabetes, and heart and liver diseases.

*Sattvika* food with recommended physical exercises, adequate rest and a positive mindset can reduce the risk of high BMI, coronary artery disease, obesity, HTN Diabetes mellitus 2 and osteoporosis. *Sattvika* food is pure natural, strong wise and full of energy that provide calmness and peace of mind. Whereas *Rajasika* and *Thamasika* food induce restlessness, lethargy and sleep.

### DIET DURING COVID TREATMENT

1. Patients during treatment should take food according to their *Bala* and *Agni* status. He/ She should take food that is light easy to digest and induce *Agni*.
2. Fibrous food in the form of raw or freshly cooked colorful vegetables and fruits, those are rich sources of vitamins A, C and E as well as antioxidants, folate and fiber.
3. Fat intake should recommend less than 30% of total energy intake, of which no more than 10% come from saturated fats.

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4. Fresh fruit juices, low fat Lassi, *Chaaz*, lemon water, coconut water, hot water, herbal tea (packs a big punch of polyphenols, flavonoids and antioxidants that destroy free radical).

### DIET PLAN AFTER COVID

Along with above mentioned diets one should add following diets in routine-

1. Cooked vegetable via steam, grill or sauté for easy digestion
2. Pulses and whole grain foods (oats, brown pasta, millet, rice, quinoa and whole wheat fresh Chapattis )
3. Low fat or reduced fat version of milk and dairy products.
4. Unsalted nuts and seeds – rich sources of vitamin E, niacin, riboflavin, protein, healthy fat, antioxidant and fiber.
5. Egg yolks and fortified cereals.
6. Instead of consuming white sugar or brown sugar, jaggery and honey should be followed.
7. Various Indian herbs possess antioxidant, antibacterial and anti- inflammatory properties act as immune booster and may help to flush out any sinuses from the body.
  - i) *Dhaniya (Coriandrum sativum)*
  - ii) *Turmeric ( Curcuma longa)*
  - iii) *Fenugreek*
  - iv) *Tulsi (Ocimum sativum)*
  - v) *Cumin ( Cuminum cyminum)*
  - vi) *Ginger ( Gingiber officinalis)*
  - vii) *Curry leaves ( Murraya koenigii)*
8. Rock salt (limit salt intake to 5gms which is equivalent to a teaspoon) a day.
9. To enhance mental health, along with dietary management, *Medhya* Rasayana should be advised to overcome anxiety, depression, fear in this pandemic situation.
  - i) Juice of *Mandukaparni*
  - ii) Powdered *Yashtimadhu* with milk
  - iii) Juice of *Guduci*(stem) along with its root and flowers
  - iv) Paste of *Sankhapushpi*
10. Appropriate rest, timely sleep, practicing *Yogasanas* and *Pranayama* help to balance body, mind and lifestyle.

*Sattvika* food ( good food) with other recommendations would be helpful in building up our immunity as well as burst the stress while combating against COVID 19.

The current guidelines of the Ministry of *Ayush*, Government of recommended self-care guidelines herbal tea & *Kadha* ( decoction) include *Tulsi*, *Dalchini*, *Kalimirch*, *Shunthi* and *Munakka* with Jaggery and or fresh lemon juice to intensify the taste as immunomodulatory against COVID.

### DISCUSSION

Though various vaccines or medication have been suggested during pandemics or in various chronic, lifestyle disorders which gives temporary relief but once situations get unfavorable disease reoccur and worsen the health. We all are well known by the fact that “*Prevention is*

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*better than cure*” and if prevention is in your home, then why one not should start with home. *Acharya Sushruta* describes *Aharaas* “ Food nourishes and gladdens the heart and directly contributes to one’s bodily strength. It improves the memory, appetizing power, energy, natural strength of the mind and increase the *Ojas* and the duration of life. From ancient times Acharyas known *Sattvika Ahara* importance and lived a prolonged and healthy life. A very few researches have been done on *SattvikaAhara* and its health benefits, this field require to be explored out more. *Sattviaka Ahara* with *Yogasans* and disciplined life style a healthy mind and body can be achieved.

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# INTERNATIONAL CONFERENCE ON AYURVEDIC ARCHITECTURE FOR THE PLANNING OF MENTAL HEALTH DURING COVID-19 CRISIS

## ROLE OF MANASAMITRA VATAKAM & SARASWATARISHTAM FOR MENTAL HEALTH PROMOTION AND RESTORATION IN COVID 19 PATIENTS

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### INTRODUCTION

Corona Virus (CoVs) is known as the envelope viruses. In recent months, the virus has affected major population worldwide. This virus has a high mutation rate and is said as zoonotic pathogens and can be present in both humans and animals' species. COVID 19 that started with the animal species especially bat underwent gene mutation and affected the human species as bats are regarded as the key reservoir of CoV. The virus was first identified with the symptoms by causing an outbreak in Pneumonia. In December 2019, the evolved nCoV called as novel coronavirus outbreak caused panic globally and posed many threats as the data suggest that CoV is a new species.

In COVID19 patients' symptoms of *Rasa kshay* are seen because *manovah strotas* & *rasavah strotas* has common *moolsthana*. Due to waning of *Rasa dhātu*, one feels cardiac pressure due to strain, cannot bear somebody speaking loudly, one feels Scared needle like pains in heart are felt and one blackens out.

- *Prakruta karma hrasa* – When *rasa* deficiency occurs, the normal functions including nutrition which is conducted by *Rasa* gets obstructed. Thus, the body gets deficit nutrition.
- *Dhatuapachaya/ksheenata*–degeneration or depletion of other *dhatu*s
- *Mukhashosha / rukshata* – dryness of mouth
- *Sharira shosha /rukshata*–dryness of body parts
- *Karshya*– emaciation
- *Trushna*–thirst
- *Shunyata*–feeling of emptiness of stomach, heart and mind
- *Shrama*– tiredness
- *Shabda asahishnuta* – intolerance to sound (phonophobia)
- *Hrudayaghattana* – pain in the heart with a feel of someone holding and vigorously shaking the heart
- *Hrutkampa*–increase in heart beats (tachycardia)Hrutdrava – palpitation
- *Hrutshula*–cardiac pain(coronary thrombosis)
- *Shrama-Klama*–tiredness even after doing a small amount of work

*Saraswatarishta (SA)* is a herbo-mineral formulation consisting of 18 plants some of which are *Medhya rasayanas*. It has been claimed to be useful in treating central nervous system disorders.

*Manasamitra vatakam* is a herbomineral ayurvedic formulation used for the treatment of mental disorders like anxiety, neurotoxicity etc. This is prepared by a number of plants, mineral and animal products.

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Both drugs act on *manovah* & *rasavah strotas* which balances *ras dhatu* & improves mental health of the individual.

### MATERIAL AND METHOD:

- Ayurvedic literature is mostly collected from *Sahasrayogam*, *Bhaisajyaratnavali*, *Charak Samhita*. This ancient literature of Ayurveda enhance the preparation herbo-mineral formulations (*Ras Kalpas*). For the analysis of recent researches about *Saraswatarishta* & *Manasamitra vatakam* databases like ResearchGate, google scholar, PubMed etc. are being used. Effect of these two herbo-mineral formulations (*Ras Kalpas*) is being reviewed for mental health promotion and restoration in Covid19 infected & post Covid 19 patients.

### DESCRIPTION:

The common clinical feature shows signs and symptoms of cough and fever. Since this virus attacks the immune system of the body, the treatment protocol is suggested to help boost the immune system and help fight the virus. The same principle is very well explained by *Acharya Charaka* in Ayurveda discussing *dinacharya* i.e., daily regimes and *Rutucharya* known as seasonal regimes. It also mentions similar signs and symptoms of the disease and how well it can be managed. *Acharya Charaka* mentions about three basic principles that should be followed to treat any disease in Ayurveda which is by knowing the cause, symptoms and medicine as no disease gets manifested without the involvement of *dosha*

गुरुशीतम् अतिस्निग्धम् अतिमात्रं सम्प्रताम् ।  
रसवाहीनिदुष्यन्ति चिन्त्यानां च अतिचिन्तनात् ॥ (च. वि. ५/१३)

SN	Sanskrit Literature	Meaning
1	Guru aahara	heavy foods
2	Sheetaaahara	cold foods
3	Atisnigdha	excessive consumption of oily foods
4	Atimaatram	eating in excess
5	Atichintanaat	excessive thinking (stress)

These are the factor for the *rasavah strotas dusti* but in Covid 19 infected & post covid19 patients especially *ras dusti* due to *Chintyanam chatichintama* (Over thinking & Anxiety) is observed.

अश्रद्धाचारुचिश्चास्यवैरस्यमरसज्ञता।  
हृल्लासोगौरवंतन्द्रासाङ्गमर्दोज्वरस्तमः ॥९॥  
पाण्डुत्वंस्रोतसांरोधःक्लैब्यंसादःकृशाङ्गता।  
नाशोऽग्नेरयथाकालं वलयः पलितानिच ॥१०॥  
रसप्रदोषजारोगा, ... ॥११॥

(च. सूत्रस्थान २८)<sup>(11)</sup>

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SN	Sanskrit Literature	Meaning
1	<i>Ashraddha</i>	lack of interest in the food
2	<i>Aruchi</i>	tastelessness
3	<i>Aasyavairasya</i>	feeling of weird tastes in the mouth
4	<i>Arasagnata</i>	failure to identify any taste
5	<i>Hrullasa</i>	watering of mouth, excessive salivation, nausea
6	<i>Gourava</i>	heaviness
7	<i>Tandra</i>	drowsiness
8	<i>Angamarda</i>	pain in body parts
9	<i>Jwara</i>	fever
10	<i>Tama</i>	feeling of darkness before the eyes
11	<i>Pandutva</i>	anaemia
12	<i>Srotorodha</i>	block in multiple channels of the body
13	<i>Klaibya</i>	impotence
14	<i>Saada</i>	fatigue, stoppage of working of organs and tissues
15	<i>Krushangataa</i>	emaciation
16	<i>Nashoagnehe</i>	destruction of agni, the metabolic fire
17	<i>Ayatha kala Vali</i>	premature wrinkling of skin
18	<i>Ayatha kala Palita</i>	premature greying of hairs

These are the symptoms due to *rasavah strotas dusti*.

***Manasamitra Vatakam:***

It consists of the following ingredients:

SN	Official Name	Botanical Name/English Name
01	<i>Bala</i>	<i>Sida cordifolia</i>
02	<i>Nagabala</i>	<i>Sida cordata</i>
03	<i>Vilva</i>	<i>Aegle marmelos</i>
04	<i>Dhavanimula</i>	<i>Pseudarthria viscida</i>
05	<i>Vidruma</i>	<b>Coral</b>
06	<i>Sankhupushpi</i>	<i>Convolvulus pluricaulis</i>
07	<i>Tamrachudapadika</i>	<i>Salacia reticulata</i>
08	<i>Hema</i>	<b>Gold</b>
09	<i>Pushkara</i>	<i>Inula racemosa</i>
10	<i>Mrigasringa</i>	<b>Buffalo's horn</b>
11	<i>Vacha</i>	<i>Acorus calamus</i>
12	<i>Tapya</i>	<b>Iron pyrite</b>
13	<i>Chandana</i>	<i>Santalum album</i>
14	<i>Raktachandana</i>	<i>Pterocarpus santalinus</i>
15	<i>Mauktika</i>	<b>Pearl</b>
16	<i>Kalaloha</i>	<b>Iron</b>
17	<i>Madhukatvak</i>	<i>Madhuca longifolia</i>



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18	<i>Magadhi</i>	<i>Piper longum</i>
19	<i>Ghanasara</i>	<i>Cinnamomum camphora</i>
20	<i>Aileyaka</i>	<i>Mukia maderaspatana</i>
21	<i>Visala</i>	<i>Citrullus colocynthis</i>
22	<i>Arkaraga</i>	<i>Lodoicea maldivica</i>
23	<i>Nirgundi</i>	<i>Vitex negundo</i>
24	<i>Plava</i>	<i>Cyperus esculentus</i>
25	<i>Rasna</i>	<i>Alpinia galanga</i>
26	<i>Rajata</i>	Silver
27	<i>Saileya</i>	<i>Parmelia perlata</i>
28	<i>Gojihwa</i>	<i>Berberis aristata</i>
29	<i>Patmakesara</i>	<i>Nelumbo nucifera</i>
30	<i>Dvijivaka</i>	<i>Pueraria tuberosa (sub.)</i>

According to *Sahastrayogam*(an ancient text of ayurveda most popular in kerala) *Manasamitra Vatakam* is used for dementia, insomnia, seizure disorder, psycho motor retardation. It also enhances memory and intellectual faculties. Hence, it best herbo-mineral formulation for mental health issues due to Covid 19 which are shown in Figure no.1.

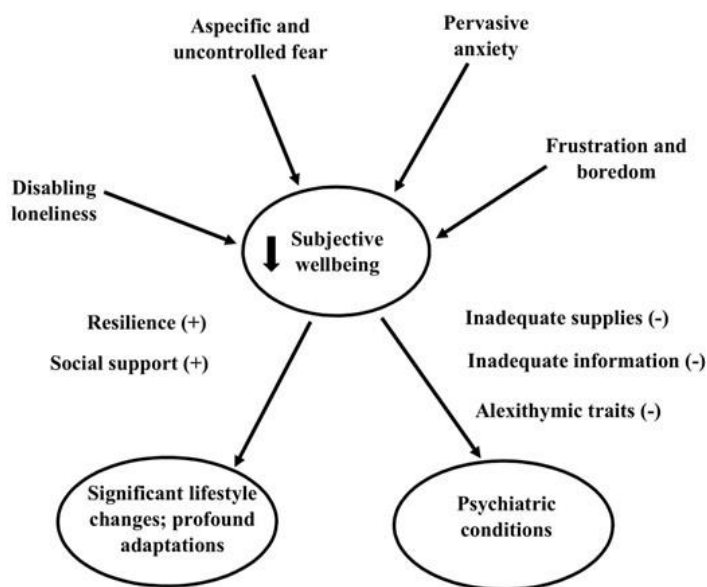


Figure 1: Summary of the most relevant psychological reactions in the general population related to COVID-19 infection.

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*Saraswatarishtam*(*Bhaishjya Ratnavali, Adhyayam73*):

It consists of the following ingredients:

SN	Official Name	Botanical Name/English name
01	<i>Sita</i>	<i>Saccharum officinarum</i>
02	<i>Makshika</i>	Honey
03	<i>Brahmi</i>	<i>Bacopa monnieri</i>
04	<i>Satavari</i>	<i>Asparagus racemosus</i>
05	<i>Vidarika</i>	<i>Pueraria tuberosa</i>
06	<i>Abhaya</i>	<i>Terminalia chebula</i>
07	<i>Usira</i>	<i>Vetiveria zizanioides</i>
08	<i>Ardraka</i>	<i>Zingiber officinale</i>
09	<i>Misi</i>	<i>Anethum graveolens</i>
10	<i>Dhataki</i>	<i>Woodfordia fruticosa</i>
11	<i>Renuka</i>	<i>Piper cubeba</i>
12	<i>Trivrita</i>	<i>Operculina turpenthum</i>
13	<i>Kana</i>	<i>Piper longum</i>
14	<i>Devapushpa</i>	<i>Syzygium aromaticum</i>
15	<i>Vacha</i>	<i>Acorus calamus</i>
16	<i>Kushtha</i>	<i>Saussurea costus</i>
17	<i>Vajigandha</i>	<i>Withania somnifera</i>
18	<i>Vibhitaki</i>	<i>Terminalia bellirica</i>
19	<i>Amrita</i>	<i>Tinospora cordifolia</i>
20	<i>Ela</i>	<i>Elettaria cardamomum</i>
21	<i>Vidanga</i>	<i>Embelia ribes</i>
22	<i>Twak</i>	<i>Cinnamomum verum</i>
23	<i>Swarnapatra</i>	Gold

According to *Bhaishjya Ratnavali, Adhyayam73* it Improves cognitive skills, dementia, psychomotor retardation. Most of *vaidyas* from Maharashtra uses it for the cases of insomnia due to stress & anxiety.

## DISCUSSION

Meaning of *Chintā* according to The practical Sanskrit-English dictionary is as follows. *Chintā* (चिंता) Care, concern, anxiety, solicitude, Thinking, Sad or sorrowful thought, चिंताजडदर्शनम् (*chintā jadamdarśanam*). In COVID 19 patient this stress is due to financial crisis, loneliness, quarantization, Spam messages on social media, Fake news on Televisions, continuous hammering about COVID19 concerns through all medias i.e., newspapers, TV, YouTube, Facebook. Hence most of people are seen with *rasakshya* due to over thinking (*Chintyanam cha atichintanat*) that leads to deterioration of mental health.

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The significant role of *Manas mitravatak* & *Saraswataristam* in for mental health promotion and restoration in covid 19 & post covid 19 patients is seen due to its activity on *rasavah strotas* & acting on the reason for *rasa dusti*. It also acts on *manovah strotas* as heart is involved in both the *strotas*. One of the major contributing factors is *ojas*. Both the herbo-mineral formulations *raskalpas* acts on *ojas* which stimulates the mind & mental physique of the patient.

## **CONCLUSION**

In ancient ayurvedic literature different topic related with mental physique are described such as *rasavah ,manovah, pranavahstrotas*. In covid19 pandemic especially due to anxiety (*Chintyanam ch ati Chintanat*) *Ras &Manovah Strotas dusti* is seen. The significant role of *manas mitravatak* & *Saraswataristam* is already mentioned in ancient ayurvedic text viz. *sahatrayogam &Bahisajya Ratnawali*. Many *viadyas*(Ayurvedic Doctors) have been prescribed these drugs & got successful results in the management of mental illness in Covid19 patients.

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**HOLISTIC HEALTH MANAGEMENT W.S.R TO MENTAL HEALTH DURING AND  
AFTER COVID PANDEMIC: APPROACHES AND CHALLENGES IN SOCIETY**

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## **INTRODUCTION**

*Ayurveda* is a holistic system of medicine originated and practiced in India long back. It uses fundamentals of Nature and also known as Traditional Indian Medicine (TIM). *Ayurveda* is called “knowledge of life” or more precisely can be said as a “systematic knowledge of the lifespan” or a Whole System of Medicine (WMS). It is fully recognized by the World Health Organization (WHO) as a medical science analogous to Traditional Chinese Medicine (TCM) and has amassed an enormous wealth of empirical healing knowledge. In South Asian countries of origin, it is being practiced since more than 5000 years as an unbroken tradition. And hence it is one of the oldest whole System of Medicine for mankind.

The unique aspect of *Ayurveda* is as its recommendations will often be different for each person regarding foods and lifestyle because it works on *Prakriti* i.e., a constitutional model. Everything in *Ayurveda* has validated by observation, inquiry, direct examination, knowledge and recorded in the ancient texts. It understands that there are energetic forces that influence nature and human beings. These forces are called the *Tridosha* in Human body. Because believes in strong connection between the mind and the body, a huge amount of information is available regarding this relationship. Its aim is to provide guidance regarding food and lifestyle so that healthy people can stay healthy and folks with health challenges can recover their health. One should follow the suggestions in order to be completely healthy.

The word "holism" was coined by Jan Christiaan Smuts in 1926 to describe the concept that living beings are "greater than and different from the sum of their parts". It is a theory that the universe and especially living nature is correctly seen in terms of interacting wholes (as of living organisms) that are more than the mere sum of elementary particles. The word is characterized by the belief that the parts of something are intimately interconnected and are explicable only by reference to the whole. It is dealing with or treating the whole of something or someone and not just a part i.e., the treating physician takes a holistic approach to treat the disease. The term Holistic Health or Holistic Healing comes from the word whole, meaning complete. It is to look at the self from a whole (holistic) perspective and to understand the mind, body and spirit connection and the importance of balancing all aspects of one's life. As per American Holistic Health Association (AHHA), “Rather than focusing on illness or specific parts of the body, this ancient approach to health considers the whole person and how he or she interacts with his or her environment. It emphasizes the connection of mind, body, and spirit. The goal is to achieve maximum well-being, where everything is functioning, the very best that is possible.”

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As per World Health Organization (WHO), "Health" in its broader sense is "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". It has to be managed in an integrated manner. The term Management implies the process of dealing with or controlling things or people. It involves identifying the mission, objective, procedures, rules and manipulation of the human capital of an enterprise to contribute to the success of the enterprise. According to Henri Fayol, "to manage is to forecast and to plan, to organize, to command, to co-ordinate and to control". Fredmund Malik defines it as "the transformation of resources into utility". Philosophy of Holistic Health Management is to take the whole person into consideration, focuses on natural healing and its patient-empowering. The concept of holistic health encourages people to accept responsibility for their own level of wellbeing, and everyday choices that effect their health.

Holistic Health Care is a more universal approach to regular health care. It includes all of the unlimited resources available to each of us. It is defined as viewing one's self from a whole perspective and focusing our health care needs on the mind, body and spirit connection. It also includes accepting personal responsibility, health education, using preventive care and all modalities of care available such as Medicine (Drugs, Herbs, Minerals, Animal products etc.) surgery, chemotherapy, nutrition, rehabilitation, hypnosis, acupuncture, psychotherapy, bodywork, energy work, and spiritual healing and others to mention a few.

### **Holistic Health care approaches:**

Holistic health Care is not only concerned with the absence of disease, but with a positive state of being. We combine the wisdom, traditions and disciplines of Eastern healing arts with the advances of modern Western medicine to achieve this ideal. Patients are encouraged to be responsible for the daily care of their health through diet, exercise, lifestyle and attitudes about what constitutes wellness. Support to patients on every step of the way, helping them to make appropriate choices and take responsibility for their wellbeing. Mind and body are integrated and are inseparable. Holistic health care practitioners do more than just identify and treat a specific ailment. They are trained to look at the various aspects of the lifestyle and health issues of each individual, and design a course of treatment to help, reach optimum level of wellness.

Factors play a significant role in undermining our quality of life and the Potentials impacting our physical health are Poverty, Unemployment, Malnutrition, Crime, Divorce, Lack of Education, Stress etc. The focuses of primary care treatment are Diet, Exercise, Environmental measures, Bio energy enhancement, Relationship & spiritual counseling, Attitude and behavior modifications. The method of treatment in Holistic Health system, which is concerned with complete systems are conceptualizing Mind, Body and Spirit, interconnections through and beyond Spiritual Healing practices.

### **CORE PRINCIPLES OF HOLISTIC HEALTH PHILOSOPHY:**

- Real health involves the "whole" person.
- Mind and body are integrated and inseparable.
- The body contains an energy system that underlies and enlivens the physical body.
- Holistic health treats the "whole" person, not just symptoms and disease.

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- Real health is not just the absence of disease, but a positive state of being.
- Real health is achieved with treatment of causes rather than symptoms, using natural and preventive approaches to health.
- Each person has a responsibility for his/her own health and must be an active participant in his/her own healing.

### **CHALLENGES IN SOCIETY:**

In South Asian countries of origin, Ayurveda has been practiced for more than 5000 years. Due to overlapping of culture, during different Ruler's period in India, it lost its effective perception by people all over the world. It has been observed that in our present scenario we cannot be completely healthy until we achieve balance in our life, with others and in our environments. The true definition of Holistic Health is achieving balance in our life. But we are far away from it, due to our unbalanced life style and adoption of show culture in day to day life. The lack of primary care in the holistic health management taking place, due to unbalanced diet, exercise, environmental measures, relationship, spiritual counseling, attitude, behavior modifications and lack of Bio energy enhancement. Resulting disturbance in our life style, the quality of life and the potentials impacting our physical health as malnutrition, poverty, lack of education, unemployment, stress, crime, divorce and further financial losses also, in term of maintaining health through hospitality expenditure.

Balance health is a major problem for all age groups of people which include young age, middle age and old age groups. A huge amount of money being utilized on health care besides that we already have our own holistic health management system i.e., Ayurveda. It provides balance in life through uses fundamentals of Nature which takes the whole person into consideration, focuses on natural healing and patient-empowering.

It needs awareness in the people, about our own existing, holistic health management system, being practiced in the Ayurveda since ancient time that uses fundamental of Nature, should follow in order to be completely healthy.

### **CONCLUSION AND FUTURE SUGGESTIONS:**

Keeping in view all the above aspects, a study needs to be done focusing following questions:

1. Are the people well aware about Holistic Health Management?
2. Have the people acquired sufficient skill and training about Holistic Health Management?
3. To what extent they need enhancing / improving about Holistic Health Management?
4. Whether the people using skills received from different trainings about Holistic Health Management?

There is a need to bring out the facts on awareness about Holistic Health Management, skill and training needs to assess the level of awareness skills about the Holistic Health Management among the people. The assessment of socio-economic and demography on awareness skills, problems in perception of Holistic Health Management system and proper training for awareness and skill development about the holistic health need to be work out.

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