**AN OBSERVATIONAL STUDY TO EVALUATE THE EFFICACY OF**

**IMMUNOBOOSTER AYUSH THERAPY AS PREVENTIVE MEASURE FOR**

**COVID 19**

By

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Project Work Submitted to

Department of AYUSH, GoK



Under the guidance of

***Department of AYUSH, GoK***

***Government Ayurveda Research Centre,***

***Mysuru- 570020***

**GOVERNMENT OF KARNATAKA**

**DEPARTMENT OF AYUSH**

**GOVERNMENT AYURVEDA RESEARCH CENTRE, MYSURU**

# 

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I hereby declare that this project entitled **“AN OBSERVATIONAL STUDY TO EVALUATE THE EFFICACY OF IMMUNOBOOSTER AYUSH THERAPY AS PREVENTIVE MEASURE FOR COVID 19”** is a bonafide and genuine research work carried out by me as the part of project done under Government Ayurveda Research Centre, Mysuru.

Signature of the project co-ordinator

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Place : Bangalore

**LIST OF ABBREVIATIONS**

|  |  |  |
| --- | --- | --- |
| **Sl.No.** | **Abbreviated Forms** | **Full Forms** |
| 1. | SARSCoV2 | Severe Acute Respiratory Syndrome Coronavirus 2 |
| 2. | WHO | World Health Organisation |
| 3. | AYUSH | Ayurveda, Yoga, and Naturopathy, Unani, Siddha and Homoeopathy |
| 4. | COVID 19 | CoronaVirus Disease 2019 |
| 5. | RNA | Ribonucleic acid |
| 6. | MERS-COV | Middle East Respiratory Syndrome-Coronavirus |
| 7. | NSP | Non- structural Protein |
| 8. | CEPI | [Coalition for Epidemic Preparedness Innovations](https://cepi.net/covax/) |
| 9. | UNICEF | United Nations International Children's Emergency Fund |
| 10. | CDSCO | Central Drugs Standard Control Organization |
| 11. | EUA | Emergency Use Authorisation |
| 12. | EDTA | Disodium edetate dihydrate |
| 13, | PAMP | Pathogen Associated Molecular Pattern |
| 14. | DAMP | Damage Associated Molecular Pattern |
| 15. | ARDS | Acute Respiratory Distress Syndrome |

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1. **ACKNOWLEDGEMENTS**

First and foremost, I would like to express my gratitude to Commissioner, Department of AYUSH, Government of Karnataka, for giving me this opportunity.

I would like to deeply express my sincere gratitude to my Commissioner, Smt. Meenakshi Negi, IFS, Sri Ramachandra IFS, Sri Manjunath IAS, Smt. Leelavathi IAS, for giving me invaluable guidance and support throughout the research.

I also express my heartfelt thanks to the official COVID 19 protocol designing committee headed by Dr N Anjaneya Murthy, for providing support and guidance for this project. I am also grateful to the members of the committee Dr Nagaraj Pujari, Dr A S Prashanth, Dr Shivalingappa J Arakere, Dr Ananda Katti, Dr Venkata Krishna, Dr Santhosh Belavadi, Dr Raghavendra Naik, Dr Jagadesh Yajji, Dr Srinivas Odeyar and Dr Sarbeshwar Kar. My special heartfelt thanks to Dr Shridhar B S Joint Director, Department of AYUSH, for his co-ordination and advice.

I thank Prof. Lancy D’souza, Professor, Dept. of Studies in Psychology, for helping me to analyze statistics and I also thank Prof. Devaki, Department of Molecular Biology for helping me to collect the data and designing the questionnaire. I also thank Dr. Shobhitha Tantry, BNYS, Dr. Renuka, BNYS, for collecting and developing the materials required for literary review and presentation of data, analysis of data in a systemic way. I too express my gratitude to Miss Prerana Hebbar and Miss Deeksha from Department of Molecular Biology for collection of data in a scientific way.

I also sincerely thank the office staff of GARC for their support and my special thanks to all postgraduate students of GAMC, Mysuru, specially, Dr. Amrutha ballal, Dr Shwetha Jain, Dr Srikanth, Dr Haseena for implementation of this project.

Last but not the least, I would like to thank all subjects involved in this project and gave their valuable opinion and helping us to complete this project with their unbiased inputs which make our dream of successful completion of this project a reality.

1. **ABSTRACT**

**Background and Objectives:**

The coronavirus disease2019 (COVID-19) is caused by the novel severe acute respiratorysyndromecoronavirus2 (SARS-CoV-2). SARS CoV2 infection may be asymptomatic or it may cause a wide spectrum of symptoms, such as mild symptoms of upper respiratory tract infection, gastrointestinal ifection and if neglected it may lead to life-threatening sepsis. Symptoms include fever, dry cough, fatigue, shortness of breath, aches and pains, sore throatand very few people will report diarrhea, nausea or a runny nose.

Ayurveda and Unani being ancient systems of medicines have various formulations that can both reduce the symptoms and also treat the root cause of the disease. Still there is no standardized protocol both in Ayurveda and Allopathy, hence, to check the spread of infection in the population and the community, preventive strategy can be adapted wherein such strategy should be simple, accepted by community, valid and it should not have any side effect and it also cater the needs of geriatric population for which there are many health issues. In this regard a analytical, integrated, logical, immunobooster AYUSH tool was developed and designed and evaluated in a systematic, scientific way to showcase validity and effectiveness of immunobooster therapy.

The objective of the study is to determine the efficacy, safety and side effects of the immunobooster AYUSH therapy in the prevention of COVID 19 pandemic and the study revealed immunobooster integrative therapy is the best answer for all future pandemics as a standardized preventive tool.

**Methods:**

The study was an observational and clinical study with test designed and data collected in a frequent period of once in 3 months. 478 subjects were selected randomly from Infosys, software company, Mysuru as per the inclusive and exclusive criteria. The participants of the study were given immunoboosters for a period of one month and the effectiveness was recorded in a well-designed questionnaire format and assessed according to parameters and statistical tests. The assessment tool used was SPSS software for the statistical analysis.

**Results:** The study showed highly significant results at the end of the intervention. There was improvement in the immunity of the participants after the intake of the immunobooster as observed in the data collected. Most of the participants who had taken the immunobooster had prevented the COVID 19 infection while those who got the infection recovered quickly with minimum interventions.

**Interpretations and Conclusions:** The results thus imply that the prescribed immunobooster drugs have had a significant impact on the improving overall immunity of the subjects and thus preventing the COVID 19 infections and also treating the symptoms.

**Keywords: COVID 19, SARS virus, immunobooster Ayurveda, Samshamani Vati, Arqe Ajeeb**

1. **INTRODUCTION**

COVID-19 is an illness caused due to Novel Corona Virus 2, now called as Severe Acute Respiratory Syndrome Corona Virus 2 (SARSCoV2). It was first reported from Wuhan City, China on 31stof December 2019. It was declared as a pandemic by WHO on March 11,2020, it has confirmed its presence in all continents except Antarctica1.

अपितुखलुजनिदोद्ध्वंसनमकेनव

व्याधिना यगिदसमानप्रकृत्याहारदेहबलसात््यसत्त्ववयसांमनष्याणांकस्माद्धभवतीतत||५||

Agnivesha asks Punervasu Atreya that how different individuals havingdifferent physical constitution, food habits, age and satmya may suffer from same disease. This is the context where the concept of epidemics and pandemics begins in Ayurveda. Atreya considers that such conditions are due to vitiated vayu and other factors and the diseases are known as “Janapadodhwamsavyadhis”. An entire chapter named as“JanapadodhwamsiyaVimanam” has been dedicated to explain the causative factors and treatment of Janapadodhwamsa vyadhis.

Atreya who begins with term JANAPADODHWAMSA – destruction of a community or human settlements ends the chapter with DESHODHWAMSA- destruction of countries.

देशोद्ध्वंसतनममत्तीयेपवमानेमतुनसत्तमः||५२||

Presently there is no definite treatment for Covid not only in Ayurveda but also in allied science. Many hypothetical treatment protocols are available and clinically proven to be efficacious based on signs and symptoms with good efficacy rate still the above hypothetical protocol are not a standardized prescribed protocol and are having many limitations and those protocols are subjected to validation from scientific fraternity.

In Ayurveda, there is no direct reference for Covid 19 because the disease entity itself is very new and this type of diseases are not existing in the Samhita period of Ayurveda. Still, our fraternity is trying their best to find out a suitable remedy which can be a boon to the mankind. In this regard, there are two strategies adopted by department of AYUSH to find a suitable guideline which is preventive in nature and also to find a suitable guideline which can be a curative guideline or to find a suitable guideline which is integrated in nature. As an implementation of the above strategies a vibrant preventive guideline has been designed and developed by department of AYUSH in association with Govt Ayurveda Research Centre and distributed immunobooster drugs as a preventive strategy all over Karnataka to the needy subjects through several government agencies. In this strategy, Samshamani Vati and arq-e-ajeeb is given in a prescribed dose for 30 days as a part of preventive strategy to halt rapid spread of covid 19 to the population in First phase of covid and Second phase of Covid. Thus, halting the rapid spread of covid 19 and prevent morbidity and mortality which was most evident in phase 2 of covid 19 pandemic. This study intends to validate the efficacy of mass Ayush Immunobooster Therapy which was a preventive strategy adopted by department of Ayush to halt rapid spread of covid 19 pandemic. The methodology adopted by the researcher to validate the immunobooster therapy by designing and developing a questionnaire and proceed with scientific data collection and analyse the data with suitable statistical tool so that the efficacy and validity of immunobooster Ayush therapy can be measured systematically, scientifically and the methodology of validation become apt.

1. **OBJECTIVES**

Pandemics, such as COVID-19, pose significant threats to nations, making their management crucial through various means. Ayurveda and Unani systems of medicine play a vital role in symptom management and immune system enhancement during such pandemics. The main objectives of this study are centered around this premise:

* To assess the effectiveness of immunobooster AYUSH therapy in preventing COVID-19 infection or reducing its severity in individuals who have undergone this therapy. This objective involves evaluating the outcomes of individuals who have received the immunobooster AYUSH therapy, including their susceptibility to the virus, the presence or absence of symptoms, and the severity of symptoms if present.
* To compare the outcomes of individuals who have undergone immunobooster AYUSH therapy with those who have not received this therapy. This objective aims to establish a comparative analysis between individuals who have received the AYUSH therapy and those who have not, with a focus on their susceptibility to COVID-19, incidence of infection, and overall health outcomes.
* To determine the safety and side effects of immunobooster AYUSH therapy in individuals participating in the study. This objective involves monitoring and assessing any adverse effects or safety concerns associated with the AYUSH therapy.
* To contribute to the evidence base regarding the efficacy of immunobooster AYUSH therapy as a preventive measure for COVID-19. This objective focuses on adding to the body of scientific knowledge surrounding the potential benefits and limitations of AYUSH therapy in the context of COVID-19 prevention.

In summary, this observational study aims to evaluate the effectiveness, safety, and comparative outcomes of immunobooster AYUSH therapy as a preventive measure for COVID-19. It seeks to provide valuable insights into the potential role of AYUSH therapy in enhancing immunity and reducing the risk of COVID-19 infection, contributing to the ongoing efforts to combat the pandemic.

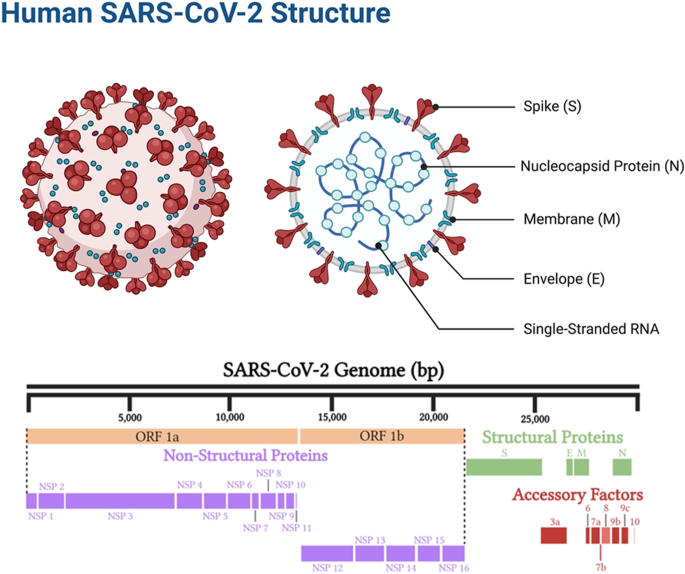
1. **REVIEW OF LITERATURE**
2. **COVID19- disease review**

The coronavirus disease2019 (COVID-19) is caused by the novel severe acute respiratorysyndromecoronavirus2 (SARS-CoV-2). SARS CoV2 infection may be asymptomatic or it may cause a wide spectrum of symptoms, such as mild symptoms of upper respiratory tract infection and life-threatening sepsis. COVID-19 first emerged in December 2019, when a cluster of patients with pneumonia of unknown cause was recognized in Wuhan, China.2

HISTORY: Coronaviruses are enveloped positive sense RNA viruses ranging from 60 nm to 140 nm in diameter with spike like projections on its surface giving it a crown like appearance under the electron microscope; hence the name coronavirus.3

ORIGIN AND SPREAD: In December 2019, adults in Wuhan, capital city of Hubei province and a major transportation hub of China started presenting to local hospitals with severe pneumonia of unknown cause. Many of the initial cases had a common exposure to the Huanan wholesale seafood market that also traded live animals. The surveillance system (put into place after the SARS outbreak) was activated and respiratory samples of patients were sent to reference labs for etiologic investigations. On December 31st 2019, China notified the outbreak to the World Health Organization and on 1st January the Huanan sea food market was closed. On 7th January the virus was identified as a coronavirus that had >95% homology with the bat coronavirus and > 70% similarity with the SARS- CoV. Environmental samples from the Huanan sea food market also tested positive, signifying that the virus originated from there.4 The number of cases started increasing exponentially, some of which did not have exposure to the live animal market, suggestive of the fact that human-to-human transmission was occurring5. The first fatal case was reported on 11th Jan 2020. Cases of COVID-19 in countries outside China were reported in those with no history of travel to China suggesting that local human-to-human transmission was occurring in these countries6.

SARS-CoV-2 belongs to the genus Betacoronavirus. Of the human Betacoronavirus, including SARS-CoV-1, and Middle East Respiratory Syndrome-Coronavirus (MERS-CoV)7. SARS-CoV-2 bears the highest genetic sequence similarity to SARS-CoV-18.



**Fig 1: Human SARS-COV2 Structure**

 Key characteristics of SARS-CoV-1 and 2 include: 1) a positive-sense RNA virus with a large genome of ~30 kilobases; 2) a large, enveloped virus containing a helical nucleocapsid with the virus’s genetic code, with an exterior studded in several spike proteins that facilitate the infection of host cells), and 3) similar genomic structures. The first 2/3 of both genomes encodes for two macro polypeptides pp1a/pp1b. Pp1a/pp1b are auto-proteolytically processed to generate 16 non-structural proteins (NSP)9.

INTERNATIONAL AND NATIONAL SCHEMES:

INTERNATIONAL:

COVAX is the vaccines pillar of the Access to COVID-19 Tools (ACT) Accelerator. The ACT Accelerator is a ground-breaking global collaboration to accelerate the development, production, and equitable access to COVID-19 tests, treatments, and vaccines.

COVAX is co-led by the [Coalition for Epidemic Preparedness Innovations](https://cepi.net/covax/) (CEPI), [Gavi](https://www.gavi.org/covax-facility) and the World Health Organization (WHO), alongside key delivery partner [UNICEF](https://www.unicef.org/supply/covax-ensuring-global-equitable-access-covid-19-vaccines). In the Americas, the [PAHO Revolving Fund](https://www.paho.org/en/revolvingfund) is the recognized procurement agent for COVAX. It aims to accelerate the development and manufacture of COVID-19 vaccines and to guarantee fair and equitable access for every country in the world.

[COVAX](https://www.who.int/initiatives/act-accelerator/covax/covid-19-vaccine-country-readiness-and-delivery): It provides normative guidance on vaccine policy, regulation, safety, R&D, allocation, and country readiness and delivery.

WHO, UNICEF and Gavi, the Vaccine Alliance[launched](https://www.unicef.org/press-releases/unicef-and-who-partnership-gavi-ask-ted-chaiban-serve-global-lead-coordinator-covid) the [COVID-19 Vaccine Delivery Partnership](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-19-vaccines/covid-19-vaccine-delivery-partnership) (CoVDP). The CoVDP builds on existing resources to support the AMC 92 and focuses foremost on the 34 countries that were at or below 10% coverage in January 2022.

NATIONAL:

Three vaccines that have been granted authorization for restricted use in emergency situation by the Central Drugs Standard Control Organization (CDSCO) in India are Covishield® (AstraZeneca's vaccine manufactured by Serum Institute of India), Covaxin® (manufactured by Bharat Biotech Limited) and Sputnik V (developed by Gamaleya Research Institute, Russia), which is the third vaccine to get approval from the Drugs Controller General of India (DCGI).

Emergency Use Authorization (EUA) is a regulatory mechanism to allow the use of vaccines and medicines to prevent and or reduce the impact of life-threatening diseases or conditions as caused by COVID-19. However, before grant of the EUA, there are rigorous assessments of laboratory and clinical trial data, including data on quality, safety, production of protective antibodies and efficacy. Safety is particularly critical aspect of this scrutiny and a risk-versus-benefit evaluation is done in the context of a public health emergency. Full licensure is obtained when the manufacturer submits the complete data. EUA by Indian regulators is aligned with global guidelines.

Concept of EUA always existed to save the lives of people all over the world with vaccine and medicines for life threatening diseases while companies continue to obtain additional safety and effectiveness information to enable full licensure. Previously, EUAs have been granted to vaccines for outbreaks due to anthrax, Ebola, enterovirus, H7N9 influenza, and Middle East respiratory syndrome. As of January 2021, nine COVID-19 vaccines were in emergency use in numerous countries around the globe.

Both the Indian COVID-19 vaccines and the Russian vaccine Sputnik V have conducted their phase I, II & III trials. Covishield® has completed its Phase III trials in UK and the bridging trial in India.

Covishield® vaccine, manufactured by the Serum Institute of India, is a Viral Vector-based Technology which is also used to manufacture Ebola vaccine. Covaxin® vaccine, manufactured by the Bharat Biotech, is a whole-Virion Inactivated Corona Virus Vaccine which is also used to manufacture vaccines like Influenza, Rabies and Hepatitis-A. Sputnik V is developed by Gamaleya Institute in Russia and is working closely with Dr Reddy’s Laboratories for Gam-COVID-Vac Combined vector vaccine.

Composition of Covishield® includes inactivated adenovirus with segments of Corona Virus, Aluminium Hydroxide Gel, L-Histidine, L-Histidine hydrochloride monohydrate, Magnesium chloride hexahydrate, Polysorbate 80, Ethanol, Sucrose, Sodium chloride, and Disodium edetate dihydrate (EDTA). Composition of Covaxin® includes inactivated Corona Virus, Aluminium Hydroxide Gel, TLR 7/8 agonist, 2-Phenoxyethanol and Phosphate Buffered Saline. Composition of Sputnik V: Component I Active substance: replication incompetent recombinant adenovirus serotype 26 particles containing the SARS-CoV-2 protein S gene. Component II Active substance: replication incompetent recombinant adenovirus serotype 5 particles containing SARS-CoV-2 protein S gene. Excipients: Tris (hydroxymethyl) aminomethane, sodium chloride, sucrose, magnesium chloride hexahydrate, EDTA disodium salt dihydrate, polysorbate-80, ethanol 95%, and water for injection.

As per the permission granted by the Drugs Controller General (India), the dose schedule is as follows:

* Covishield®: two doses, an interval of 12-16 weeks
* Covaxin®: two doses at an interval of 4-6 weeks12

AROGYA SETU APP:

[Aarogya Setu](https://www.mygov.in/aarogya-setu-app/) is a location-based mobile app launched by the Government of India to connect health services and the people of India in the combined fight against COVID-19. The app has augmented GoI's initiatives in proactively reaching out to and informing the users the potential risk of infection, best practices and relevant medical advisories pertaining to the containment of COVID-19 pandemic. The app has been developed through Public Private Partnership under guidance of NIC13.

COVID WARRIORS:

COVID Warriors website serves the purpose of augmenting human resources and capacity building in India's crusade to save lives in the times of Novel Coronavirus (COVID-19).

The website offers information about various resources available nationwide in the war against the COVID-19 contagion. This covers a detailed list of Hospitals (CPSEs Hospitals, ESIC Hospitals, Railway Hospitals, Defense Hospitals and Port Hospitals), Nodal Officers by States and Districts, Associations, and personnel which includes and is not limited to MBBS Doctors (& MBBS Students), Nurses, Dentists, Pharmacists, AYUSH personnel, ASHA Workers, NSS, NCC, Ex-Servicemen and others related to these disciplines.

TELEMEDICINE:

The Government of India has issued Telemedicine Practice guidelines on 25th March, 2020 which provide a robust framework for practice of telemedicine14.

Telemedicine becomes all the more important owing to its major advantages–

•    Saving of cost and effort especially of rural patients, as they need not travel long distances for obtaining consultation and treatment.   
•    Reducing the inconvenience/impact to family and caregivers and social factors.   
•    Reducing the burden on the secondary hospitals.   
•    Higher likelihood of maintenance of records and documentation, hence, minimizes the likelihood of missing out advice from the doctor and other health care staff.   
•    The doctor has an exact document of the advice provided via tele-consultation. Written documentation increases the legal protection of both the parties. It provides patient’s safety, as well as health workers’ safety especially in situations where there is a risk of contagious infections.   
•    Enables the availability of vital parameters of the patient available to the physician with the help of medical devices such as blood pressure, blood glucose, management15.

Government Ayurveda Research Centre is a nodal agency of Telemedicine headed by Assistant Director, GARC, Mysuru under the guidance of Commissioner, Department of AYUSH, worked for 324 days from April 23 2020 to February 28 2021involving 340 medical volunteers from 28 different institutions. The whole team received more than 8 lakh calls at Infosys, Mysuru and the technology and equipments were provided by Infosys, Mysuru.

PATHOGENESIS:

The pathogenic phases of COVID-19 remain incompletely understood. Previous studies have proposed SARS may consist of three phases: Viral replication, immune hyperactivity and pulmonary destruction. The clinical phases of COVID-19 have been recently proposed: Viremia phase, acute phase and recovery phase. It is generally hypothesized that the course of infection goes through the following stages: Viral invasion and replication, dysregulated immune response, multiple organ damage and recovery. Firstly, the virus enters the host cells, where it replicates, assembles and is released extracellularly to target cells, and this directly causes the damage and destruction of parenchymal cells such as alveolar epithelial cells. At the same time, a large number of pathogen associated molecular pattern (PAMP) and damage associated molecular pattern (DAMP) molecules are released to stimulate the innate immune response, induce inflammatory cell infiltration, release large quantities of cytokines, chemokines, proteases and free radicals, causing ARDS, sepsis and MODS. It has been observed that the pathological findings of COVID-19-induced pneumonia appear to resemble those seen in SARS-CoV and MERS-CoV infection including bilateral acute changes with diffuse alveolar damage and vascular congestion, patchy inflammatory cellular infiltration, intra-alveolar edema, hemorrhage, proteinaceous exudate, denudation and reactive hyperplasia of pneumocytes, as well as the presence of multinucleated giant cells, but hyaline membrane formation was is not prominent observed. After the initial critical stage, the inflammatory response is gradually resolved, the damaged organ gradually recovers, and some of the damaged organs enter fibrosis and chronic stage, such as chronic critical illness, persistent inflammation, immunosuppression and catabolism syndrome.

It is speculated that the major pathological alterations that take place in the vital organs during COVID-19 may be caused directly by the cytopathic effect mediated by SARS-CoV-2, and indirectly as a result of the harmful immune responses induced by SARS-CoV-2, but the relative importance of each of these requires further study. There is some evidence supporting the more important role of an abnormal immune response (rather than a direct viral cytopathic effect) in the effects of COVID-19. It has been observed that patients with COVID-19 had the highest viral load during the early stage. The timeline of COVID-19 infection showed that the median time from onset of symptoms to first hospital admission was 7 days, 9 days till ARDS, and 10.5 days till ICU. The association of worsening clinical progression with declining viral loads and the onset of an immunological response, plus the presence of significantly elevated cytokines levels suggested that severe lung damage was largely immunopathological in nature.

#### SARS-CoV-2 invades host cells

It is widely accepted that human CoV transmissibility and pathogenesis primarily depends on the interactions between the virus and specific host cells. Receptor recognition and entry is the first step of viral infection and is the key determinant of tissue tropism. Enhanced binding affinity between SARS-CoV-2 and ACE2 has been proposed to correlate with elevated virus transmissibility and disease severity in humans. CoV entry into host cells is a multi-step process involving several distinct domains in the S protein that mediates viral attachment to the target cell surface, receptor engagement, protease processing and membrane fusion. Subsequently, the viral genome is released into the cytoplasm, and the virus replicates within the host cells. Notably, three CoV (human CoV-NL63, SARS-CoV and SARS-CoV-2) that bind to the same receptor (ACE2) cause diseases of varying severity, indicating that there may be other pathogenic factors underlying the differences between these three coronaviruses . It has been demonstrated that the overall ACE2-binding mode of the SARS-CoV-2 S receptor-binding domain (RBD) is nearly identical to that of the SARS-CoV RBD, but SARS-CoV-2 RBD takes a more compact conformation, which enhances its ACE2-binding affinity. Walls et al showed that the RBD of SARS-CoV-2 S protein and SARS-CoV S protein bind with similar affinities to human ACE2 to enter cells. However, another study observed that SARS-CoV-2 and ACE2 have an affinity that is 10-20 times that of SARS-CoV, which may be related to the higher transmissibility seen in SARS-CoV-2.

The characteristic distribution of SARS-CoV-2 and ACE2 may contribute to revealing the pathogenic mechanisms of COVID-19. SARS-CoV-2 viral RNA can be detected in respiratory secretions, peripheral blood, urine and stool specimens of some patients with COVID-19, which coincides with various transmission pathways in SARS-CoV-2 infection. Virions in the blood that are released from the primary target (for example the lung) may circulate and infect host cells in the remote secondary organs and tissues.

On the other hand, ACE2 is expressed in the lungs, heart, renal system and gastrointestinal tract, of which it is abundantly present in the epithelia of the human lungs and small intestines. These observations may indicate that ACE2 serves an important role in extrapulmonary manifestations of COVID-19, such as gastrointestinal symptoms. It is noteworthy that gut-lung crosstalk may be involved in the pathogenesis of COVID-19; however, the potential efficacy of probiotics as one of the novel therapeutic approaches of COVID-19 requires further exploration. In addition, ACE2 is widely expressed in the vascular endothelial cells and smooth muscle cells in all organs, which may cause extensive vascular endothelial cell injury and this may be the molecular basis by which multiple organ lesions are formed in COVID-19-infected patients. Cardiac injury has been reported in 7-23% of patients with COVID-19, which is associated with a higher mortality. A more recent study showed that patients with basic heart failure disease showed increased ACE2 expression, suggesting that cardiac cells with high expression of ACE2 may act as the target cells of SARS-CoV-2.

#### Direct cytopathic effect of SARS-CoV-2

After entering the host cells, the virus can replicate and survive within the target cells. It is speculated that the life cycle of SARS-CoV-2 may be similar to other single positive-strand RNA coronaviruses to a certain extent. After replication is complete, new virus particles are assembled in the endoplasmic reticulum, after which they are released outside of the cell. At the same time, target cells lyse or form syncytia and other lesions occur. SARS-CoV-2 may induce a substantial cytopathic effect on host cells, thus early effective antiviral treatment may reduce the risk of progression, and thereby mortality. It is unclear whether SARS-CoV-2 interferes with target cells in other ways to cause host cell damage or apoptosis, including mitochondrial damage, endoplasmic reticulum stress, intracellular environment alterations (such as pH changes) or enzyme dysfunction.

In view of the expression of ACE2 in immune cells, including monocytes/macrophages and lymphocytes, it is unclear whether SARS-CoV-2 can directly infect certain immune cells to cause immune cell damage. More importantly, immune cells may migrate within the body. Therefore, the SARS-CoV-2-infected immune cells may allow the virus to disseminate systemically. Pathological studies using COVID-19 models have shown that the common type of damage caused by SARS-CoV-2 infection also occurs in the immune system, and spleen and lymphoid atrophy have been shown to be associated with marked cytokine activation, suggesting that SARS-CoV-2 might directly damage immune cells.

#### Initiation of the innate immune response

The innate immune response, which uses various pattern recognition receptors (PRRs) to recognize and respond to viruses, is an important barrier to viral infection. The intensity of the host immune and inflammatory responses are closely related to the type of invading virus, the viral load, and the age and immune status of the host. In general, host innate immune cells are stimulated to produce antiviral and proinflammatory cytokines and chemokines to eliminate the invading viruses.

#### PAMP-PRR pathway

The viral RNA that is present within the infected cells is detected by various PRRs in the immune cells, which leads to the secretion of type I interferons (IFNs), proinflammatory cytokines and chemokines. Previous studies have demonstrated that key components of the innate immune signaling pathways serve important roles as protective factors against SARS-CoV disease, including STAT1 and myeloid differentiation primary response protein MyD88. Gralinski et al identified an adaptor protein (TIR domain-containing adapter molecule 2) in the toll-like receptor signaling pathway that may be involved in the development of SARS. The IFN response, a key component of antiviral innate immunity, is initiated by retinoic acid-inducible gene-I-like receptor-mediated recognition of viral replicative intermediates in the cytosol. However, Channappanavar et al showed that robust SARS-CoV replication and delayed IFN-I signaling promotes severe SARS, as IFN-I could promote the accumulation of pathogenic macrophages, thus causing lung immunopathology and vascular leakage. In this regard, the specific pathogenic PAMPs of SARS-CoV-2 and the corresponding PRRs and signaling pathways remain to be systemically identified.

Macrophages are crucial components of innate immunity and potential mediators of immunopathology. Moreover, macrophages are the main target cells for SARS-CoV replication. MERS-CoV and SARS-CoV can easily infect and robustly replicate in human macrophages and dendritic cells, inducing the aberrant production of proinflammatory cytokines and chemokines. In SARS-CoV infection, viroporin 3a has also been shown to induce the activation of nucleotide oligomerization domain-like receptor protein 3 inflammasome and the secretion of IL-1β in macrophages, suggesting that PAMP-PRR signaling in macrophages may result in the release of proinflammatory cytokines in COVID-19.

#### DAMP-PRR pathway

Following cellular injury and necrosis, endogenous DAMPs can be released, such as DNA, RNA, ATP, heat shock proteins, high mobility group protein B1 and the extracellular matrix, which could be recognized and activated by corresponding PRRs, and promote the release of cytokines and chemokines, and this may further aggravate the inflammatory response and tissue damage, forming a vicious cycle. It is speculated that both DAMPs and PAMPs may also contribute to the systemic dysregulation of the innate immune response and may be involved in the development of MODS in COVID-19. After SARS-CoV-2 activates PRRs, it may induce the antiviral innate immune response, and also lead to cell damage and organ dysfunction.

#### Adaptive immune response

Antigen-presenting cells present antigen peptides to T and B cells for recognition, thereby inducing cellular and humoral immunity. Ni et al characterized SARS-CoV-2-specific humoral and cellular immunity in recovered patients with Covid-19. Both T cells and B cells were detected in newly discharged patients. In addition, Spearmen's correlation showed that the neutralizing antibody titers were significantly positively correlated with the numbers of NP-specific T cells. These findings suggested both B and T cells participate in immune-mediated protection to viral infection.

#### Cellular immune response

The role of T cells and its subsets in resisting COVID-19 remains unclear. Previous studies have confirmed that the S protein of SARS-CoV is the primary antigen protein that induces the host immune response, and serves an important role in activating cytotoxic T cell responses and causing humoral immune responses. Xu et al found that the proportions of circulating CD4+ and CD8+ T cells were substantially decreased in patients infected with COVID-19, but their status was hyperactivated. In addition, there is an increased percentage of highly proinﬂammatory T helper 17 (Th17) cells and high numbers of cytotoxic CD8+ T cells, indicating that the overactivation of T cells may partly account for the severe inflammatory response. However, the disease is more severe when lymphocytopenia is present in COVID-19, suggesting that the T cell response may be necessary for SARS-CoV-2 clearance. Diao et al observed that in addition to a reduction in the number of T cells, surviving T cells are functionally exhausted in COVID-19. In addition, T cell subpopulation differentiation and functional imbalance are key factors in the development of some inflammatory diseases. Therefore, an imbalance in the ratio of Th1/Th2 and Th17/regulatory T cells in COVID-19 may be a research topic that requires further study.

#### Humoral immune response

The host humoral response against SARS-CoV-2 comprises specific IgA, IgM and IgG responses. Most patients with COVID-19 have a specific Ab response ≥10 days following the onset of symptoms. In a recent study of 82 confirmed and 58 probable COVID-19 cases, the specific IgM and IgA Abs were detected on day 5 (IQR 3-6), while IgG was detected on day 14 (IQR 10-18) after symptom onset. However, the persistence of neutralizing Abs for SARS-CoV-2 requires further study.

Antiviral neutralizing Abs play a pivotal role in viral clearance. The S protein RBD is specific for SARS-CoV-2 and may be the direct target for neutralizing Abs. Tian et al assessed the cross-reactivity of anti-SARS-CoV Abs with SARS-CoV-2 S protein. This previous study revealed that the epitope of CR3022, a SARS-CoV-specific human monoclonal Ab, which does not overlap with the ACE2 binding site, could bind potently with SARS-CoV-2 RBD. Most recently, the neutralizing Ab from three convalescent SARS patients was reported to reduce SARS-CoV-2-driven cell entry, although with lower efficiency compared with SARS-CoV, suggesting that Ab responses raised against SARS-CoV S protein during infection or vaccination could at least partially protect against SARS-CoV-2 infection. It has also been suggested that convalescent plasma in patients with COVID-19 might be useful as a potential therapy. On the other hand, Ab-dependent cell-mediated cytotoxicity may also be involved in cellular damage and organ injury. The Fc receptor-mediated Ab-dependent enhancement of SARS-CoV-2 infection may additionally lead to inflammatory responses.

#### Hypercytokinemia and organ damage

COVID-19 can cause both pulmonary and systemic inflammation, leading to MODS in high risk patients. Organ dysfunction is the key diagnostic criterion for severe or critical SARS-CoV-2 pneumonia. The most frequent organ dysfunction in patients with severe and critical COVID-19 includes ARDS, shock, acute myocardial injury, liver injury, kidney injury and MODS. The most frequent type of organ dysfunction in patients with severe and critical COVID-19 admitted to the ICU includes ARDS (61.1%), arrhythmia (44.4%), shock (30.6%), myocardial injury (22.2%) and acute kidney injury (8.3%). Another clinical trial indicated that the majority of critically ill patients with COVID-19 had organ function injury, including ARDS (67%), acute kidney injury (29%), liver dysfunction (29%) and cardiac injury (23%), and 71% of these patients required mechanical ventilation. It is generally assumed that the fundamental pathophysiology of critical COVID-19 is severe ARDS.

The involvement of multiple organs may be related to the direct damage of target cells by SARS-CoV-2 and improper host responses, such as the immune-inflammatory response. The effects of the host immune response are a double-edged sword, both protecting the host (immunity) by clearing the infection, and harming the host by inducing tissue and cell damage, resulting in immunopathology and worse clinical outcomes. In other words, cytokines and chemokines released from activated immune cells not only participate in the antiviral immune response, but can also cause cell damage and organ dysfunction. The optimal objective is to achieve a careful balance in the immune response, which could eliminate the virus, whilst avoiding inflammatory-mediated organ injury.

Hypercytokinemiais an uncontrolled host inflammatory state that is characterized by fulminant MOD and elevated proinflammatory cytokine responses. Hypercytokinemia serves a key role in pathogenic inflammation both in severe SARS and COVID-19. The cytokines and chemokines found in MERS-CoV-infected cells share a similar expression profile to SARS-CoV-infected cells. Several studies from humans who succumbed to highly pathogenic human CoV infections, such as SARS and MERS, have also suggested that a dysregulated immune response and immunopathology occurred, resulting in excessive inflammation and lethal consequences during human CoV infections. Macrophages in the lung tissue are proposed to be the primary inducer of hypercytokinemiaand underlie the pathogenesis of MERS and SARS. In serum from patients with COVID-19 with a poor outcome, there was a significant increase in CRP, IL-2, IL-7, IL-10, G-CSF, IP10, MCP-1, MIP-1A and TNF-α, characterized as hypercytokinemia. Chen et al  also demonstrated elevated cytokine levels (IL-6, IL-10 and TNF-α) in severe COVID-19. A recent study reported that COVID-19 is associated with an elevated cytokine profile that is similar to that observed in secondary hemophagocytic lymphohistiocytosis. Findings from autopsies and serum of patients with COVID-19 suggest a crucial immune-inflammatory implication in the progression to ARDS and MODS. ARDS caused by SARS-CoV-2 infection seems to primarily result from exaggerated and uncontrollable inflammation initiated by viral replication. High levels of proinflammatory cytokines may lead to tissue damage in the heart, liver, kidney and the central nervous system, causing sepsis, shock or multiple organ failure. The detailed expression profile of the cytokine and chemokine responses in COVID-19 requires further investigation and comparison with that in MERS and SARS.

Acquired immune-induced proinflammatory reactions (including Th17 and cytotoxic T lymphocyte accumulation) may also serve an important role in tissue damage caused by hypercytokinemia. This exacerbated detrimental inflammatory response towards invading viruses is termed sepsis. It is suggested that appropriate immunomodulatory treatments according to the changes of patients' immune status may be the key breakthrough in treatment. Most recently, preliminary data have shown that dexamethasone resulted in lower 28-day mortality amongst patients hospitalized with COVID-19 who were receiving respiratory support. In addition, proteolytic enzymes (such as elastase, collagenase, cathepsin and matrix metalloproteinase) released at the site of inflammation may also mediate tissue and organ damage. Oxidative stress (such as increased reactive oxygen species and reactive nitrogen species) is an important pathway that contributes to numerous inflammatory pathological processes, including in patients infected with COVID-19. The oxidative damage imposed on host tissues via polymorphonuclear cells and macrophage activation may lead to tissue damage and organ dysfunction. Considering the harmful effects of oxidative stress in COVID-19, antioxidant therapies using bioactive compounds, as well as encouraging healthy lifestyles as a potential treatment is an attractive and practical strategy that warrants further study in the treatment of COVID-19.

#### Immunosuppression

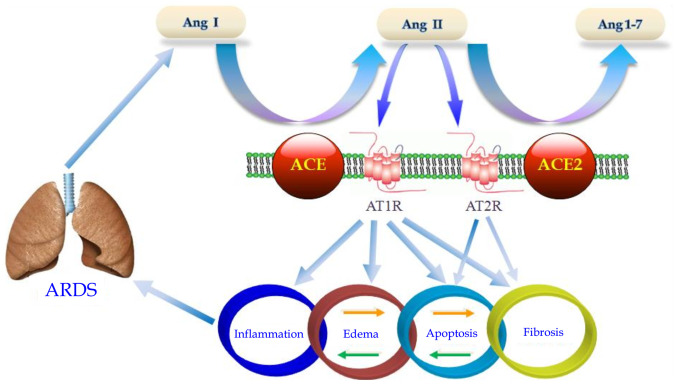
It has been observed that lymphopenia (defective acquired immunity) is a common feature in patients with COVID-19, and it is related to disease severity and mortality. Immunosuppression may lead to difficulty in removing the virus or secondary infections. Hospital-acquired secondary infection is frequent in patients with severe COVID-19 (5-15.5%). A recent meta-analysis, including 3,448 patients from 28 studies, showed that secondary bacterial infection was identified in 14.3% of patients with COVID-19. Moreover, it has been suggested that immunocompromised patients may have a higher viral load of SARS-CoV-2, prolonged viral shedding and impaired Ab responses. Liang et al found that patients with cancer may be more susceptible to infection with SARS-CoV-2 than healthy individuals, and had a worse prognosis, as their immune systems were suppressed by the effects of the tumors and anticancer treatment.

The reason for significant lymphopenia in patients with severe COVID-19 remains unclear. It is speculated that the underlying mechanisms of lymphopenia may include hemopoietic tissue depression, as well as direct invasion by viral particles, which damages the lymphocytes and results in its destruction. It has been postulated that SARS-CoV-2 may directly infect T cells and lead to T cell depletion. Pathological studies on biopsy tissues from patients with COVID-19 have revealed that the cell damage caused by SARS-CoV-2 infection often occurs in the immune system. Furthermore, it is hypothesized that the underlying mechanism includes increased apoptosis or necrosis of immune cells, and lymphocyte recruitment and sequestration in the infection sites or lymphoid tissues (lymphocyte redistribution). However, these speculations require experimental confirmation. In addition, several other factors may also contribute to the development of immune suppression, such as a reduction in the number or function of antigen presenting cells, increased anti-inflammatory cytokines (such as IL-10 and TGF-β), neuroendocrine responses (such as glucocorticoids), elevated regulatory T cells and myeloid-derived suppressor cells. Of note, lymphopenia and hypercytokinemia were observed in patients with critical SARS-CoV in 2003, Swine flu in 2009, and COVID-19 in 2019, which may indicate that there is a particular dysregulated immunological phenotype associated with significantly elevated severity.

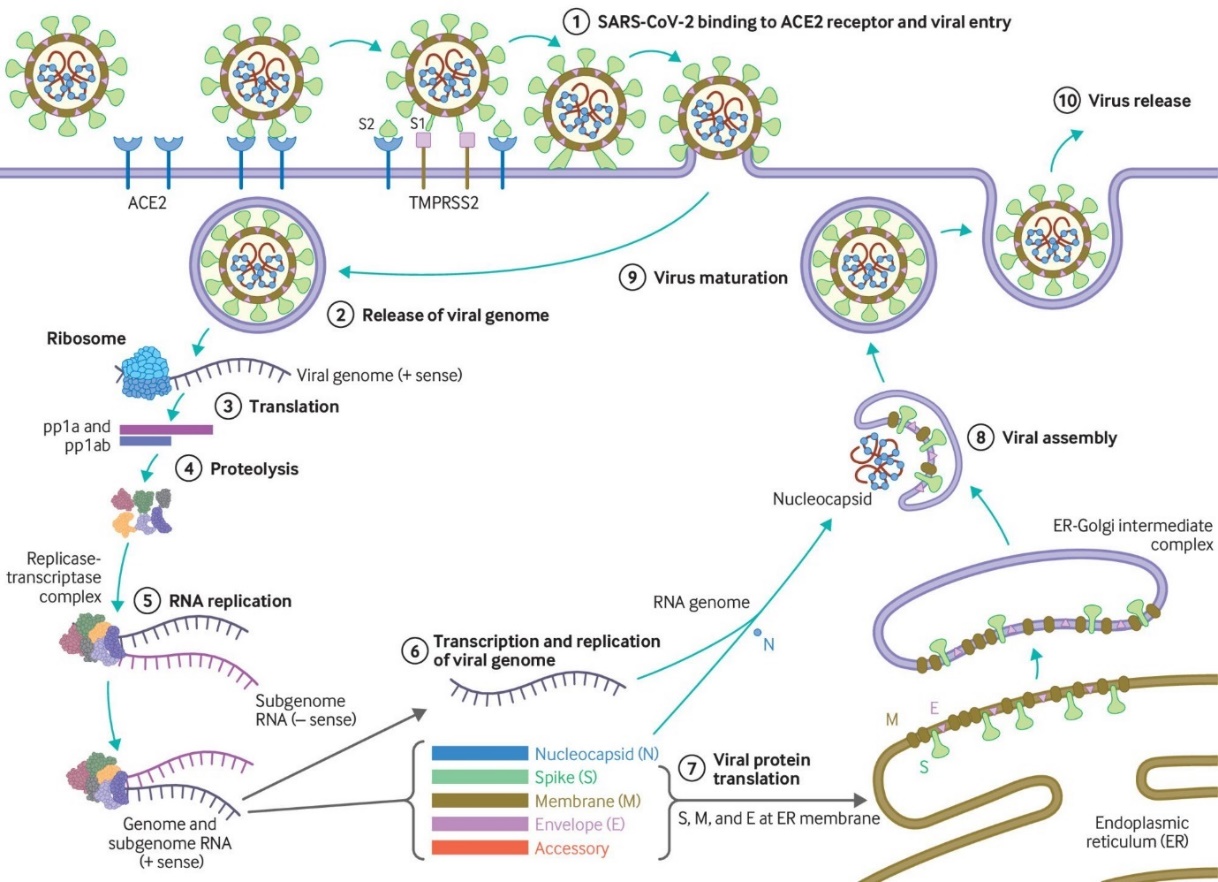
#### Renin-angiotensin system in COVID-19

ACE2 is an important component of the renin-angiotensin-aldosterone system, which converts angiotensin II into angiotensin 1-7 and angiotensin I into angiotensin 1-9. Notably, in addition to mediating viral entry, the SARS-CoV S protein also has effects on the downregulated expression of ACE2, leading to aggravated lung injury. These results have led to the hypothesis that the binding of SARS-CoV-2 S protein is a virulence factor for COVID-19 outside of its role in viral attachment and entry.

The previous data and other studies have demonstrated that angiotensin II is involved in the pathophysiological processes of pulmonary inflammation, pulmonary edema, pulmonary fibrosis and parenchymal cell apoptosis in a lipopolysaccharide-induced ARDS animal model. Blocking the angiotensin II receptor may inhibit the function of mature lung dendritic cells, reducing lipopolysaccharide-induced ARDS, and thus guide the development of potentially beneficial drugs16.



**Fig 2: Renin-angiotensin system in COVID-19**



**Fig 3: Pathogenesis**

According to WHO, clinical presentation of COVID-19 are as follows

Common symptoms include:

* Fever- 88%
* Dry cough- 67%
* Fatigue- 38%

Other symptoms include:

* Shortness of breath- 18.7%
* Aches and pains- 14.9%
* Sore throat
* Very few people will report diarrhea, nausea or a runny nose.

**Severity of COVID-19:-**

* Severe illness ( Hypoxemia, >50% lung involvement on imaging within 24 to 48 Hours) in 14%
* Critical Disease (Respiratory failure, shock, multi-organ dysfunction syndrome) was Reported in 5%
* Overall case fatality rate was between 2.3 to 5%

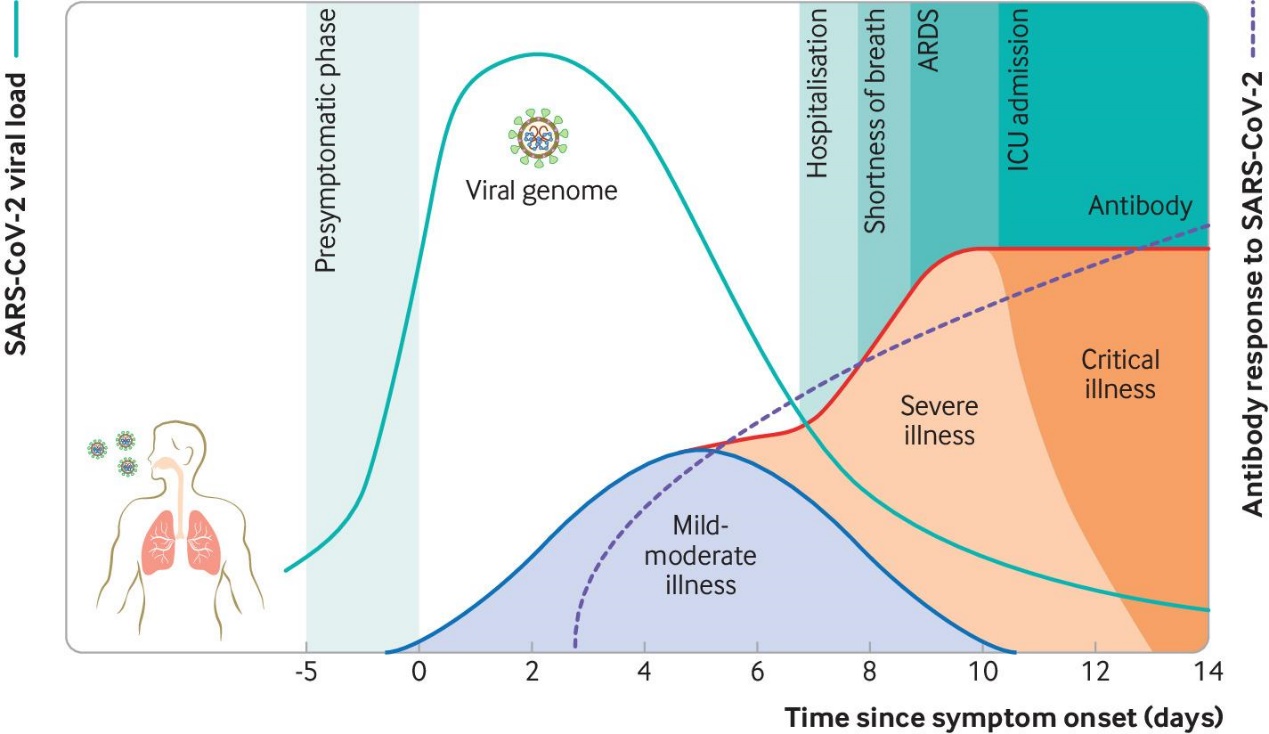
**Why is SARS-CoV-2 more infectious than SARS-CoV-1?**

SARS-CoV-2 has a higher reproductive number (R0) than SARS-CoV-1, indicating much more efficient spread. Several characteristics of SARS-CoV-2 may help explain this enhanced transmission. While both SARS-CoV-1 and SARS-CoV-2 preferentially interact with the angiotensin-converting enzyme 2 (ACE 2) receptor, SARS-CoV-2 has structural differences in its surface proteins that enable stronger binding to the ACE 2 receptor and greater efficiency at invading host cells. SARS-CoV-2 also has greater affinity (or bonding) for the upper respiratory tract and conjunctiva, thus can infect the upper respiratory tract and can conduct airways more easily17.

**Immune response and disease spectrum**

After viral entry, the initial inflammatory response attracts virus-specific T cells to the site of infection, where the infected cells are eliminated before the virus spreads, leading to recovery in most people. In patients who develop severe disease, SARS-CoV-2 elicits an aberrant host immune response. For example, postmortem histology of lung tissues of patients who died of covid-19 have confirmed the inflammatory nature of the injury, with features of bilateral diffuse alveolar damage, hyaline-membrane formation, interstitial mononuclear inflammatory infiltrates, and desquamation consistent with acute respiratory distress syndrome (ARDS), and is similar to the lung pathology seen in severe Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS). A distinctive feature of covid-19 is the presence of mucus plugs with fibrinous exudate in the respiratory tract, which may explain the severity of covid-19 even in young adults. This is potentially caused by the overproduction of pro-inflammatory cytokines that accumulate in the lungs, eventually damaging the lung parenchyma.

Some patients also experience septic shock and multi-organ dysfunction. For example, the cardiovascular system is often involved early in covid-19 disease and is reflected in the release of highly sensitive troponin and natriuretic peptides. Consistent with the clinical context of coagulopathy, focal intra-alveolar haemorrhage and presence of platelet-fibrin thrombi in small arterial vessels is also seen. Cytokines normally mediate and regulate immunity, inflammation, and haematopoiesis; however, further exacerbation of immune reaction and accumulation of cytokines in other organs in some patients may cause extensive tissue damage, or a cytokine release syndrome (cytokine storm), resulting in capillary leak, thrombus formation, and organ dysfunction17.



**Fig 4: Immune response and disease spectrum**

1. **DISEASE REVIEW IN AYURVEDA**

* **Nidana Vivechana:**

‘Nidana' – the causative factors of diseases, have been classified in various ways in texts.

Among them, the one which classifies nidana into Sadharana and Asadharana18 is relevant in this context. The current pandemic and its causative agent comes under the purview of Asadharanahetu as it causes similar symptomatology in a large group of population through vayu dushti.

Diseases in Ayurveda are also broadly classified into – Nija and Agantuja. Covid-19 may be considered as an Agantuja vikara.

While explaining Agantuja jwara, Charaka classifies it into four types. Among them, the one which is caused by Vishavruksha and Anilasparsha is Abhishangaja jwara19 Further, ‘bhutabhishanga’ has been identified as one among the causes of Vishamajvara along with other nija karana20 Here, the word ‘bhuta’ can be understood as that which is not visible or microscopic, and thus all microorganisms may be included under the purview of this term.

The term ‘Abhishanga’ is interpreted as abhisparsha, alingana or being in contact with. Thus, Abhishangaja vyadhi can be understood as a condition which is caused by contact with microorganisms. Since the present condition is mainly characterized by fever, it can be understood as ‘Abhishangaja Jwara21’.

In the context of Kushta in nidanasthana22,Acharya Sushruta explains the concept of Oupasargika roga which are characterized by sankramana i.e., spread from person to person . The modes of spread of such diseases have been enlisted as- Prasanga – direct contact as in sexual contact, Gatrasamsparsha – touch, Nishwasa – Inhalation of infected air or air with infected droplets, Sahabhojana – eating foods together, Saha asana shayana – sitting or sleeping together, Sahavastra mala anulepana – using same clothes and other materials. These concepts are very much relevant even today and modern texts of communicable disease epidemiology also describe similar modes of disease transmission. All these modes of transmission described may be broadly classified into two as explained in modern texts as- direct mode of spread and by respiratory route through droplets. The diseases which are mentioned as Oupasargika by Sushruta are Jwara, Kushta, Shosha and Netrabhishyanda. COVID-19 can be understood as a type of Jwara, fever being the predominant clinical manifestation.

#### Mode of transmission

The following are the different modes of transmission of the Corona Virus which is mentioned in the context of Kusta adhikara (contagious diseases) 23

* **Prasangath** – By physical contact/ sexual contact
* **Gatrasamsparshath** – By touching the infected person
* **Nishwasath** – When exposed to exhaled air of the affected person including the droplet while coughing or sneezing
* **Saha** **Bhojanath** –Eating contaminated food with all together
* **Saha** **Shayyath** – Sharing of bed, pillow or blanket of infected person
* **Saha** **Asanath** – Sharing the seats specially in crowded public transports
* **Gandhamala** **Anulepanath** –Sharing of personal cosmetic things

Acharya Charaka discusses various aspects of epidemics and pandemics in a whole chapter in vimanasthana entitled ‘Janapadodhwamsa’24, where four factors are held responsible for such diseases, one among which is ‘Vayu’. Droplet spread through air is one of the important modes of transmission of all the contagious diseases, as in this disease.

Among the nidana of Sannipataja jwara, Acharya Charaka mentions vishamashana and anna parivartana25 –i.e; irregular or untimely food intake and changes in food habits as a cause.

**AYURVEDIC CONCEPT IN THE ETIOLOGY OF COVID -19**

नास्ति रोगो विना दोषैर्तय मात्ततमाद्विचक्षणः | अनक्िमविु दोषाणाां लिङ्गैर्वर्ायधिमिाचरेिु ्||१९|| 26

As per Ayurvedic principles there is no disease without the involvement of Dosha. Even if the disease is not enlisted in classical texts (Anukta vyadhi), the associated dosha should be analyzed based on the presentation of symptoms (Linga ) in a given patient and the treatment should be planned accordingly.

**Samanya Nidana Related to Utpatti Sthana (China)**

**Shushka Mamsa Sevana**

In china many poisonous animals are used as routine food article that is a one of the cause for this disease manifestation. 27

**Shushka Mamsa Sevanajanya Lakshanas:**

When a person takes Shushka Mamsa (Dried meat of the Animals) it is one of the Causes for the symptoms similar to Covid-19. 27

**Concept of Rutu Vyapanna or Ritu Vaiparitya**

Because of the seasonal change there are some lakshanas will seen, they also looks similar as that of Covid-19.

Sometimes a town or a city is depopulated by –

Kritya , abhichara, raksha krodha are different forms of ill deeds or wrong deeds that are performed by individuals or persons with view of causing bad or disease to another person or a group of people .Kritys refers to something created artificially.

Sometimes the pollens of poisonous flowers or grasses, etc., wafted by the winds, invade a town or a village.

The above two causes develop a sort of epidemic Kasa(cough),Shwas( asthma), Vamathu(Vomiting), Pratishyay( cough or cold), Shiroruk

(Headache) or Jwar(fever).

Dalhana adds Gandhajnana( decreased or loss of smell ) and

masurika(twak vikara) . He further divides it as-

1. Those which spread by air (droplet type infection) through nose are kasa, shwas, pratishyaya, gandhajnana ,bhrama and shiroruja.
2. Those spread by twagindriya are jwara and masurika.(Fomite Transmission).

**The spread of COVID-19 virus by droplet mode and fomite transmission (from contaminated surfaces) and role of air in spread of droplets has been clearly explained.**.

The diseases that spread from person to person are Aupasargika Vyadhis. They fall under Daivabalapravritta vyadhia as explained by Sushruta along with the Bhanumati commentary of Chakrapani gives a very scientific explanation of the same as follows.

The Daiva-bala-pravritta type includes diseases that are the results of displeasure leading to wrath of Deva gana(the natural forces in environment that protect nature and us) This type may be divided into two sub divisions as the diseases that assumes a contagious character (epidemic), or is purely accidental, and restricts itself to isolated cases (sporadic). कालबलप्रवृत्ता ये शीतोष्णवातवर्षातपप्रभृतिनिमित्ताः; तेऽपि द्विविधाः- व्यापन्नर्तुकृताः, अव्यापन्नर्तुकृताश्च |  
दैवबलप्रवृता ये देवद्रोहादभिशप्तका  अथर्वणकृता उपसर्गजाश्च; तेऽपि द्विविधाः- विद्युदशनिकृताः, पिशाचादिकृताश्च; पुनश्च द्विविधाः- संसर्गजा  , आकस्मिकाश्च |  
स्वभावबलप्रवृत्ता  ये क्षुत्पिपासाजरामृत्युनिद्राप्रभृतयः; तेऽपि द्विविधाः- कालजा, अकालजाश्च; तत्र परिरक्षणकृताः कालजाः, अपरिरक्षणकृता अकालजाः |  
एते आधिदैविका |  
अत्र सर्वव्याध्यवरोधः ||७|| 28

According to chakrapani it is due to ***Rakshogana*** that the diseases assume the form of ***Aupasargikatva*** – contagious nature could destroy individuals or communities immediately or at a pre-determined time. **Dalhana** clearly states that ***upasargaja rogas*** are due to spread from an infected person to another while ***Samsargaja*** are more potential in spreading from person to person. Different modes of spread

प्रसङ्गाद्गात्रसंस्पर्शान्निश्वासात् सहभोजनात् |  
सहशय्यासनाच्चापि वस्त्रमाल्यानुलेपनात् ||३३||  
कुष्ठं ज्वरश्च शोषश्च नेत्राभिष्यन्द एव च |  
औपसर्गिकरोगाश्च सङ्क्रामन्ति नरान्नरम् ||३४||29

स.ुर्न. ५/३३-३४

***Aupasargika rogas*** spread through sexual intercourse or by touch or breath, or through partaking of the same bed, and eating and drinking out of the same vessel with infected person , or through using the wearing apparel, unguents and garlands of flowers previously used by a person afflicted with an infective disease.

सांभिः पनरेतेषाांु कमणि ः सामदार्यकातु ्।30

***Janapadodhwamsa vikaras are consequences of sin committed by a whole community***.

सर्वेषांच व्याधीनां वातपित्तश्लेष्माण एव मूलं31;

The deranged bodily humours such as, [Vayu,](https://www.wisdomlib.org/definition/vayu#ayurveda) [Pitta](https://www.wisdomlib.org/definition/pitta#ayurveda) and [Kapha](https://www.wisdomlib.org/definition/kapha#ayurveda) should be looked upon as the primary sources of all diseases. ु

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सन्न्नपातप्रकोप

कासश्िासज्िरादयः

ू

This aspect also can be considered as the probable cause of mutation at the original epicentre of the COVID-19 outbreak.

* **LINGA VIVECHANA**

The disease COVID-19 is coded as RA01.0 for a confirmed diagnosis and as RA01.1 for a suspected or probable case32 in ICD. The clinical spectrum of COVID-19 varies from asymptomatic or pauci symptomatic forms to clinical conditions characterized by respiratory failure to multi organ and systemic manifestations and MODS33. Commonly, the condition has an onset with symptoms of URTI like fever, cough, myalgia or fatigue with other less common symptoms such as sputum production, headache, haemoptysis and diarrhea. As the disease course develops, dyspnea sets in and condition progresses into pneumonia. Complications include ARDS, Acute cardiac injury, secondary infections, multi organ failure34.

**Understanding of Illness**

As the **COVID-19** is newly emerged disease condition, it is very difficult to understand the clinical presentation in a single context mentioned in classical texts. In the context of Rutucharya,35 Acharya Susrutha mentioned about the Janapadhodhwamsa, Pandemic diseases with symptoms like Cough, Breathlessness, Vomiting, Cold, Headache and Fever spreads by means of polluted air. He also advises for Sthana parityaga (Social Distance) by means of breakdown of chain in community spreading.

Clinical presentation of **COVID-19** can be understood in terms of Sannipataja jwara **(**with Heena Kapha, Pitta Madhya, Vata Adhika), Pachyamana jwara, Vataja & Kshataja kasa.

The symptoms of the COVID 19 are similar with the one of the **Sannipataja Jwara36,** where Kapha is mild, Pitta is moderate and Vata is aggressive –

* Shwasa- Difficulty in breathing
* Kasa – Cough
* Pratishyaya – Cold & Running nose
* Mukhashosha- Dry mouth
* Ati Parshwa ruk- Severe pain in flanks.

**Pachyamana Jwara Lakshana37: (**Once the Ama stage of Jwara ends)

* Adhika Jwara Vega – High grade fever
* Trushna- Thirst
* Pralapa- Delirium, irrelevant talk
* Shwasa – Dyspnoea
* Bhrama- Giddiness
* Mala and Shleshma pravrutthi- Elimination of Feces as well as Phlegm

**Kshataja kasa38:-**

* Excessive pain in the throat and feeling of cracking pain in the chest
* Pricking type of pain as if pricked by sharp needles
* Excruciating pain and discomfort by touch on chest, miserable appearance.
* Pain in joints and fingers, fever, labored breath, thirst and altered voice
* While coughing, sounds humming like pigeon.

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| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| **Corona virus** | **Bhutabhishan gaja**  **Jwara** | **Sannipataja Jwara** | **Raja Yakshma** | **Swasanaka Jwara** | **Kantharohini Jwara** | **Concept** |
| **Most common symptoms:**  Fever  Cough  Dyspnoea  Myalgia  Fatigue  **Less common symptoms:**  Anorexia Sputum production Sore throat  Confusion  Dizziness  Headache  Rhinorrhoea  Chest pain  Haemoptysis  Diarrhoea    Nausea/vomit ing  Abdominal pain | Pratishyaya  Shirasoola,  Sheetakampa  Angamarda,  Kasa, Jwara avasada..  visheshatu  Puppusakrama nA    **Si.Ni.**  Jwaranidana | Kasa  Swasa  Kantashoola  Aruchi  Kapha steevana  Hrudvyata  Tandra    **Cha.Chi.3,**  **Madhava**  **Nidana**  **2/18-23,** | Swara-  Bedha  Atisara  Stheevana  Jwara  Daha  Gourava  Aruchi  Kasa  Kantapeeda    **Su.Utt.41,**  **Madhava**  **Nidana10/**  **6-7** | Teevra  Jwara,  Prashvshool, Kasa,  Swasavruddh i dourbalya  Kantakujana      **Madhava nidana**  **Parishishta**  **Siddhanta Nidana.**  Jwaranidana | Jwara, Heaviness in the body, Pain in Throat,  Stiffness in  Throat muscle,  Mukha dourgandhyaSwas kricharata, Kasa, Atisara,  Exertional dyspnoea.      **“JWARA**  **CHIKITSA”** in  Kannada written by Dr.Swami  Chandrashekhar  Shastrimath edition 1972 | Concept of  Sankramikaroga  Siddhanta    Concept of  Janapadadwams a siddhanta    Concept of  Krimisiddhanta    Concept of **Ritu**  **Vaiparitya lakshanas are**  **Kasa, Swasa,**  **Pratishyaya,**  **Shiroruja,**  **Jwara. Su.Su.6** |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sl no** | **Signs and symptoms of corona** | **Sannipataja Jwara** | **Dushita Vayu** | **Raja Yakshma** | **Dushita**  **Mamsa**  **Sevana** | **Visha Upadrava** |
| 1. | Fever |  |  |  |  |  |
| 2. | Tiredness |  |  |  |  |  |
| 3. | Dry cough |  |  |  |  |  |
| 4. | Shortness of breath |  |  |  |  |  |
| 5. | Ache and pain |  |  |  |  |  |
| 6. | Sore throat |  |  |  |  |  |
| 7. | Running Nose |  |  |  |  |  |
| 8. | Nausea |  |  |  |  |  |
| 9. | Diarrhoea |  |  |  |  |  |

Considering the above symptomatology, this disease can be understood under ‘Jwara’, while the specific diagnosis of Ekadoshaja or Samsargaja or Sannipataja jwara will vary among patients according to variable individual presentations.

All diseases pass through different stages as they progress in the Kriyakala39, and clear symptoms are exhibited at the stage of Vyaktaavastha. If the patient is not treated even in this stage, the disease progresses to Bhedaavastha where multiple dosha and dhatu are involved, ultimately leading to Upadrava.

#### Clinical Stages

***Stage 1-*** Patients having travel history with Marked Symptoms like Sneezing, Cough, Fever, Malaise- *Kahapa- vata Sannipata Jwara*

***Stage 2-*** Aggravated symptoms

***Stage 3-*** *Dhatupaaka lakshana* and *Dhatu gata Jwara lakshana*

***Stage 4-*** *Upadrava* like Shwasa- Acute respiratory syndrome

Thus, the early stages of clinical features of COVID-19 which usually begins with myalgia, headache and symptoms of common cold may be considered as the stage of Purvarupa. The phase of fever with cough may be considered as the Vyakta stage and the stage with Pneumonia, ARDS, MODS, Sepsis and other complications in the condition may be understood as the stage of Bhedaavastha or Upadrava along with dhatu paka. Dhatu paka, vidradhi, paka are stages which indicate gambheera dhatugatatwa.

The varied presentations observed in vyaktavastha of the disease as described above have similarities with the descriptions of Vataja, Pittaja and Kaphaja Ekadoshajajwara, Vata kapha samsargaja jwara and Vatolbana madhyapitta mandakapha Sannipata jwara.

On analyzing the dosha involved in the COVID-19 infection, Jwara presenting along with shareerabedha and shushkakasa may be considered as Vataja jwara, Teevrajwara with Annadvesha, chardi, atisara can be considered as Pittaja jwara, whereas Jwara associated with kasa, shwasa, chardi is considered as a Kapha pradhana Jwara. Vata kapha jwara presents with Shirograha, Pratishyaya, Kasa, Swedaapravartana, Madhyama jwara40 and Vatolbana madhyapitta mandakapha jwara presents with Swasa, Kasa, Pratishyaya, mukhashosha, parshwa ruja41.

Further, with respect to involvement doshas, considering the fast progress into further stages, it definitely has a prominent involvement of Vata. The involvement of Pranavaha srotas is evident from dushti lakshana of Pranavaha srotus in the disease, hence, involvement of Kapha, which is the sthanika dosha should also be considered. Finally, as ‘no jwara can occur without Pitta42 and Jwara being the major clinical feature, there is obvious involvement of Pittadosha. Hence, there is definite involvement of all the three doshas and the condition may be considered Sannipataja. Some of the clinical documentation of COVID-19 cases resemble progression of Vataja Jwara to Sannipatajwara during disease progression.

* **FACTORS CONTRIBUTING TO SEVERITY OF THE DISEASE**

The major factors that contribute to the variations in severity of a disease are Time (seasons), Dosha bala, Chetas or manobala and Artha i.e Purvajanma kritha Shubha- ashubha karma43.

The impact of an epidemic disease depends on:

* Infectivity and virulence of the agent
* Susceptibility of the host
* Environmental favourability of the agent

The same can be understood in Ayurvedic terms under the following headings –

* Roga bala
* Rogibala / Dehabala/Vyadhikshamatwa
* Kala
* Manobala
* Vikaravighata bhava-abhava44

ROGA BALA – Considering the infectivity and virulence of the causative agent- the Novel Corona virus, the bala of the disease causing agent seems to be essentially high which is resulting in such huge number of cases and the high mortality rates.

ROGI BALA – It may be observed that in the current pandemic 80-85% of cases do not exhibit much symptoms or may exhibit only milder forms of symptoms45. Such mild presentation of disease is commonly observed in younger and middle age group who are supposed to have better dehabala and vyadhikshamatwa46.

Based on rogibala, individuals are of two types-

* Vyadhi saha
* Vyadhi asaha

The individuals with good sara, samhanana, agni, dhatu samatwa, vyayami, and who follows charyas like dinacharya, rutucharya, ratricharya are usually considered as Vyadhi saha and the individuals with features opposite to these are considered as Vyadhi asaha.

Symptomatology and disease severity are influenced by the rogibala and so is reflected accordingly in Vyadhi saha and Vyadhi asaha. Disease tends to be of milder form in vyadhi saha, who may or may not have the clinical symptomatology and recovers from the illness easily, whereas the disease usually presents in a severe form in Vyadhi asaha (alpa rogibala) who are usually aged or suffer from co-morbidities like prameha, shonitabhishyanda, etc. In such patients, due to involvement of multiple srotas the disease enters Upadrava stage which can end up in bad prognosis and death47.

KALA – Here Kala refers to both age and season. As seen, the virus is causing havoc among the old aged. Old age is characterised by dhatu kshaya and thus bala kshaya, whereas the younger age is considered to be endowed with better bala due to better states of agni, dhatu, etc. Seasonal variations like high temperature and high relative humidity significantly reduces the spread of the Covid-19 virus48.

MANA-The clinical variations in onset, severity and recurrence also depends on satvabala. The weak state of mind i.e; anxiety or depression are also identified as the triggering factors of Jvara by Acharya Charaka49,50.

ARTHA- Here, the term ‘artha’ refers to Karma, which is classified into Iaihika (Purushakara) i.e; present and Purvajanma (Daivakara) i.e; past deeds. It includes all types of Ahara, Achara, Prayaschitta etc. According to bala- abala, the shubha- ashubha karma which were practiced in past life also affect the samprapti and severity of illness of the current Nija or Agantuja vyadhi51. The clinical diagnosis between Karmaja (Purvajanmakrita Ashubha karma) or Doshakarmaja is based on process of exclusion i.e in the absence of demonstrable modifying factors in current life, the disease may be considered Karmaja.52,53 This can be a possible explanation for the ongoing unexplained variations in clinical presentations, therapeutic responses and unexpected outcomes of the disease in different individuals.

VIKARA VIGHATA BHAVA ABHAVA(34 – Acharya Charaka explains all the above aspects like susceptibility, virulence and host factors under the concept of Vikaravighatabhavaabhava in Pramehanidana adhyaya. Here vikara means the disease, vighata means the factors that hinder/ obstruct/ stop the pathogenesis and bhava-abhava means absence of this conjunction or its presence. Host and its interaction with the pathogen and the resultant effect leads to disease or remission. If the nidana, dosha and dushya are all supportive to each other, then the condition becomes more severe, whereas when the three contradict each other, the disease may be sub clinical/ less severe/ with fewer symptoms or takes a longer time to show its clinical features.

When there is conglomeration of all of these three factors and when all the three are assisting each other in the pathogenesis, then the disease becomes more severe which may also be influenced by the factors like alparogibala, agni, dhatu samatwa, alpasara, alpasamhanana thus ending up in Sannipataja vyadhi and Upadravas. When a single dosha is highly vitiated leading to its predominant influence in the disease process and aided by other factors influencing it, the condition becomes that particular dosha pradhana sannipata. The infection is mild and manageable if the impact of jwara in the body is limited to rasadhatu, which manifests as samanya jawara which is bahirvegi54,55. But, if the host is weak or when proper care is not taken in the initial stages of the infection, the disease can progress further leading to dhatugatatva and vishamajwara 56,57,58

Most of the COVID-19 cases present with continuous remittent fever as in santatajvara. Prognosis depends on doshapaka or dhatu paka which occurs during 7 or 10 or 12 days depending upon the dosha predominance of Vata, Pitta or Kapha respectively59,60.

* **SAMPRAPTI VIVECHANA**

**DIFFERENT SAMPRAPTI’s OF COVID-19**

Various sampraptis are to be considered as this is janapadodwamsa vyadhi and Ayurveda believes and follows that ‘ purusham purusham veekshya’ i.e. Every individual may present with same vyadhi but based on nidana and prakruti samprapti formation may vary. Hence an attempt to analyse different sampraptis of present Pandamic Disease COVID 19.

**Samprapti 1: with reference to Janapadodwamsa Vimana Adyaya of Charaka.**

Vikruti in Ritu dharma( Akala varshadi darshana) will lead to anutpatti of Oshadi i.e. Aprakruta rasa veeryadi in dravya; that will lead to dosha vikruti in Deha when person consumes it. This vikriti cam also be analysed with loka( universe) i.e. Vayu, udaka, desha and kala vikruti. By considering Loka purisha Samya Sidhanta: Vayu as Vatadi Dosha ; Udaka as Rasadi Drava Dhatu ; Desha as Anga Pratyanga and avayava; Kala as Dosha dushya sammurchanat arabhya vayadhi utpanna paryanta i.e. Kala Samprapti.

Paraspara upahata Vayu Uadaka etc. will lead to abnormal or asamyak gandha bashpa dhuma rasa kleda vikruti. Desha vikruti leads to vikrutaguna karma of bhumistha jeevi such as Sarisripa., Vyala, pakshi, mooashaka, ulooka and Sthavara Dravyas also. Kala influences all these and produces Aprakruta laxanas, Thus vitiated Vayu, Udaka, Desha, Kala are inter-related. They tend to produce dushpariharya vikaras by swabhava; Collectively known as kasta sadhya vyadhi. By above explanation these turning to Kasta sadhya vayadis is due to single cause known as adharma( not following dinacharya, ritucharya, sadvritta, kalika shodhana and involving in asatmya indriyardha samyoga and pranjaaparadha).

Samprapti 2 with special reference to nija and agantu karana, as per ch.su.19 and 20

It is said that “*Sarva eva nija vikaraha na anyatra vata pitta kaphebhyo nivarthante*” and “*Dosha evahi sarvesham vyadhinam eka kaaranam*”. Here the word sarva eva vikara and sarvesham vyadhinam give the information that no disease (may be nija /Agantuja) can origin without vatadi dosha. The vikruta doshas lead to swadhatu vaishamya where dhatu means Vatadayaha, rasadayaha and Raja prabhridayaha i.e. every component of the body gets vitiated and lead to bahuvikaras in Sharira. These Nija and Agantu have linked with each other i.e.

Aganturanveti nijam vikaram….lead to anubhandha karana janya kasta sadhya vyadi utpatti.

*“Aganturihi vyadha poorvam samutpanno vatapitta sleshmanam vaishamyam apaatayadi*II”

i.e. Due to four types of Agantu Karanas as explained in Jwara prakarana will lead to teevra peedam in deha (Achaya poorvaka dosha prakopa) which in turn leading to Dosha swasthana chaya and prakopa. Prakrupita dosha attaining prasara leads to Sroto vikruti and dhatu dusti by sanga, Vimarga gamana etc. leading to Sthana samsraya when lodged in Pranavaha srotas produces Pratishyaya→ Kasa→ Swasa→Kshaya(triroopa, shadroopa and ekkadasha roopa).

In Maha srotas produces vikruta rasa dhatu utpatti producing Jwara Anga marda and Atisara laxanas. Here the possibility of krimi utpatti( jwara) in Agantu and Vishama jwara laxanas will explain the present Pandemic Disease **COVID 19.**

***Bhutabhishanga (Jangama Visha)***

***(Portal Entry- Oro pharynx, Naso-Pharynx)***

***▼***

***Stage 1- Sanchaya and Prakopa Avastha***

***Tridosha involvement in Pranavaha Srotos –***

***(Naso-pharynx, Paranasal Sinuses), Upper Respiratory Tract***

**[**with Marked Symptoms like Sneezing, Cough, Fever, Malaise**]**

***▼***

***Stage 2- Prasara and Sthanasamshraya Avastha***

***(All the Doshas affect the Entire Pranavaha Srotas)***

[Manifestation ofFever, onset of cough and with aggravated symptoms]

***▼***

***Stage 3- Vyakta Avastha***

***in Pranavaha Srotas and later Sarvasharira***

***(Jwara, Kasa, Angamarda, Tandra lakshana,***

***Dhatu paaka, Dhatugata Jwara Lakshana etc,.)***

***▼***

***Stage 4- Bheda Avastha***

***All the Doshas affecting Sarva Shareera***

***(Upadrava Laskshanas- Shwasa, Moha, Sanja naasha, atisaara)***

\*As the disease is *Agantuja*, the pathogenesis may not involve the progression as seen in a *Nija* *Vyadhi*.

* **SAMPRAPTI GATAKA**

1. Dosha –Vata Kapha pradhana along with Pitta. Usually begins as ekadoshaja, then involvement of other doshas depending on dehabala, agnibala, chetobala and vikaravighatabhavaabhava vishesha.
2. Dhatu – Rasa at first, later all dhatus, even Ojas. Involvement of dushyas predict the outcome of the disease. If all 7 dhatu, upadhatu and mala are involved, then the prognosis becomes difficult.
3. Srotas – Rasa, Prana, Maha srotas at first, later others also.

Major involvement at first will be in Rasa vaha srotas. As doshas undergo sarva Shareera sanchara, they get confined to Pranavaha srotas and produce majority of the symptoms there.

1. Sroto dushti – Sanga, Vimargagamana
2. Agni – Agni mandyata- at first Jatharagni, later dhatwagni
3. Ama – Jatharagnimandya janya, Later dhatwagnimandya janya aama
4. Udbhava sthana – Amashaya
5. Sanchara sthana – Sarva Shareera
6. Vyakta sthana – Kantha, Uras, Pranavaha srotas
7. Adhisthana – Pranavaha srotas
8. Rogamarga – Abhyantara – in early stages, Trividha – in advanced stages.
9. Roga swabhava –Mrudu or Daruna depending on Rogibala.
10. Sadhyaasadhyata – Sadhya in most, Kruchra in few, Asadhya in very few.

* **UPADRAVA**

Once the pathology begins, based on the host pathogen interaction or Vikaravighatabhavaabhava, the disease progresses in the host and when not controlled it usually ends up in Upadrava.

Jwara being a pitta pradhana vyadhi, when not treated properly or when neglected or due to alparogibala and due to pathogenic influence, the disease may progress into Pitta pradhana sannipata vyadhi and manifests complications like Marmabhighata61 as described in Abhyantaravisarpa i.e, Sepsis, multiple organ failure, all of which present with high grade continuous fever.

In case of Kapha pradhana samprapti, its sannipatatwa might cause major involvement of Pranavaha srotas and its organs which might present with complication as ARDS, fibrosis, acute cardiac injury etc. as described in asadhya variety of shwasa and hikka roga.62,63

1. **TREATMENT REVIEW**

As quoted by Acharya Charaka, detailed understanding of the disease is very important before planning treatment as without proper understanding if treatment is started, it might end up in failure64.

Treatment of COVID-19 may be understood under following headings

1. Preventive care
2. Clinical care
   1. Asymptomatic
   2. Mild to Moderate cases
   3. Severe to critical cases
   4. Rehabilitation
   5. Management of Residual dysfunctions

PREVENTIVE CARE-

Cases - Not tested positive, High risk, or Low risk under Quarantine-

Rasayana modalities are the basic line of treatment in the preventive management of Janapadoshwamsa or Pandemic disorders. Here both Achararasayana and Aushadha Rasayana have important roles65,66,67,68,69. Rasayana drugs improves the host defence system by its Urjaskara properties i.e; by enhancing dehabala.70

PREVENTIVE MEASURES:

From the preventive management guidelines in71 Ca. Su.7/5

1. Prevention from contact of Bhoota Vayu. (Vayu with COVID 19 virus).
2. Prevention from contact of Visha Vayu (Vayu with Droplets).
3. Practice of Sadvrutta.
4. Anutaila as Pratimarsha Nasya72
5. **Dhumapana:** Vartis Prepared of Chandana, Patra, Twak, Ela, Ushira, Padmaka, Madhuka, Mamsi, Guggulu, Agaru, Sharkara, Udumbara, Ashwatta, Plaksha, Lodra, Musta and Shallaki. These drugs can be used for external and internal purposes73.
6. **Ushna jala pana:** Drinking warm water frequently does the Amapachana.
7. **Sadrvutta palana:** Following Rutucharya, Dinacharya, and Ratricharya
8. **Asthangayoga-** Like Shoucha
9. **Pranayama, Dhyana and Kapalabhati Achara Rasayana/ Nitya Rasayana:**

Ahimsaka, Adhyatma gnana praveena, Dani, Nitya tapaswi. Yukthi gnana of desha, kala pramana gnana, Japa, Shoucha, Brahmacharya palana, Pranidaya and Paropakara74

**Hands wash Sanitizer:**

1. Nimba Kwatha, Panchavalkala Kwatha, Triphala Kwatha, can be used even though if we used repeatedly used or dipping also it gives good result.
2. Vidanga, Hardra, Guggulu, Yastimadhu, Triphala, Ghritakumari sidhha kwatha.

|  |
| --- |
| If we consider the corona Virus as Visha, in this condition **Acharya Vagbhata commentary of Sarvangasundari**  has explained that, after 21 days intensity of the Visha will reduce by itself so for that reason patient has to stay in home for 21 days to avoid spreading from one person to another person.75 |

1. Krimighnagana dravya siddha kashya.

All these are to be done before the onset as preventive measures. (Praageva Praajnyah)

CLINICAL CARE- TESTED POSITIVE

ASYMPTOMATIC

**Kashaya:**

* Guduchi, Shunti siddha kashaya- Jwara, Kasa, Nasasrava, Galashoola  Haridra, Marich siddha kashaya
* Nirgundi, Pippali, Guda siddha kashaya

In case of Swasakrichrata, Galakandu, Kaphayuktakasa, Parshvashoola

* Pippali with Guda
* Haritaki, Bibhitaki with Madhu
* Vasa, Pippali, Yastimadhu, Shunti siddha kashaya  Guda with Palandurasa.

Other medications-

SL NAME SPECIFICATIONS

1. BILWADI GULIKA76 Key ingredients Bilva, Tulasi, Haridra, Ajamutra Dosha / Specifically TridoshajaJvara

Rogaghnata derived different visha

including Bhuta visha

Dose 500mg

Frequency TID

Specific Anupana UshnaJala

1. SAMSHAMANI Key ingredients Guduchi Ghana Satva,

VATI77 Lohabhasma, Pippalichurna,

Ativisha

Dosha / Specifically indicated in fever

Rogaghnata

Dose 250mg

Frequency TID

Specific Anupana Madhu, Ardrakaswarasa,

UshnaJala

1. AROGYAVARDHINI Key ingredients Kajjali,

RASA78 Lohabhasma,Katukarohini,

Nimba, Tamra bhasma

Dosha / Specifically TridoshajaJvara

Rogaghnata

Dose 25-300mg

Frequency TID

Specific Anupana Sukhoshnajala

Similarly Ashvagandha,Guduchi, Amalaki, Nimba,Tulasi, Lashuna, Haridra,

Katuki, Bhumyamalaki etc. are some of the pharmacologically established Rasayana drugs known to have immunomodulatory, bactericidal and antimicrobial activities79  which are worth considering as single drugs in the preventive and curative management of Covid 19.

SYMPTOMATIC – MILD TO MODERATE

* + - * Administration of Deepana Pachana dravya (To activate immune system)
      * Drugs/formulations for Dhatugata Ama pachana.- After this stage only Balya rasayana drugs can be administered
      * Vishama jvarahara kashaya
      * Langhana/Laghu Ahara sevana
      * Abhyanga with taila like Brahat saindhavadya taila (For dhatugata ama pachana)

**Diet**

Peya prepared from Kanthakari, Gokshura etc. श्िदांष्रा कांठकाररभर्ाां लसद्िाां ज्िरहरी विबेि || Bhavaprakasha

Yavagu prepared from Ushna veerya dravya

Intake of vegetables like Patola, Karavellaka, Patha, Punarnava etc indicated in Jvara chikitsa

**MANAGEMENT OF ACTIVE CASES**

o **Symptomatic management** (Based on symptoms and involvement of Dosha)o **Jvara-** Amrutottara kashaya, AYUSH-64, Mrityunjaya rasa, tribhuvana kirti rasa,

Pippalyadi gana kashaya, Amritarishta, sanjivini vati etco **Jvara with Kasa-** Talisadi churna, sitopaladi churna, yashtimadhu churna,

Dashamula kwatha, Kanthakari kwatha, Samirapannaga rasa etc o **Jvara with pratishyaya-** Laxmivilasa rasa, Dashamula katutraya kwathao **Jvara with Shvasa-** In addition to the above, Shvasahara drugs can be added (Kanakasava, Shvasa kuthara rasa etc)

Treatment guidelines of Amajvara described in Charaka samhita are useful in this conditions according to severity of Ama, Santhapa, Trishna, Glani etc. Different modalities like Ushnodhaka, Lajamanda, Manda, Peya, Vilepi,

Yavagu, Aushadhasidda yusha, Mudgayusha, Mamsarasa, Shadangapaniya,

Panchakola phanta, Karjuradi tarpana, Panchasara,  may be selected as per the associated features of Jwara.

On the basis of status of Deha, Agni and roga bala following aushadha kalpana may be selected. The treatment protocol may vary in individual patient depending-on associated feature of jwara.

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| SL | NAME | SPECIFICATIONS | EXPLANATIONS |
| 1 | SHADANGA  PANEEYA80 | Key ingredients | Musta, Parpata, Usheera, Chandana, Udeechya, Nagara |
| Dosha /  Rogaghnata | Jwarahara, Dahashamaka,  Pipasahara, Aamahara |
| Dose | 25-50ml |
| Frequency | Repeatedly all through the day |
| Specific Anupana | - |
| 2 | TULASI PATRA  SWARASA81 | Key ingredients | Fresh leaves of Tulasi |
| Dosha /  Rogaghnata | Kapha pradhana,  Vishamajwara |
| Dose | 15ml |
| Frequency | BD |
| Specific Anupana | 3-6gms of Marichachurna |
| 3 | ARDRAKA  SWARASA82 | Key ingredients | Fresh tubers of Ardraka |
| Dosha /  Rogaghnata | Vata kapha hara, Pratishyaya, Kasa, Jwara |
| Dose | 15ml |
| Frequency | BD |
| Specific Anupana | Honey |
| 4 | SANJEEVANI VATI83 | Key ingredients | Vatsanabha, Bhallataka, Guduchi, Vacha, Vidanga, Gomutra |
| Dosha /  Rogaghnata | Pitta pradhanasannipatajwara, Visha |
| Dose | 125mg |
| Frequency | TID |
| Specific Anupana | ArdrakaSwarasa or Ushnajala |
| 5 | DASHAMOOLA KWATHA84 | Key ingredients | Dashamoola |
| Dosha /  Rogaghnata | Vata kapha Jwara especially, Tridoshahara |
| Dose | 15ml |
| Frequency | TID |
| Specific Anupana | Sukhoshnasheetajala |
| 6 | DASHAMOOLA | Key ingredients | Dashamoola |

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|  | ARISHTA85 | Dosha / Rogaghnata | Vata kapha Jwara especially, Tridoshahara, Balya |
| Dose | 15ml |
| Frequency | TID |
| Specific Anupana | Sukhoshnasheetajala |
| 7 | AMRUTASHTAKAM86 | Key ingredients | Dashamoola |
| Dosha /Rogaghnata | Vata kapha Jwara especially, Tridoshahara |
| Dose | 15ml |
| Frequency | TID |
| Specific Anupana | Sukhoshnasheetajala |
| 8 | AMRUTARISHTA87 | Key ingredients | Amruta, Dashamoola, Parpata, Katuki, Saptaparna, Musta |
| Dosha / Rogaghnata | Vata kapha jwara |
| Dose | 15ml |
| Frequency | TID |
| Specific Anupana | Sukhoshnasheetajala |
| 9 | MAHA SUDARSHANA CHURNA / GHANA VATI88,89 | Key ingredients | Kiratatikta, Haridra, guduchi, Katuki, Musta, Nimba,  YAshti, Pushkaramula |
| Dosha / Rogaghnata | Sannipataja, dhatugata, Agantuja, Pitta kapha jwara |
| Dose | 1gm/125-250mgs |
| Frequency | TID |
| Specific Anupana | Shrutasheetajala |
| 10 | TRIBHUVANA KEERTI RASA90 | Key ingredients | Hingula, Vatsanabha, Trikatu,  Tankana, Tulsi, Shunti, Dattura |
| Dosha / Rogaghnata | Tridoshaja jwara |
| Dose | 125mg |
| Frequency | TID |
| Specific Anupana | Ardrakaswarasa, Ushnajala |
| 11 | MRUTYUNJAYA RASA91 | Key ingredients | Kajjali, HIngula, Vatsanabha, Pippali, Maricha, Tankana |
| Dosha / Rogaghnata | VishamaJwara, Vata kapha jwara, |
| Dose | 250mg |
| Frequency | TID |
| Specific Anupana | Ardrakaswarasa, Madhu |
| 12 | VISHAMA | Key ingredients | Kalingakadi, Patoladi, |

|  |  |  |  |
| --- | --- | --- | --- |
|  | JWARAHARA PANCHA KASHAYa92 |  | Nimbadi, Kiratatiktadi, Guduchyadi |
| Dosha / Rogaghnata | Vishamajwara and its varients |
| Dose | 15ml |
| Frequency | TID |
| Specific Anupana | Shrutasheetajala |
| 13 | SHWASA KUTHARA RASA93 | Key ingredients | Kajjali, Vatsanabha, Gandhaka, Maricha |
| Dosha / Rogaghnata | Vata kaphajaKasa Shwasa |
| Dose | 62.5-125mg |
| Frequency | BD |
| Specific Anupana | Honey, Ardrakaswarasa, Sukhoshnajala |
| 14 | SHWASA KASA CHINTAMANI RASA94 | Key ingredients | Kajjali, Mukta, Abhraka, Loha, Kantakari, Ajaksheera |
| Dosha / Rogaghnata | Vata pittajaKasa, Shwasa |
| Dose | 62.5-125mg |
| Frequency | BD |
| Specific Anupana | Tulasiswarasa, Pippalichurna&Sukhoshnajala |
| 15 | ANANDA BHAIRAVA RASA95 | Key ingredients | Hingula, Gandhaka, Vatsanabha |
| Dosha / Rogaghnata | Sannipatajwara, Kasa, Shwasa, Atisara |
| Dose | 125mg |
| Frequency | BD |
| Specific Anupana | Honey, Ardrakaswarasa |
| 16 | TALISADI CHURNA96 | Key ingredients | Talisapatra, Maricha, Shunti, Pippali, Vamshalochana, Twak, Ela, Sharkara |
| Dosha / Rogaghnata | Kasa, Shwasa, Jwara, Chardi, Atisara, Kapha vata jwara |
| Dose | 4gms |
| Frequency | TID |
| Specific Anupana | Madhu, Ghruta |
| 17 | SITOPALADI CHURNA97 | Key ingredients | Sita, Vamshalochana, Pippali, Ela, Twak |
| Dosha / Rogaghnata | Kapha Pitta kasa shwasa hara |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Dose | 4gms |
| Frequency | TID |
| Specific Anupana | Madhu, Ghruta |
| 18 | VASAKARISHTA98 | Key ingredients | Vasa, Trikatu, Twak, Ela, Patra |
| Dosha / Rogaghnata | Shwasa, Kasa, Galaroga, Urakshata, Gala roga, |
| Dose | 15ml |
| Frequency | TID |
| Specific Anupana | Shrutasheetajala |
| 19 | KANAKASAVA99 | Key ingredients | Dhattura, Vasa, Madhuka, Shunti, Bharangi, Talisapatra |
| Dosha / Rogaghnata | All types of Kasa, Shwasa, Yakshma, JeernaJwara, Kshataksheena |
| Dose | 15ml |
| Frequency | TID |
| Specific Anupana | Shrutasheetajala |

Special attention should be given to protect the Deha, Agni and Chetobala which will be the key to check the further progress of the disease100,101. The batteries of investigations like TLC, LFT, RFT, CRP, LDH, CXR which are helpful along with clinical signs to evaluate the therapeutic response and limitations of treatment should be aptly made use of.

SEVERE/ CRITICAL CASES

Supportive treatment along with Biomedicine if protocol permits.

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| --- | --- | --- | --- | --- | --- |
| SL | NAME | | SPECIFICATIONS | EXPLANATIONS | |
| 1 | JAYA RASA102 | MANGALA | Key ingredients | Swarna, Rajata, Dashamoola, Kirata | Hingula, |
| Dosha / Rogaghnata | Tridoshaja, Antarvegijwara | Dhatugata, |
| Dose | 62.5-125mg | |
| Frequency | BD | |
| Specific Anupana | Jeeraka kashaya | |
| 2 | MAKARADHWAJA103 | | Key ingredients | Swarna bhasma, Kasturi, Abhraka | Kajjali, |
| Dosha / Rogaghnata | Puranajwara, Kasa, Shwasa | |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Dose | 62.5-125mg |
| Frequency | OD |
| Specific Anupana | Madhu |

Based on the clinical variations, the following may be utilized if need –

* + Mahalakshmivilasa Rasa
  + Vasantamalati rasa
  + Hemagarbhapottali Rasayana

REHABILITATION

Even after clinical recovery if persistently positive for Covid 19

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| --- | --- | --- | --- |
| SL | NAME | SPECIFICATIONS | EXPLANATIONS |
| 1 | TIKTA GHRUTA104 | Key ingredients | Triphala, Haridra, Vasa, Parpata, Patola, Katuki, Nimba |
| Dosha / Rogaghnata | Vishamajwara |
| Dose | 125mg |
| Frequency | BD |
| Specific Anupana | Jeeraka kashaya |
| 2 | PUNARAVARTAKA JWARAHARA KASHAYA105 | Key ingredients | Kiratatikta, Katuki, Musta, Parpata, Guduchi |
| Dosha / Rogaghnata | Punaravartakajwara |
| Dose | 15ml |
| Frequency | TID |
| Specific Anupana | Shrutasheetajala |
| 4 | SWARNA MALINI VASANTA RASA106 | Key ingredients | Swarna bhasma, Hingula, Mukta, Pippali, Kharparasatwa |
| Dosha / Rogaghnata | Jeerna jwara,Vishamajvara, Kasa |
| Dose | 62.5-125mg |
| Frequency | BD |
| Specific Anupana | Madhu, Pippali churna |

Clinical recovery with Negative for Covid 19 test-

|  |  |  |  |
| --- | --- | --- | --- |
| SL | NAME | SPECIFICATIONS | EXPLANATIONS |

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | INDUKANTA GHRUTA107 | Key ingredients | Karanja, Devadaru, Dashamoola |
| Dosha / Rogaghnata | Vatahara Jwarahara,Balya |
| Dose | 20-40gm |
| Frequency | OD-early morning |
| Specific Anupana | Ushnajala |
| 2 | BRAHMA RASAYANA  108 | Key ingredients | Amalaki, Haritaki,  Panchapanchamula |
| Dosha / Rogaghnata | Deerghayu&Arogyadayaka |
| Dose | 25-50gms |
| Frequency | OD-Early morning |
| Specific Anupana | UshnaJala, Ksheera |

NOTE: All the above mentioned herbal and herbo mineral preparations are the popular prescriptions based on clinical expertise of the author in the management of various stages of Jwara in general medical practice and are discussed in brief. But further validation is required for the use of same in epidemics like COVID-19.

LIST OF EKAMULIKA PRAYOGA

Pomegranate fruit is a good source of vitamin c, B55, polyphenols and potassium. It augments the digestive fire, loss of taste, and pittaja jwara. Also if the vit c level is maintained, it prevents viral diseases.

MATULUNGA

बीजपुरो मातुलुन्गोः रुचकः फलपूरक: बीजपूरफलं स्वदु रसेअम्लं दीपनं लघु रक्तपपत्तहरं

कण्ट्जजह्वाह्रदय़शोधनम् श्वासकासरुचचहरं हृध्यं त्रष्णाहरं स्रतम् II (भा. नन)

In Malaya, a decoction of the fruit is taken to drive off evil spirits. In Panama, they are ground up and combined with other ingredients and given as an antidote for poison. The essential oil of the peel is regarded as an antibiotic.

Grapes are rich in water, sugar, sodium, potassium, citric acid, fluoride, potassium sulfate, magnesium and iron. Grapes are very useful for removing the weakness of the heart. The patient should eat grapes regularly. Consumption of grapes removes phlegm accumulated in the lungs, it also helps in cough. Grapes nausea, nervousness, It is also beneficial in dizziness diseases. Breathe Disease in and airways diseases is also beneficial to use the grapes.

SOMLATHA -Somalata or Moon plant (Sarcostemma acidum) existing in warmer regions in European and Asian countries like India, China, Pakistan, Srilanka, Iran has various religious and pharmacological significances. The main ingredient is Somalata "The divine amrutham "Somarasam" is an extract of this herb"

Botanical name: Sarcostemma acidum

Somlata a member of family Asclepiadaceae is believed to be close to "Soma" a divine drink that confirms immortality, had ritual importance in Indian mythological system. The use of Soma by humans is mentioned in the Rig Veda, written more than 5000 year ago, which says that soma makes us immortal, lightened, and helps to find gods.

It has kashaya rasa,laghu, ruksha gunas,katu vipaka,ushna virya,kaphavata shamaka and indicated in shwasa,shosha,trishna

Parts used:Branch,fruit

Dosage:1-2g

Actions: Bronchodialator, Vasodialator, Anti-asthmatic, Diaphoretic. Chemical composition:Ephedrine is the major content of the plant.

Ephedra, genus of 65 species of gymnosperm shrubs of the family Ephedraceae. Ephedra is an evolutionally isolated group and is the only genus in the order Ephedrales (division Gnetophyta). Species are distributed in dry regions in both the Eastern and Western hemispheres. In the Western Hemisphere, Ephedra occurs in desert areas in the southwestern United States, in parts of Mexico, and in a wide area in South America.

Plants of the genus Ephedra, including E. sinica and others, have traditionally been used by indigenous people for a variety of medicinal purposes, including treatment of asthma, hay fever and the common cold. The alkaloids ephedrine and pseudoephedrine are active constituents of E. sinica and other members of the genus. These compounds are sympathomimetics with stimulant and decongestant qualities and are chemically substituted amphetamines.

KASAMARDA

कासमर्ददलं रुच्यं वृष्यं कासविषास्त्रनुत ।

मधुरं कफवातघ्नं पाचनं कंठ्शोधनम् ।

विशेषत: कास हर पित्त ग्राहक लघु । भाप्र

Rasa-Tikta, Madhura

Vipak-Katu

Virya-ushna

Guna-Ruksha, laghu, Tikshna

Doshaghnata :Kaphavatashamak, Pittasaraka

Karma-Ruchya,kantha shodhaka,kasa hara

KANTAKARI DWAYA

1.Brihati (Solanum indicum)

2.Kantakari (Solanum xanthocarpum) are described as Brihatidwaya or Kantakari dwaya.

Brihati and Kantakari are considered together in the name of Brihati Dwaya. Among these, Brihati is larger and kantakari is smaller.

Part used:Moola,phala

It has katu-tikta rasa,laghu,ruksha,teekshna guna,ushna virya,katu vipaka,kapha vata hara And acts as deepana,pachana,kasahara,jwaraghna,krimihara.

KARPOORA

Botanical name: Cinnamomum camphora

Karpoora (Camphor) is a potent antimicrobial indicated in shwasa kasa, ama-jwara

sarahheda agnimandya galagraha etc.

It is an effective mukha dourgandhya hara dravya and in upper respiratory as well as in respiratory symptoms. Preparations of karpoora vis brihat karpooradi churna are widely indicated.

It may be a drug of recommendation.

AMRUTA (Tinaspora cordifolia): its potent antiviral activity is proved in HSV-1. It has immune stimulating properties. Samshamani vati, chinnaruha kashaya, Guduchi satwa, Amritarista, Amrutottara kashaya are available preparations.

HARIDRA (curcuma longa): it has proved antiviral and anti-inflammatory properties, it also improves immunity. It gives excellent results in fever, coryza, eosinophilia, and other upper respiratory conditions. For preventive purpose, 2-3 gms of turmeric can be taken with warm milk and jaggery. It can be used with hot water for gargling.

PIPPALI (piper longum):

It contains piperine which is having significant anti inflammatory activity. Cough, common cold, throat irritation, fever are the main indications. It gives relief in these conditions besides reduces the weakness or fatigue caused due to disease. It is one of the best immune modulator especially in conditions relating to upper and lower respiratory conditions. Amruta satwa 20gms+ choushasta prehari pippali 20gms+ brihat haridra kanda 100gms. This preparation when taken 1tsp twice daily with lukewarm water provides excellent immunity in conditions of respiratory system. The above combination can be mixed with 5gms of shataputi Abraka bhasma and given with honey in conditions of lower respiratory tract specially in breathlessness.

YASTIMADHU (glycyrrhiza glabra): it is a time tested and proven drug for its widespectrum action in respiratory disorders. One of its active ingredient Glycyrrhizin helps to prevent viral replication. Its decoction prevents viral proliferation in throat when used for gargling.

TULSI (Ocimum sanctum): it is a commonly used drug for its excellent action in upper respiratory disorders. Its extract along with leaf extract of Acacia Arabica has shown anti viral properties.

ARDRAKA(Zingiber officinalle): fresh ginger is effective against human respiratory syncytial virus in human respiratory tract induced plaque formation on airway epithelium by blocking viral attachment and internalization.

KALAMEGHA(Andrographis panniculata): it has a potent antiviral activity. BHUMYAMALAKI (Phyllanthus niruri): its bioactivity role is presented by elevated levels of antibacterials and antioxidants and also has immune activation potentials.

AMALAKI- Amalaki possesses significant Immunostimulant activity and moderate cytoprotective activity. It is rich in Vitamin C which is a natural Antioxidant

ASHWAGANDHA - Withaferin8 A and 3-b-hydroxy-2,3-dihydrowithanolide F isolated from Withania somnifera show promising antibacterial, antitumoral, immunomodulating and anti- inflammatory properties Antiviral9 activity of Withania somnifera extract has been reported earlier on Herpes Simplex Virus Type-1. The inhibitory10 action of Withaferin A, a steroidal compound present in Withania somnifera against Herpes Simplex Virus has also been reported.

LIST OF POPULAR MEDICATIONS USEFUL FOR COVID-19:

Yavagu prepared or Vidanga, Pippali, Shigru, Maricha with Takra and Sauvarchala – is Krimighna. Cha. Su. 2/23.

• Yavagu prepared of Dashamoola cures Kasa, Hikka, Swasa and diseases due to kapha. Cha. Su. 2/27.

• Panchakolasiddha Yavagu - Deepana - pachana Milk of Sheep and Goat: Kasa, Jwara, Hikka and Swasa. Cha.Su.27/ 222

• Yavagu prepared of laja saktu (powder of fried paddy) in Jwara. Cha. Chi.1/155 • Yavagu prepared of vidaryadi gana dravya when Jwara associated with Kasa, Swasa and Hikka. Cha. Chi.1/184

Ahara: Puranashali, Sahshtikashali, Patola, Mudga, Karkotaka, siddha Yusha. Saveera, Tushodaka, Shukti, Raga, Kambalika, Veshavara and Puranasarpi.

Medicated diet:

1. Medicated gruel:

Gruel prepared using monocots like rice, barley, sooji, etc and processed with pippali, dashamoola, ginger, rocksalt etc are helpful to maintain resistance and nutritional balance.

2. Laaja peya (Parched rice-khoi):

* + - 1. part of parched rice is boiled with 14 parts of water and reduced to half. The supernatant portion is added with medications like dashamoola, ginger and honey. This preparation helps in fever associated with cough, breathlessness and diarrhoea. Peya prepared with pomegranate is also useful

3. Yoosha:

Yoosha is a preparation where 1part of dicot preferably greengram or horsegram is cooked with 18 parts of water and reduced to 1/4th part and used. This preparation is easily digested, it improves taste perception and promotes strength as it is rich in protein.

In conditions where fever is associated with diarrhoea, yoosha medicated with musta(cyperus rotundus), Chirayata(swertia chirata), Shunti(zingerber officinalis), and Guduchi(tinaspora cordifolia) is useful.

When yoosha is prepared with greengram and is processed with pomegranate and gooseberry, it provides rich source of vit.c that acts as immunomodulator.

4. Shadanga Paneeya:

It is a wonderful combination of 6 drugs all taken in equal quantity in coarse powder form. Musta (cyperus rotundus), parpata (Fumeria Indica), usheera (vetiveria zizanoides), chandana (centella album), udeechya (Andropogan vetiveria), nagara (zingeber officinalle). 15 gms of this powder is put in ½ It of boiling water and allowed to cool. It is later filtered and used. The patient is told to take sips of this preparation repeatedly. These drugs mainly have antipyretic effect and also reduce the associated symptoms of fever.

Swasthasyaurjaskara Chikitsa.109

Non pharmacological methods which may be followed -

1. Achararasayana:

Regular practice of personal, social ethics of general health to promote the physical, mental, emotional and Social health. It includes practice of general guidelines of daily and seasonal dietetics and balanced diet as per individual constitution and specific guidelines of

Janapadodhwamsa.

chavanaprashaa

**Phala :** Visheshata Kasa, Swasa, Ksheena, Kshata Swarakshyaya, angavrudhi in Bala Uroroga, Hrudroga, Vatarakta, Trishna, Shukrasambandhi Vatadi Doshavikarahara. Medha Smriti, Kantiarogya, Ayu, Indriyabala, Maithunashakti, Jatharagnivrudhi, Varnakantivrudhi Vatanulomanam and Navayavanaprapti.**110**

**Dose:** **6 – 12 grams** with water

1. **Agastya Haritaki Rasayana (Agastya Haritaki):**

**Phala:** Hikka, Kasa, Swasa, Kshaya, Hrudroga, Vishamajwara, Sangrahani, Aruchi, Peenasa Valipalita, Varna ayu balakaram and acts as Rasayana. 111

**Dose: 6 – 12 grams** Warm water or Ksheera.

* 1. **Vyagri Rasayana:**

**Phala:** Peenasa, Swasa Sawarakshaya, Kshayaja, Kshataja, Vatika, Paittika, Kaphajanya, Dwidoshaja, Sannipataja, and Ekadasharupa upadravayukta Rajayakshma. This will acts as

Rasayana.112

**Dose:** **6 – 12 grams** with Shritasheetajala or Mandhoshna dugdha

* 1. **Kushmanda Khanda (Kushmanda Rasayana):**

**Matra:6 – 12 grams** with Jala, Ksheera

**Phala:** Kasa, Swasa, Jwara, Urakshata, Kshaya, Swarabedha Puranajwara, Raktapitta, Chardi,

Trishna, Shukra kshaya, Dourbalya Karshya, and Vaivarnya. It will acts as Rasayana. 113

* 1. **Shivagutika :**

**Phala:** Kshaya, Shosha, Peenasa, Hikka, Kasa, Swasa, Damstravisha and Garavisha,

Mantroushadha Prayoga, Mukharoga, Netraroga, Shiroroga, Anaha, Atisaraprameha,

Yakritroga.114

**Matra:** 6 grams **Anupana:** Ksheera, Mamsarasa, Dadimarasa, Sura, Asava, Madhu and

Sheetalajala.

* 1. **Pippali Rasayana:**

**Phala:** Kasa, Kshaya, Shosha, Swasa, Hikka, Galaroga, Vishamajwara, Vaiswarya, Peenasa, Arshas, Grahani dosha, Panduroga, Shopha, Gulma and Vatabalasakajwara.115

**Dose: 10, 6, 3 Uttama, Madhyama and Avaramatra**

**Pippalipaka: Yogaratnakara Vishamajwara adhikara**

1. **Lashuna Rasayana:**

**Lashuna Matra:** Avara matra-4 Pala, Madhyama matra- 6 Phala, Uttama matra-8 or 10 Pala, or 50 in number 60 in number and 100 in number Respectively.

**Phala:** Kasa, Swasa, Krimi, Jeernajwara, Agni and Bala vardhanartha Lashuna Rasayana is best. Asthichuti, Astibhagna, Astivyadhi, All Vatarogas, Arthavasambandhi roga, Veeryasambandhi roga, Bhrama, Kusta, Gulma, Kilasa, Kandu, Visphota, Vaivarnyata, Timira, Naktandya, Ashmari, Mutrakrichra, Baghandhara, Pleeharoga, Shosha,Vatarakta it also enhances Medha.116.

1. **Dashamoola Hareetaki Rasayana:**

**Dose: 12 grams** with Jala,

**Phala:** Jwara, Shotha, Karshya with Milk117

1. **Kantakari Avaleha:** **Dose: 12 grams** with Jala,

**Phala:** Kasa, Swasa, Hikka118

1. **Mahashatphalaghrita:**

**Dose: 12 ml**

**Phala: Jwara, Swasa Yogartnakara Vishamajwara**

1. **Sevantipaka:** Jeernajwara, Kshaya, Kasa all types of Mukharoga **Yogartnakara Jwara. Dose 12gms**

**Stage vise chikitsa**

**Stage 1**

Patient with positive travel history/ contact with suspected or diagnosed cases/ home quarantine/ isolation with no or very mild symptoms.

**Consider the patient having Amavastha of Jwara with Vata and Pitta predominance**

* Panchakola Phanta – Amapachanartha yatha yogya
* **Shadangapaneeya:** Subject should start taking Shadangapaneeya frequently in warm condition. 50 ml every hourly119
* Decoction prepared out of Ardraka, Tulasi, Maricha, Amruta, Guda (Jaggry) can be taken three to four times in a day.
* Tab-Sudharshana Ghanavati 1tid as a prophylactic.
* Gandoosha with Yastimadhu and Triphala siddha Kashaya

**Shleshmika Sannipata Jwara** (Alasya, Aruchi, Hrillasa, Daha, Vamana, Bhrama, Tandra and Kasa)

**Pathologic hallmark**

**Principals: Amapachana, Jwara shamana, Kaphashodha and Vatanulomana Kashaya:**

* Shadanga paneeya - 50 ml every hourly **Jwaraprakarana( Jwara, Daha, Trishna, Atisara, )**
* Amruthothara kashaya -before food 15 ml bid with warm water120 **(Tridoshahara, Pratishyaya, Sarvajwarahara, Ama and Ajeerna Rasadhatu dhustihara).**
* Bharangyadi kashaya – 15ml twice daily with warm water

**(Pachana, Kasa, Swasa, Sannipatajajwara, Tridoshahara, Hritshoola, and Agnimandhya)**

* Bhoonimbadi kashaya - 15ml twice daily with warm water 121

**(Swasa, Kasa and Raktapitta, Deepana) Gutika**:

* Tab Sanjeevani vati- 1-2 tab before meals, with warm water122 **(Deepana, Ama pachana, Krimihara, Kaphahara and Sannipatajajwara)**
* Tribhuvana keerti rasa -125mg twice in a day, with Ardraka swarasa as Anupana

**Rasamrita Rasayoga, Y.R, Jwara** **(all types of Jwara)**

* Tab Jayamangala rasa 125mg twice daily with Madhu as Anupana **Bai.Rat. Jwara** (Santata Sarvajwara)
* Jwarghnagnigutika: 125mg twice daily with Madhu with Guduchiswarasa all types of Jwara **Yogartnakara Jwara.**

**Churna:**

**Taleesadi churna: Dose: 3-5gram bd with Madu**

**Phala:** Kasa, Swasa, Jwarahara, Atisara and Chardi.

**Sitopaladichurna: Dose: 3-5gram bd with Madu or Ghrita**

**Phala:** Swasa, Kasa, Hastapada daha, Mandagni and Jwara

**Triphala Pippali: Dose: 3-5gram bd with Madu or Ghrita**

**Khatphaladichurna: Dose: 3-5gram bd with Madu**

**Phala:** Jwara, Kantya, Kasa, Swasa, Kshaya and Aruchi

**Drakshadichurna: Dose: 3-5gram bd with Madu**

**Phala:** Jeernajwara, Aruchi, Swasa, Kasa and Shotha123

**Shringyadichurna:** Hikka, Swasa, Urdvavata, Kasa, Aruchi and Peenasa

**Dose: 3-5gram bd with Ushnodaka**

**Shuntyadichurna :** Mandagni, Kantaroga, Swasa and Hridroga 124

**Dose: 3-5gram bd with Ushnodaka**

**Samasharkarachurna:** Mandagni, Aruchi, Swasa, Kanta and Hrudayaroga **125**

**Shuskakasa:** Ropyabhasma + Pravalapishti along with Vasavalehya

**Gandoosha**

* Sukhoshna lavana Jala with Hingu and Yashtimadhu

**STAGE 2 –**

**Vata Shleshma pradhana Sannipata Jwara with Swasa Upadrava** (Sthaimitya,

Parvabheda, Shirograha, Pratishyaya, Kasa and Swedabhada)

**Kashaya** -

* Nayopayam kashaya - before food 15 ml bid with warm water

Kasa, Swasa, Hikka, Deepana, Pachana)

* Panchatiktaka kashaya - before food 15 ml bid with warm water

**Asava/Arista**-

* Amritarishta – 10ml twice daily with warm water after food
* **(Jwara, Agnimandhya, Kasa, Pratishyaya)**
* Kanakasava – 10ml twice daily with warm water after food

(Jeernajwara, Swasa, Kasa and Kaphachedaka)

* Vasakarista – 10ml twice daily with warm water after food
* (Tridoshahara, Deepanapachana, Kasa, Swasa, Shotha Raktapitta, Balya, Hrudhya and Raktadushtihara)

**Gutika** –

* Lakshmivilasarasa – 200 mg bid Kasa, Peenasa, Yaksma, Prameha, Galashosha
* Tribhuvanakeertirasa – 125 mg thrice daily with Ardraka swarasa as Anupana

Sannipatajajwara, Vatakaphajwara

Chintamanirasa – 125 mg bid Kasa, Pratishyaya and Balya

* Brihat Kasturibhairava rasa – 125mg bid with Dashamularishta

(Vatakaphashamaka and Sarvajwarahara)

* **Siddha Aswakanchuki rasa\*** ½ ratti pramana with Ardraka swarasa
* Kasa, Swasa, Jwara and Pranavahasrotovikara)
* Mrutyunjayarasa – 125-200 mg thrice daily Sarvajwara,
* **Churna**-
* Sudarshana churna – 3grams twice daily with warm water Jeernajwara and Vishamajwara126
* Taleesadichurna: **Dose: 3-5gram bd with Madu Phala:** Kasa, Swasa, Jwarahara, Atisara and Chardi.

**STAGE 3 –**

**Gandoosha** – Continue same

**\* This particular yoga is Anubhuti yoga explained by author in the context of Jwaraprakarna and it was used by siddhayogi in the year 1921 when there is crisis of Plague pandemic. This yoga has 20 ingredients; shuddha parada, Tankana bhasma, Shuddha gandhaka, Vatsanabha, Shunthi, Maricha, Pippali, Hareetaki, Vibhitaki, Amalaki, Chitraka moola, Hingu, Shuddha Hingula, Revalachinni, Musta, Shuddha haratala, Vacha, Shuddha Somala, Shuddha Jayapala, Gokshura 10gms of fine powder of each and Bhringaraja Swaras(qs).**

**Dhathupakavastha-Pitta prakopa-Vatakaphanubandhi Sannipata (**Shaitya, Kasa, Aruchi,

Tandra, Pipasa, Daha and Hrudivyatha)

**Jwara shamana, Dhatuposhaka, Dhatupaka nivarana, Kasa, Swasahara and Rogibalasthirakara**

**Kashaya**-

* Bharangyadi Kwatha Dwitiya – before food 15 ml bid with warm water

**Yogaratnakara Vishamajwara** (Upadravayukta Jwara, Mrityuhara, Krimi, Hritvikra, Chittabhrama and Swasashoola)

* Darvyadi kashaya – before food 15 ml bid with warm water

**(Vishamajwara, Ekahika, Dwahika, Tritiyakajwara, Chaturtaka Jwara and** Bhutajwara,)

* Patolamooladi kashaya – before food 15 ml bid with warm water
* Parpataka kashaya – before food 15 ml bid with warm water **Rasa**-
* Brihat kastooribhairavarasa – 125mg bid with Dashamularishta **Jwara**

(Vatakaphashamaka and Sarvajwarahara)

* Swarnamalini vasanta rasa – 125mg bid with Madhu / Pippalichurna
* **Jwara Sarvajwara**
* Mruthyunjaya rasa – 125-250mg**. Jwara Sarvajwara**
* Swasa kasa chinthamani rasa – 125mg bid with Madhu as Anupana
* **Hikkswasadikara** (Kasa, Swasa and Pratishyaya) **Asava/Arishta**
* Dashamoolarista-10ml bid with ushnodaka after food (Pranavasrotovikara Kasa, Balya)
* Vasakasava - 12ml-24ml bid with Ushnodaka after food127, Swasa and Kashaya.

**STAGE 4 –**

1. Poornachandra makaradwaja rasa 125mg

i. +

Brihat kasturibhairava rasa125mg ii. +

Jayamangala rasa 125 mg all to be administered frequently with honey

1. Gudaadichurna- **Teevraswasa**

1. Potash alum red verity bhasma 2-4ratti with Madhu or Ghrita, Raktashodhaka, reduces Swasavega, Kasahara, Parshvashoolahara, Urashoolahara and acts as Amritasamana -
2. Godhantibhasma 1ratti + Haratalabhasma 1ratti Shrungabhasma 1ratti with Betel leaf gives Swasavega, Kasahara, Parshvashoolahara, Urashoolahara and acts as Amritasamana –
3. Anandabairavarasa+ Sitopaladichurna+ Yastimadhuchurna+ and Abhrakabhasama Swasavega, Kasahara, Parshvashoolahara, Urashoolahara and acts as Amritasamana.

When there is Galshoola, Galakandu, Galashotha the following medications may be used in terms of Kavala and Gandusha.

1. **Katukadi kwata:** Katuki, Atasi, Pata, Daruharidra, Nagarmotha, Indrayava All Are Taken as Yavakoota Churna and Mix with Gomootra and Prepare Kwata. Which Shresta in Kanta roga.
2. **Patadi churna:** Pata, Rasanjana, Moorva, Tejohva Are Taken In Equal Quantity Churna is Prepared And Taken With Madu As Kaval Or Gandhush In Kantagata Rogas.
3. **Moordwika churna:** Draksha, Katuki, Triphala, Daruharidra, Triphala,Nagermotha Taken in Equal Quantity Churna Mixed with Ghrata Manda and used as Mukhadhawana.
4. **Peetaka churna:** Shuddha Manasheela, Yavakshara, Haratala, Saindava, Daruharidra, All Churnas Taken in equal quantity mixed with Madhu used as Mukhadharana. Relieves All Types of Kantarogas and Mukharoga.
5. **Pippalyadi churna:** Pippali, Agaru, Daruharidra Twak, Yavakshara, Rasanjana, Pata, Tejohva, Haritaki all Churnas are mix with Madhu and use as Mukhadharana. 128
6. Kavala and Gandushartha kalpas explained by acharya Sushruta in his Nidanastana chapter no.16 are as follows.
   1. Gandusha with Guduchi, Nimbakalka, Madu and Taila.
   2. Gandusha with Triphala and Trikatu.
   3. Brahat Panchamoola Kwata with Taila.
   4. Apamarga Jatipatra, Dantimoola, Vidanga And With Taila For Gandusha.
   5. Darvyadi kwata – Daruharidra, Rasanjana, Chitraka, Nagarmotha,Indrayava, Guggulu, Haritaki,Churnas Make Kashaya of that and mix with Madhu and use as Gandusha.
   6. Yavakshara, Tejohva, Pata, Rasanjana, Marich, Daruharidra mixed with Madhu and use as Gandhusharta.129

Considering Route of entry of Virus in Mucosal linings of the Oropharynx, Nose & Eyes, Primary prevention for above mentioned category have to be adopted in the form of Bahirparimarjana upakramas like Kavala & Gandusha, Nasya, Akshi tarpana/parisheka & Dhupana karma.

**Kavala & Gandusha**:

* Haritaki Kashaya with Honey

* Kashaya prepared with Draksha, Guduchi, Sumanapravala, Darvi, Yavasa, Triphala with Honey

* Trikatu with Kshara jala and Lavana

**Netra Tarpana/ Parisheka**: :

* Triphala Gritha can be used for Tarpana and Triphala Kashaya can be used for Parisheka

**Nasya:**

* Pratimarsha nasya with Anu taila or Goghritha.

**All these external therapies (Kavala, Gandusha, Nasya & Netra tarpana/ parisheka) will induce first line of defense by strengthening the mucosal lining of eyes, nasal cavity & oropharynx. These therapies create unfavorable condition (barrier) for proliferation & infiltration of pathogens. Kashayas being alkaline media retards the growth of micro organisms.**

**Dhupana karma:**

* Guggulu, Aguru, Sarjarasa, Vacha, Swetha Sarshapa, Lavana, Nimba patra with Gritha. This dhupana karma is a **Traditional method of fumigation which ensures the protection from microbes in the living atmosphere.**

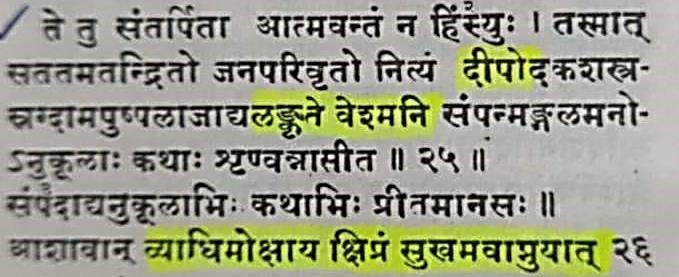
**Ushna Jalapana:**

In the context of Janapadhodhwamsa Vyadhis Characterized by Jwara as a main clinical feature Ushna jalapana is strongly recommended by our Acharyas. Hot water is best Appetizer, Digestive, good for throat ailments, helps to relieve cough, breathlessness, cold, running nose & it clears phlegm in chest

* TAMBOOLA SEVANA:
  + Mukha dourgandyahara
  + Krimighna

Ayurvedic classics mentioned that chewing betel leaves wards off increased Kapha, provide clarity, good taste and smell in the mouth, luster and charm on the face, it removes dirt of the jaw and teeth, gives pleasant voice, cleanses tongue, checks excessive salivation, is pleasing and alleviates diseases of throat. Combination of betel leaves with slaked lime, areca nut and catechu mitigates all the three Dosha. It is aphrodisiac, kills harmful microorganism, improves physical and mental stamina, improves quality of voice and brings good fortune. In diseases like Alasa (abscess at the route of tongue), Upajiwhika (ranula), Vidradhi (abscess), Talushosha (dryness of soft palate), Dantaroga

* **DAIVA VYAPASHRAYA CHIKITSA**



Deepa alankrita Griha is explained in Sushruta samhita. It is treatment for 8 types of bhoota. It will increase positive energy of the house Positive results are seen in few patients130

Vachadhupa

* Shirishadhupa
* Ashthangadhupa
* Aparajitadhupa: 131
* Bhutajwaredhupa- Kalyanakaraka
* **Maheshvaradhupa:** Skandonmada, Pisacha, Rakshasa, Devonmada, and Vishamajwara Yogaratnakara Jwarachikitsa

**Dhupana:** Dhupa prepared out of Vacha, Kushta, Haritaki, Sarshapa, Guggulu, Nimba, Ghrita, Madhu which purifies surrounding environment and destroys the toxic organisms131.

**Dhupanachikitsa/ Homa Havana** using Ghrita, Guggulu, Chandana, Vidanga, etc, purifies environment by destroying the cause, by all these self purification.

***Tatra Daivavyapashara***- *mantra aushadha mani mangala bali upahara Havana/ homa Japa,*

*Devadarshana, Pujana prayachitta upavasa swasthayana adi* **131**

**Adravyabhuta chikitsa:** Santvana, Aswsana and Sthanaparityaga

**Bhutabhishyangajajwara-** Jnana, Vijnana, Dhairya and Samadhi and Ekagrachittata pacifies

Bhutabhishyangaja Jwara.

Sahadevamula kanta bandhana within 1-4 days pacifies Bhutajwara. **132**

**MANTRA CHIKITSA:**

**Vishnusahasranama-** Sarva Jwarahanti.133vishwam vishNur vashatkAro, bhUtha bhavya bhavatprabhuH | bhUtha kRdh bhUdha bRdh bhAvo, bhUtAtmA bhUta bhAvanaH ||

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**Mahamrityunjayamantra**

**ॐ त्र्यम्बकं यजामहेसगन्धंु ऩनटिवधनधु म ् । उवाधरुकममव ब्धना्मत्योमृ ऺीयुध मामतातृ ् ॥**

Om Try-Ambakam YajaamaheSugandhim Pusstti-Vardhanam

Urvaarukam-Iva BandhanaanMrtyor-Mukssiiya Maa-[A]mrtaat ||

These mantras are said to pacify both shareerika and manasika roga.

1. **Research updates about herbal drugs and formulations for COVID 19**

**1. *Zingiber officinale* Roscoe**

In an experimental study, effect of hot water extracts of fresh and dried gingers on HRSV was tested by plaque reduction assay in both human upper (HEp-2) and low (A549) respiratory tract cell lines. Ability of ginger to stimulate anti-viral cytokines was evaluated by enzyme-linked immunosorbent assay (ELISA). Fresh ginger dose-dependently inhibited HRSV-induced plaque formation in both HEp-2 and A549 cell lines (p<0.0001). The study concluded that, fresh ginger of high concentration could stimulate mucosal cells to secrete IFN-β that possibly contributed to counteracting viral infection.7 (i.v.) administration of (6)-gingerol (at 1.75-3.5 mg/kg) or (6)-shogaol (at 1.75-3.5 mg/kg) and oral administration of them (at 70-140 mg/kg)

produced antipyretic effect. In addition (6)-Shogaol also showed an intense antitussive effect in comparison with dihydrocodeine phosphate. Ginger and its isolated active components, [6]gingerol, [8]-gingerol, and [6]-shogaol, relax ASM, and [8]-gingerol attenuates airway hyperresponsiveness, in part by altering [Ca2+]i regulation. These purified compounds may provide a therapeutic option alone or in combination with accepted therapeutics, including β2agonists, in airway diseases. In a clinical trial to evaluate the effect of ginger on inflammatory factors in the respiratory profile of patients with ARDS, Thirty-two ARDS patients were randomized to receive ginger or placebo. Ginger supplementation was found to significantly lower inflammatory cytokines; IL-1, IL-6, and TNF-α. Improvements in oxygenation were also observed with ginger supplementation. This data shows promise for the use in ginger in enteral diets and formulations for patients with ARDS, potentially improving gas exchange, decreasing the duration of mechanical ventilation and ICU stays. In addition, ginger ameliorated allergic asthma by reducing allergic airway inflammation and suppressed Th2-mediated immune responses in mice with ovalbumin-induced allergic asthma.Moreover, the water-extracted polysaccharides of ginger could decrease times of coughing, which was induced through citric acid in guinea pigs.Besides, ginger oil and its bioactive compounds, including citral and eucalyptol, inhibited rat tracheal contraction induced by carbachol in rats .

The above results indicate that ginger and its bioactive constituents, including 6-gingerol, 8gingerol, 6-shogaol, citral, and eucalyptol, have protective effects against respiratory disorders, at least mediating them through the induction of relaxation in airway smooth muscle and the attenuation of airway resistance and inflammation.

1. ***Piper Longum* Linn.**

The fruit effectively reduce passive cutaneous anaphylaxis in rats and protect guinea pigs against antigen-induced bronchospasm; a 30% protection of mast cells was observed in an in vitro study. Studies conducted on children revealed that long-term use of fruits decreased (58.3%) severity of bronchial asthma attacks. Piperine decreased the rate and amplitude of respiration and showed nonspecific blockade of acetylcholine, histamine 5-hydroxytryptamine induced spasm on isolated guinea pig and rabbit intestine. Decoction and alcoholic extract of Amalakyadi Gana (Pippali is one of the ingredient) has moderate antipyretic activity in rats, which may be due to inhibition of the synthesis and/or release of local PGE2.

1. ***Curcuma longa* L.**

A study reported that, curcumin inhibits the infectivity of enveloped viruses. In all analyzed enveloped viruses, including the influenza virus, curcumin inhibited plaque formation. The study provided the insights on the molecular antiviral mechanisms of curcumin and its potential use as an antiviral agent for enveloped viruses Numerous *in vitro* and *in vivo* studies have shown that curcumin is active against different viruses, bacteria and fungi, including even highly pathogenic, emerging and multi-drug-resistant strains. Using a well-established model of reovirus 1/L-induced acute viral pneumonia, which displays many of the characteristics of the human ALI/ARDS, a study evaluated the anti-inflammatory and anti-fibrotic effects of curcumin. Administration of curcumin significantly modulated inflammation and fibrosis, as revealed by histological and biochemical analysis. The expression of IL-6, IL-10, IFNγ, and MCP-1, key chemokines/cytokines implicated in the development of ALI/ARDS, from both the inflammatory infiltrate and whole lung tissue were modulated by curcumin potentially through a reduction in the phosphorylated form of NFκB p65.Extract of *C. longa* also proved as a potential antiviral against DENV with low cytotoxicity and effective inhibition.

1. ***Ocimum sanctum* Linn**

The essential oils like Eugenol of Tulsi leaves produce anti-viral activity. The extracted components of this plant like linalool, apigenin and ursolic acid show broad spectrum antiviral activity. Ocimum sanctum in the dose of 100mg/kg and 300mg/kg significantly reduced yeast induced pyrexia. The antipyretic effect of Ocimum sanctum is dose dependent and the effect is as a result of the flavonoid component of the extract. The mechanism of action could be by inhibition of release inflammatory mediators and prostaglandins.It has been reported to be a strong antioxidant against oxidative stress, genotoxicity and imbalanced xenobioticmetabolizing enzymes induced by 7,12- dimethylbenz [a] anthracene in rats.In a study, it is also predicted that hydroxy group on 4 th position of phenyl ring is responsible for bronchial smooth muscle relaxation. Presence of methoxy and propylene group on the phenyl ring may confer a maximum β-activity and selectivity. The presence of ursolic acid in the volatile oil may be responsible for anti-inflammatory activity, which may be due to inhibition of COX.

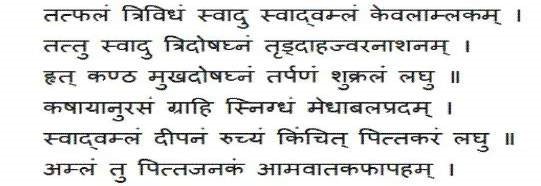
1. ***Allium sativum L.***

A study was carried out to evaluate the effect of *Allium sativum* (Garlic) extract on infectious bronchitis virus in specific pathogen free embryonic egg Infectious bronchitis virus (IBV) is a coronavirus. The available vaccines against IBV cannot cover new variants. The study was done in four groups of embryonic SPF eggs; first group was used for virus titration; second group received the mixture of different virus titration and constant amount of garlic extract; third group received 10-3 titration of virus and after 8 hr received garlic extract and the last group received different dilutions of garlic extract. The results showed that as a primary mixture of different strains of IBV and garlic extract had greater inhibitory effects on non-acute strain than acute one and using garlic extract as a treatment 8 hr after exposure to different strains of IBV had a significant inhibitory effect which was similar on both field and vaccine strain**.** It is reported that, the S-ethyl cysteine or S-methyl cysteine can protect bronchial cells and respiratory epithelia. Garlic was found to be able to maintain the immune system homeostasis and to exhibit beneficial effects on immune cells especially through regulation of proliferation and cytokine gene expression. One of the main mechanisms observed is through modulation of cytokine profiles and, on the other hand, direct instruction and stimulation of immune cells. It is suggested that the garlic beneficial effects are attributed, in particular, to sulfur-containing compounds, some polyphenols, and flavonoids.

**6. *Swertia chirata* Buch Ham.**

In an experimental study, the aqueous extract of *Swertia chirata* Buch Ham. Root (ASC) (Family: Gentianaceae) was evaluated for its antipyretic potential on Brewer’s yeast induced pyrexia in albino rats and Typhoid-Paratyphoid A, B vaccine induced Hyperexia in rabbits. In both models, the extract, at dose of 200 mg kg−1 body wt. and 400 mg kg−1 body weight, produced significant (p<0.001) reduction in elevated body temperature in a dose dependent manner.

* **DADIMA PHALA SWARASA**



Pomegranate fruit is a good source of vitamin c, B55, polyphenols and potassium. It augments the digestive fire, loss of taste, and pittaja jwara. Also if the vit c level is maintained, it prevents viral diseases.

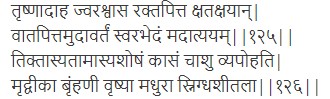
* **MATULUNGA**

**बीजपुरोमातुलुन्गो:रुचक:फलपूरक:**

**बीजपूरफलंस्वदुरसेअम्लंदीपनंलघुरक्तपपत्तहरंकण्ट्जजह्वाह्रदय़शोधनम्श्वासकासरुचचहरंह्रध्यंत्रष्णाहरंस्रतम् II(भा.नन)**

In Malaya, a decoction of the fruit is taken to drive off evil spirits. In Panama, they are ground up and combined with other ingredients and given as an antidote for poison. The essential oil of the peel is regarded as an antibiotic.

* **DRAKSHA**



Grapes are rich in water, sugar, sodium, potassium, citric acid, fluoride, potassium sulfate, magnesium and iron. Grapes are very useful for removing the weakness of the heart. The patient should eat grapes regularly. Consumption of grapes removes phlegm accumulated in the lungs, it also helps in cough. Grapes nausea, nervousness, It is also beneficial in dizziness diseases. BreatheDisease in and airways diseases is also beneficial to use the grapes.

* **SOMLATHA**

Somalata or Moon plant (Sarcostemma acidum) existing in warmer regions in European and Asian countries like India, China, Pakistan, Srilanka, Iran has various religious and pharmacological significances.

The main ingredient is Somalata .“The divine amrutham “Somarasam” is an extract of this herb” **Botanical name** : Sarcostemma acidum

Somlata a member of family Asclepiadaceae is believed to beclose to “Soma” a divine drink that confirms immortality, had ritual importance in Indianmythological system. The use of Soma by humans is mentioned in the Rig Veda, written more than 5000 year ago, which says that soma makes us immortal, lightened, and helps to find gods.

It has kashaya rasa,laghu,ruksha gunas,katu vipaka,ushna virya,kaphavata shamaka and indicated in shwasa,shosha,trishna

Parts used:Branch,fruit

Dosage:1-2g

**Actions** : Bronchodialator, Vasodialator, Anti-asthmatic, Diaphoretic.

Chemical composition:Ephedrine is the major content of the plant.

**Ephedra**, [genus](https://www.britannica.com/science/genus-taxon) of 65 species of  [gymnosperm](https://www.britannica.com/plant/gymnosperm) shrubs of the family Ephedraceae. *Ephedra* is an evolutionally isolated group and is the only genus in the order Ephedrales (division [Gnetophyta)](https://www.britannica.com/plant/gnetophyte). Species are distributed in dry regions in both the Eastern and Western hemispheres.In the [Western Hemisphere,](https://www.britannica.com/place/Western-Hemisphere) *Ephedra* occurs in desert areas in the southwestern United States, in parts of Mexico, and in a wide area in [South America.](https://www.britannica.com/place/South-America)

Plants of the genus *Ephedra*, including [*E. sinica*](https://en.wikipedia.org/wiki/Ephedra_sinica) and others, have traditionally been used by indigenous people for a variety of medicinal purposes, including treatment of [asthma,](https://en.wikipedia.org/wiki/Asthma) [hay fever](https://en.wikipedia.org/wiki/Hay_fever) and the [common cold.](https://en.wikipedia.org/wiki/Common_cold) The [alkaloids](https://en.wikipedia.org/wiki/Alkaloid) [ephedrine](https://en.wikipedia.org/wiki/Ephedrine) and [pseudoephedrine](https://en.wikipedia.org/wiki/Pseudoephedrine) are active constituents of *E. sinica* and other members of the genus. These compounds are [sympathomimetics](https://en.wikipedia.org/wiki/Sympathomimetic_amine) with [stimulant](https://en.wikipedia.org/wiki/Stimulant) and [decongestant](https://en.wikipedia.org/wiki/Decongestant) qualities and are chemically [substituted amphetamines.](https://en.wikipedia.org/wiki/Substituted_amphetamine)

* **KASAMARDA**

**कासमदददलंरुच्यंवृष्यंकासववषास्त्रनुत l मधुरंकफवातघ्नंपाचनंकं ठ्शोधनम् l**

**ववशेषत: कासहरवपत्तघ्नंग्राहकं लघु l l भाप्र**

Rasa-Tikta, Madhura

Vipak-Katu

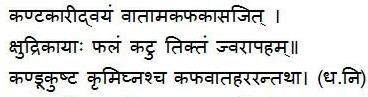
Virya-ushna

Guna-Ruksha, laghu, Tikshna

**Doshaghnata :**Kaphavatashamak, Pittasaraka

**Karma**-Ruchya,kantha shodhaka,kasa hara

* **KANTAKARI DWAYA**



1.Brihati (Solanum indicum)

2.Kantakari (Solanum xanthocarpum) are described as Brihatidwaya or Kantakari dwaya.

Brihati and Kantakari are considered together,in the name of Brihati Dwaya.Among these,Brihati is larger and kantakari is smaller.

Part used:Moola,phala

It has katu-tikta rasa,laghu,ruksha,teekshna guna,ushna virya,katu vipaka,kapha vata hara And acts as deepana,pachana,kasahara,jwaraghna,krimihara.

* **KARPOORA**

Botanical name: Cinnamomum camphora

Karpoora (Camphor) is a potent antimicrobial indicated in shwasa kasa, ama-jwara swarabheda,agnimandya galagraha etc.

It is an effective mukha dourgandhya hara dravya and in upper respiratory as well as in respiratory symptoms. Preparations of karpoora vis brihat karpooradi churna are widely indicated.

It may be a drug of recommendation for the symptomatic relief of **COVID 19.**

 **AMALAKI:**

**Gunakarma:** Amla, Madhura, Kashaya, Tikta and Katurasa, Guru, Ruksha and Sheetaguna, sheetaveerya, Madhuravipaka and Doshaghnata Tridoshashamaka. **Action:** Deepana, Pachana, Jwaraghna, Balya, Ropana, Trishna, Grahi, Mutrala,

Hrudhya and Shothaghna.

**Pharmacological Action:** Antibacterial, Antioxidant Anti diarrheal, Anti hermetic, Antifungal and Anti diabetic.

**Chemical Constituents:** Tannin, Carbohydrates, Proteins, Riboflavin, Thiamine, Vitamin- C and Citric acid.

**Nutrition:** Rich in Vitamin C, Calcium and Tannin.

**Indication:** Jwara, Krimiroga, Atisara, Pravahika, Mukharoga, Kantharoga, Aruchi, Agnimandhya, Thrishna, Amlapitta.



 **KHARJURA:**

**Gunakarma:** Madhurarasa, Snigdhaguna guru, Sheetaveerya, Madhuravipaka, Doshaghnata Vatapittashamaka.

**Action:** Balya, Brumhana and Dahaprashamana, Snehana, Anulomana, Raktashodhaka, Mutrala and Vrushya.

**Pharmacological Action:** Aantibacterial, anti-inflammatory, anti-diabetic, antiasthamatic, nephroprotective, hepatoprotective and aphrodisiac activities. Fruit contains anthocyanins, phenolics, sterols, carotenoids, and flavonoids.

**Chemical Constituents:** Sterols, Carotenoids, Procyanidins and Flavonoids

**Nutrition:** Proteins,Vitamins,Carbohydrates and Calcium.

**Indication:** Madatyaya, Murcha, Bhrama, Gridhrasi, Vatavyadhi, Trishna, Chardi,Krimi, Atisara, Kasa swasa, Hikka, Mutrakrichra, Shotha and Kshaya.

 **ANJUR/ PHALGU:**

**Gunakarma:** Madhurarasa, Guru, Snigdhaguna,SheetaVeerya, MadhuraVipaka and Doshaghnata Vatapittashamaka.

**Action:** Deepana, Pachana and Rochana, Krimighna, Balya, Brumhana, Vrunaropana, Raktashodhaka and Stambhana.

**Pharmacological Action:** Antipyretic, Antioxidant, Antibacterial, Antifungal, CNS and Cardiac stimulant, Cardio tonic, Hypoglycaemic and Diuretic.

**Chemical Constituents:** Amino acids, Gallicacids, Citric, malic acid, Riboflavin, Vitamin-C and Tannin.

**Nutrition:** Proteins, Carbohydrates, Minerals and Iron.

**Indication:** Atisara, Pravahika, Raktapitta, Krimi, Hridroga, Prameha, Aruchi and Agnimandhya.

 **AMRA**

**Guna karma:** Madhurarasa, Guru, Snigdhaguna, Sheetaveerya, Madhuravipaka and Doshaghnata Vatapittashamaka.

**Action:** Pittakara, Thishnashamaka and Rochaka.

**Pharmacological Action:** Anti inflammatory, Antifungal, Immuno modulatory,

Ant oxidative and insecticide.

**Chemical Constituents:** Vitamin C, Riboflavin, Proteins, Carbohydrates, Carotens, Malic, Lactic, oxalic and citric acid.

**Nutrition:** Proteins, Carbohydrate, Minerals Calcium, Tannin and Vitamins.

**Indication:** Jwara, Pratishyaya, Kasa, Aruchi, Agnimandhya, Arshas, Atisara, Shotha, Vatavyadhi, Twakroga, Netraroga and Karnaroga.

**LIST OF POTENT MINERAL AGENTS**

The following Mineral drugs can be used at different stages of management for COVID -19 in different formulations.

* 1. Hingula
  2. Abhraka
  3. Tamra
  4. **Haratala**
  5. Manashila
  6. **Gauripashana**
  7. **Swarna**
  8. **Rajata**
  9. **Pravala**
  10. Trivanga
  11. Swarnamakshika,
  12. Shilajatu
  13. Godanti

1. **LIST OF POTENT ANIMAL PRODUCTS**

* 1. Go-dugdha and Go-ghrita
  2. Go-Murta
  3. Gomaya
  4. Shringa
  5. Madhu
  6. Kasturi
  7. Gorochana

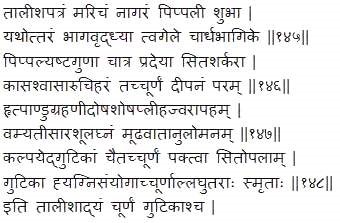
IMPORTANT FORMULATIONS

* **Bhargyadikwatha-** Swasa, Jwara.
* **Darvyadikwatha-** Swasa, Kasa, Galagraha, Hikka Shosha and Jwara.
* **Dashamulakwatha-** Kasa, Swasa, Parshvashoola, Kantagraha, Hridgraha **134**
* **Bhargyadikwatha-** Sannipatajwara, Vishamajwara, Jeernajwara, Agnimandhya. **135**
* **Krimighnagana mahakshaya:** for internal use usual as Dupanachikitsa.136
* **Kantyamahakashaya:** When there is Kantakandu, Galashoola, Kantadaha, Swarakshaya, Swarabedha.137**.** kantya drugs are Sariva, Ikshumoola, Madhuka, Pippali, Draksha, Vidari, Kaidarya, Hamsapadi, Brahati and Kantakari.
* **Sudarshana churna:** Jwara, Swasa, Kasa
* **Vidangadi leha:** Kasa, Swasa and Hikka138.
* **Sitopaladi churna:** Swasa, Kasa.139
* **Talisadhya churna:** Jwara, Swasa, Kasa.140

**PRADEHA PRAYOGA**

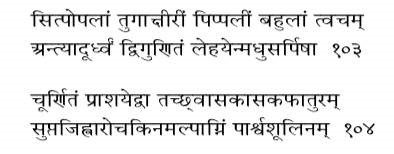
* Baladi Pradeha
* Kakolyadi Pradeha
* Shatavaryadi Pradeha
* Gugguladi Pradeha  Padmakadi Pradeha
* Prapounadarikadi

**SHAMANA AUSHADHA:**

* Vasakasava  Kankushtasava:
* Kanakasava  Pushkaramulasava
* Sitapaladichurna  Taleesadichurna
* Bharangyadichurna  Pushakaradhyachurna
* **TALISADI CHURNA** 141

It acts as Ruchikara,pachaka and is indicated in Kasa,shwasa,jwara,atisara

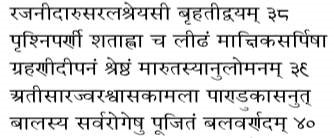
Matra:1/2 -1 Tola ; Anupana:Madhu,Ushna jala

* **SITOPALADI CHURNA 142** 

It acts as deepana,pachana,dahashamaka and is indicated in Kasa,shwasa, jwara,kshaya, agnimandya.aruchi,

Matra : 1karsha ; Anupana –Madhu

**RAJANYADI CHURNA 143**



It acts as agnideepaka,vatanulomaka, and is indicated in jwara,kasa,atisara.

Matra -1-3 grams ;Anupana -Madhu,Ushna Jala ✓ **HARIDRA KANDA 144**



It acts as agnideepana,pachana,shothahara,jwarahara.

Haridra kanda has Rasayana,Jeevaniya,Balya,Brimhaniya,Ojovardhaka,Ayurvardhaka,Dhatu poshaka properties which indirectly increase the Vyadhikshamatav.

Matra -6 grams ;Anupana – Madhu, Ushna Jala

* **KARPOORADI CHURNA  145**

**कपूदरचोचतक्कोलजातीफ़लदलासमा:॥ लवंगनागमरीचकॄ ष्णाशुंठीववववधदता:॥ चूर्दवसतासमंहृद्यंरोचनंक्षयकासवजत्|**

It acts as vata-kapha shamaka,rochaka,hridya and is indicated in kasa,kshaya.

Matra -1-3 grams ;Anupana - Ushna Jala

* **AMALAKI CHURNA146**



Pancharasa,sheeta virya,madhura vipaka,tridosha hara

**Rogakarma :**Rasayana,hridya,atisara,kasa,jwarahara

Amalaki is a rich source of vitamin C and good anti-oxidant .

**VATI:**

* **SHWASANANDAM GULIKA** Shwasanandam gulika is mentioned in Arogyaraksha kalpadrumam as a remedy for kasa,shwasa,hikka.

Matra -1 (125mg)-2 tablets ;Anupana - Ushna Jala

**KASHAYA YOGA:**

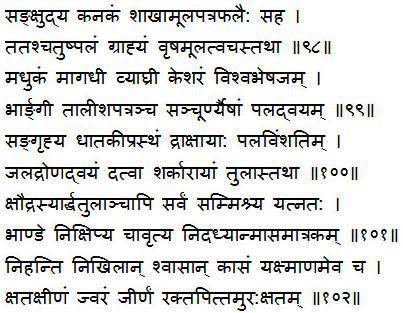
* **AMRUTTOTARA KASHAYA**

Deepana,pachana,tridosha hara,srotoshodhaka,vatanulomaka

**Roga karma**: Sarva jwarahara, pratishyaya,ama,ajeerna

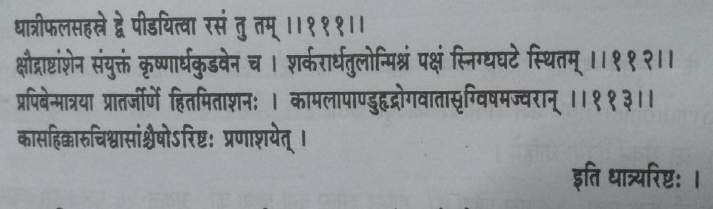
**ASAVA-ARISHTA:**

* **KANAKASAVA 147**



It is indicated in kasa,shwasa,rajyakshma,raktapitta.

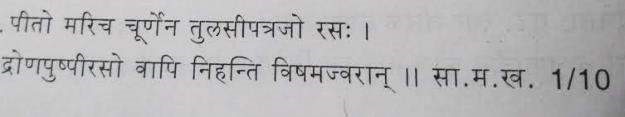
Matra -10-20ml; Anupana - Ushna Jala

* **DHATRYARISHTA 148** 

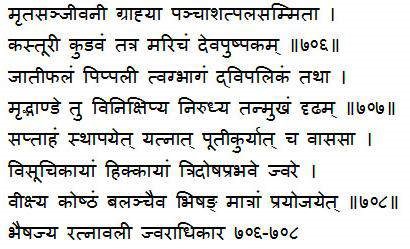
Charaka has mentioned Dhatryarishta in Pandu rogadhikara.It is also indicated in Shwasa,kasa,aruchi,vishama jwara,etc.

Matra-10-20ml

* **TULASI ASAVA**



Vishama jwara,Shwasa,kasa hara

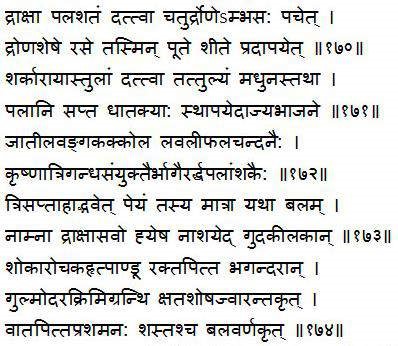
* **MRIGAMADASAVA  149** 

Mrigamada means musk.

It is indicated in sannipataja jwara,visuchika,hikka,atisara

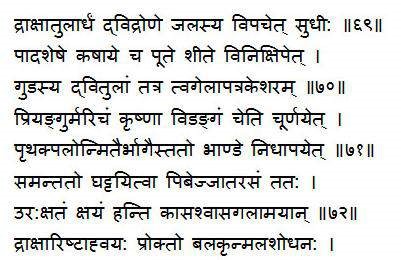
Matra-4-16 drops;Anupana-Ushna jala.

* **DRAKSHASAVA  150**



Matra-12-25ml,Anupana-Ushna jala

Indicated in jwara,rajayakshma,krimi,pandu,etc.

* **MRIDWIKARISHTA 151**
* 

It is indicated in kasa,shwasa,kshaya,gala rogas.

Matra-12-25ml;Anupana-Ushna jala

RASAUSHADIS -

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | **Sameera pannaga rasa** | Parada, gandhaka, Malla, haratala, Manashila | Asadhya vyadhi, Jwara, Shwasa, Srotolekhana in Shwasa and Kasa. |
| 2 | **Mallasindhura** | Parada, Rasakarpoora, Gandhaka, malla. | Shwasa  Tridoshaja vyadhi |
| 3 | **Shringarabhra** | Parade, gandhaka, tankana, nagakeshara, karpoora, Jatikarsha, lavanga, teja patra, Swarna Bhasma Abhraka Bhasma, Kushta, Jatamamsi,  Twak, Dhatakipushpa, Ela, Shunthi, Maricha, Pippali, haritaki, Vibhitaki,  gajapippali, Amalaki | Rajayakshma, Agnimandya, Kasa, Shwasa |
| 4 | **Kaphaketu rasa** | Tankana, magadhi, Shanka Bhasma, Vatsanabhi, Shunthirasa | Shwasa, kasa, Tridoshahara |
| 5 | **Rajamruganka rasa** | Swarna Bhasma, Kantaloha bhasma,  Parada, Abbhraka, Pravala, Mukta Bhasma, Vibhitaki Kwatha | Rajayakshma, Kasa, shwasa, Dhatukshaya, Jwara |
| 6 | **Bhagottara Rasa** | Parada, Gandhaka, Pippali, haritaki,  Vibhitaki, Vasa, Babbulu patra swarasa | Shwasa, kasa, Jwara |
| 7 | **Mahalakshmi vilas rasa** | Parada, rasa sindhura, haratala, manashila, kharpara, vangabhasma, tamra bhasma, abhraka bhasma, kanta loha bhasma, kansya bhasma | Sarva kasa nashaka,  Kshaya, kasa, Shwasa,  Jwara, haleemaka, |
| 8 | **Mrutyunjaya rasa** | Gandhaka, hingula, vatsanabhi, maricha, pippali, | Pneumonia, Shwasa, Jwara, |
| 9 | **Manashiladi dhooma** | Manashila, haratala, mareecha, jatamansi, shun thi, ingudiphala, | Asadhya kasa, Sarvadoshaja kasa hara, |
| 10 | **Kshayakesari rasa (Bruhat)** | Abhraka, parade, Loha, Tamra, naga, Kansya, mandoora, Vimala, Roukshya makshika, Vanga, Kharpara, haratala, tankana, Swarnamakshika, Vaikranta, pravala, mukta, hingula, kanta pashana  Bhasma, Gandhaka | Sannipatika jwarahara, Shoshahara Krimi hara, krimijanya Rogahara, Shwasa, kasa, rasayana, |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| v) **I. PREVENTION PROTOCOL**  **A. Primary Prevention - General Public**  **To follow** **Sanitization**  **Social Distancing** **Home quarantine**  **Personal Isolation**   |  |  |  | | --- | --- | --- | | **Type of**  **Intervention** | **Measures** | **Remarks** | | **Primary Prevention**  **for** |  **COMMUNITY LEVEL**     * 1. Bhumi Shuddhi – Sprinkling of extracts of Neem, Karanja etc. in the base of Gomutra * 2. Air Sanitization (Fumigation with Divya Dhoopa at Home and in Aerosol form at Hospitals and Community place)- (Rasa tarangini- Bhootabhinivesha Adhikara)/ Lakshadi Dhoopa (Su.Kal.6/4) * Social Distancing and other practices as per protocol      * **PERSONAL LEVEL**      * **Dhooma nasya** with Divya Dhoopa varti or Haridradi Varti * **Steam Inhalation** with Tulasi leaves+ Pudina Leaves+ Ajamoda+ Nimba * **Gargling** with – Turmeric + Nimba+ Salt + tankana in luke warm water * To use **Neem based herbal tooth paste** for oral hygiene * Khadiradi vati /Talisadi Vaakam / Eladi gutika/ Lavangadi vati- for frequent chewing * **Pratimarsha Nasya** with Sarshapa Taila/Tila Taila – instill 2 drops in each nostril * **Eye wash** with Mild Triphaladi Kwatha (3 gm of Triphala Kwatha   Churna+100 ml of water- Boil for 3-5 minutes) to be used for eye wash using Eye cup,  Proprietary preparations- Ophthacare eye drops or SriNetraor Sunetra– 2-3 drops thrice daily)  **OR**   * **Anjana** (Drops)– 2 drops on each eye with Daruharidra Rasakriya, Yashtimadhu Rasakriya/ Kataka Rasakriya/ Guduchi RasaKriya/ Gomutra Arka- 1 ml -98 ml Rose water+1 ml honey | To create unfavorable environment for the Viruses.                       * To create Unfavorable contact surface for the virus at the portal entry i.e Oropharynx, Naso-pharynx * Immunity boosting |   Page **13** of **23** |

|  |  |  |  |
| --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | |  | **Drink** –for immune boosting   * **Herbal/ Medicated Tea**-(All or Any of these) Luke warm prepared with Tulasi, Pepper, Shunti, lemon, Yasthimadhu, Leaves of Bilwa, Guduchi Satva, Ashwagandha, Sariva, Ela and Jaggery * **Golden Drink** – Natural Turmeric – 1 tsp with one cup of warm Milk * **Ashwagandha Ksheera paaka** – Ashwagandha-1 tsp with one cup of warm   Milk   * **Rasayana**- Chyavanaprash – 1tsp OR Swamla Compound of   Doothapapeshwar (Fortified Chyavanaprash with Gold and Silver etc.,) With  1 cup of warm milk on empty stomach- morning and evening **Pathya**    **Diet**  Freshly prepared diet and served hot.  Light diet includes Kichadi/ Pongal/ Dhaliya/   * Ganji- Rice gruel/ Ragi gruel– with Ginger Or * Yavaagu Prepared with Rice/Rava with Coriander, Cumin, Ginger, Turmeric and pepper. * Amla (Indian Gooseberry)- Aamalaki payasa/ Jam/Chutney with pudina and coriander/ Vegetables- katu and tikta rasa pradhana- patola, brinjal, Tender radish, karkataka, Punarnava leaves, Sarshapa leaves, fenugreek leaves, cluster beans, kakamachi etc,. * Drink Luke warm Water   Or Shadanga paneeya- decoction prepared with Shadanga Churna- 10 gms+ Water 200 ml – Boiled, reduced to Half the quantity used for drinking.  Take adequate rest  **Apathya:**  Heavy, Spicy, oily or fried foods; Junk foods, Curd, Cool drinks, Head bath; Exercise; Mental stress; Exposure to fan/Ac should be strictly avoided. |  |     Page **14** of **23** |
| **B. For High Risk Subjects– Asymptomatic -PROPHYLITIC CUM FIRST LINE TREATMENT**   |  |  |  | | --- | --- | --- | |  **Especially Front-line health care ProfessionalsMedical, para-medical and Supporting Staff working with COVID-19 People working** Police, Banking, Groceries, Post office, delivery agents    **and**  People who are **Quarantined**  **with no Symptoms** | **Along with the measures advised for Primary prevention,**   1. Bath with – Water boiled with leaves of Neem, Karanja, Nirgundi with Gomutra Arka 2. Orally- **Tulasi** leaves- 5-10 leaves with honey   Or Tulasi Swarasa – 10 ml with honey  Or Tulasi Arka -2 ml with 1 cup of warm water twice a day  Or Guduchi Swarasa- 10 ml or Guduchi Satwa -1 gm with Honey or warm water   1. **Sudarshana Choorna**– 5gms - twice a day with honey   Or Sudarshana kadha – Sudarshana Churna- 5mgs- 100 ml of water reduced to half– thrice a day with Warm water  Or Sudarshana Ghana vati     1. **Arogya Vardhini Rasa**- with Vishaghna Qwatha 20ml (Charaka Shadvirechana   Shatrashritiya Adhyaya) 2-2-2 | **Pratishyaya hara,**  **Kasahara and Jwarahara aushadhas** | |  **With mild symptoms, like Mild cough, Cold** | **Additionally,**   1. **Tribhuvanakirti Rasa**-2-2-2 with Honey- Yogaratnakara (Jwara) with Godanti bhasma   OR  **SANJIVANI VATI** – 2-2-2- Sharangadhara Samhita   1. **Dashamoola Katutrayadi Kashaya**- Kapha predominance- 30 ml TID 7. **Amruttottara Kashaya**- Pitta predominance     **For Children**   **Balachaturbhadra Churna** with Madhu  Course Duration **: 15 to 21 Days** |   Page **15** of **23** |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | **Rationality:**   * Arogyavardhini Ras: Ref: Rasa Ratna Samucchaya, Kushtha Rogadhikara   Imp Ing: Parada, Gandhaka, Loha Bhasma, Abhraka Bhasma, Tamra Bhasma, Shuddha Shilajatu, Shuddha Guggulu, katuki.  Bhavana Dravya: **Nimba Parta Swarasa**  Indication: All types of Jwara, Vata-pitta-Kaphad-**Bhutaan Jwaraan** and Kushta **Rationality**: The nomenclature of the compound itself is suggestive of maintaining the health of a healthy individual and uplifting the health status. The Ingredients of Arogyavardhini Rasa includes potent Sroto Shuddhikara drugs targets to clear the Sroto Dushti of Dhatus and Malas.  Nimba Swarasa being a potent Anti-viral drug adds to the total drug effect in the line of reducing virus load/virulence.   * **Sudarshana Kadha**: Bhashajya Ratnavali   Imp Ing: Haridra, Vacaha, Yashti, Amalaki, Guduchi, katuki, haritaki, Pippali, Trikatu, etc,.  **Rationality**: The formulation with potent herbs corrects the imbalance of tridosha and all types of fever.   * **Balachaturbhadra Churna** | | | |  | |  | Chakradatta – Musta, Ativisha, Pippali, Kartakashringi     **Tribhuvanakirti Rasa**-Yogaratnakara (Jwara)  Imp Ing- Hingula, Vatsanaabha, Trikatu, Pippali mula, Tankana. | |  | |  | Bhavana Dravya- Fortified with  – Tulasi Swarasa- Anti-viral |   Page **16** of **23** |



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Dose and Anupana - As per Roga and Rogi bala** | |  |  |
|  |  | **Rationality**:  **Sarvatobhadra Rasa**: [Ref:Rasa Saara Sangraha, Jwaraadhikara]  Ing: Hingulotha Parada, Gandhaka, Abhraka, Triphala, Trikatu, lavanga, Musta, Karpura, Kushtha etc,.  **Rationality**: The above potent Herbo-mineral compound targets the acute phase of respiratory distress and prevents the complications due to fever.    **Kastoori bhairava Rasa**:Ref: Bhaishajya Ratnavali.5/813-818  Ing: Vatsanabha, Katuki, Kaharpara, Lavanga, Swarna Bhasma, Rajata Bhasma, Kanta Loha, Dhattura, Jatiphala etc.,.  **Rationality**:  This formulation indicated in all types of complicated fever contains Sthavara Visha which can act against Jangama Visha effectively.    **Jayamangala Rasa** Ref : B.R. Jwaradhikara  Imp Ing: Swarna, Raupya Bhasma, Tamra, Vanga Bhasma  Bhavana in Dhattura, Shephali, Kiratatikta, Kwatha, Dashamula Kwatha- 3 times in each Dravya.  Ind: Dhatugatatva and Bala Pushtikara  **Rationality:** Most potent formulation considering the composition and Bhavana Dravya indicated in complicated fevers and acts as immunebooster. |  |  |
| **STAGE II**    **with aggravated symptoms** COVID -19  **Positive case**  **Without co-morbidity** | 1. Sudharshana Churna/ Sudarshana Ghana vati 2. Nimbadi Kwatha + Guduchyadi Kwatha+ Vasadi Kwatha 3. Tapyadi Loha 4. Swasakuthara Rasa 5. Ananda Bhairava Rasa – In case of Atisara (Diarrhoea) 6. Rasa Manikya with Ashwagandha choornam   **Dose and Anupana- As per Roga and Rogi bala** | |  | More potent drugs with Superior preparation methods for combating Sannipataja conditions |
| **Shwasakuthara Rasa:** Ref; Bahavaprakasha- Shwasaroga  Imp Ing: Shuddha parade, Shuddha gandhaka, Shuddha Manahshila,  Shuddha Tankana, Vatsanaabha, Trikatu etc.,  Anupana: With Honey  **Rationality**: The above ingredients have been proved to be effective in combating with acute respiratory infections | |  |

**In paediatric case:**

* + *Kumara kalyanaka rasa*- 65mg BID with honey.
  + *Balachaturbhadra rasa* 60 to 125mg thrice with honey and *Mahasudarshana* *khada* 5ml thrice daily.

Along with these the different nutritional supplements and drinks which have been discussed earlier needs to be adapted along with medications for disease.

**In severe conditions when breathlessness starts:**

1. *Shwasakasa chintamani rasa* 1-1-1 with honey
2. *Mrityunjaya rasa* 1-1-1
3. *Dashamoolarista* 3tsp thrice with water.

In case of pitta dominance, add *Kantakari gritha* 10ml twice

(because in covid-19 *vatapitta jwara* laxanas are observed. )

In very severe conditions, *Jayamangala rasa* 1tab twice with honey before food with *Vasantamalati rasa* 1 tid can be adapted. (In few critical conditions I personally adapted this with miraculous results).

* MANODOSHA AOUSHADA

Manodosha aushadha should also be employed in these cases owing to the impact caused by the disease condition on the mental status, through various modes of counselling, Jnana, Vignana, Dhairya, Smriti, Samadhi and other supportive care therapies152,153.

DIET& REGIMEN

Food plays a major role during the diseased state as well as in the post convalescence stages. It is important to avoid doshas becoming leena in dhatus after the remission of disease, thus preventing punaravartana.

Usage of hot water is indicated in Jwara and many other disorders too as Ushnajala is Agni vardhaka, Vata anulomaka, Kapha shoshaka, and so can also be used as Anupana in most of the medicines described above154.

Foods utilized should be laghu, easily digestible, ushna, should not cause obstruction in srotas, vata anulomana, agnivardhaka. Following may be the best choice based on the Prakruti and vikruti.

* Yavagu
* Yusha
* Peya
* Tarpaka
* Krushara

Diet should compose mostly of the following155

* Shashtikashali
* Mudga
* Yava
* Saindhavalavana
* Ghruta
* Madhu
* Shuddhajala

Dehavruttipalana like Dinacharya

Rutucharya

Ratricharya

To avoid relapse one has to follow a proper balanced diet based on the principles of Ahara vidhividhana, Ashtavidha ahara visheshaayatana, etc.

Sadvrutta palana – Being good and doing good is one of the best phrase to depict the regimen to be followed during these situations. Satya, Bhutadaya, Dana, Bali, Devatarchana are to be followed156.

Ayurveda emphasises the importance to maintenance of health of a healthy person and curing the disease of an ill. To maintain the health some activities are mentioned in Ayurveda under the term ‘Dinacharya’, ‘Ritucharya’ & ‘Sadvritta’. By following these one will be able to follow a healthy lifestyle thereby maintaining health.

Yoga means ‘union’, a union of the mind, body, and soul. It is about the present, self-awareness, peace of mind, self-healing, self-realization, detoxification of body, selfdiscovery, and overall well being. Yoga is about ‘you’, yoga is for all and one. One of the oldest forms of yoga is Ashtanga Yoga which comprises Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana & Samadhi. Among these first 5 are called bahiranga yoga & last 3 are called antarangayoga.

*Ahara* is considered as *Mahabhaishajya* (the superior medicine). Various life style disorders and numerous diseases occur due to faulty dietary habits which may be prevented by proper *Ahara* and eating habits. *Hitakara/Pathya* food (Wholesome food) as per Ayurveda is conducive for the maintenance of good health, longevity, strength, intellect, good voice and complexion. For a disease free life, Ayurveda emphasizes on the importance of proper nutrition through intake of food by appropriate food choices, food combination, and cooking methods, in right quantity which gets digested as well as metabolised in time. *The time, season and place for the food intake are also important.* It is advised to refrain from *Ahitakara Ahara* (unwholesome food).

*Line of treatment of Janapadodwamsa*

1. चतुष्वािप तु दष्टु षे ु कालान्तेषु यदा नराः| भेषजेनोपपाद्यन्ते न भवन्त्यातुरास्तदा||१२|| येषाां न मृत्युसामान्यां सामान्यां न च कमाणाम्| कमा पञ्चिवधां तेषाां भेषजां परमुच्यते||१३|| रसायनानाां िविधवच्चोपयोगः प्रशस्यते| शस्यते देहवृित्तश्च भेषजैः पूवामुद्धधृतैः||१४|| सत्यां भूते दया दानां बलयो देवताचानम्| सद्धधृत्तस्यानुवृित्तश्च प्रशमो गुििरात्मनः||१५|| िहतां जनपदानाां च िशवानामुपसेवनम्| सेवनां ब्रह्मचयास्य तथैव ब्रह्मचाररणाम्||१६|| सङ्कथा धमाशास्त्राणाां महषीणाां िजतात्मनाम्| धार्हमकैः सािववकैर्हनत्यां सहास्या वृद्धसम्मतैः||१७|| इत्येतद्भेषजां प्रोक्मायुषः पररपालनम्|

येषामिनयतो मृत्युस्तिस्मन् काले सुदारुणे||१८||157

The first case of the [2019–20 corona virus pandemic](https://en.wikipedia.org/wiki/2019%E2%80%9320_coronavirus_pandemic) in [India](https://en.wikipedia.org/wiki/India) was reported on 30

January 2020, originating from [China.](https://en.wikipedia.org/wiki/2019%E2%80%9320_coronavirus_pandemic_in_Mainland_China) As of 2 April 2020, the [Ministry of Health and Family Welfare](https://en.wikipedia.org/wiki/Ministry_of_Health_and_Family_Welfare) have confirmed a total of 2,069 cases, 156 recoveries (including 1 migration) and 53 deaths in the country. Experts suggest the number of infections could be a substantial underestimate, as India's testing rates are among the lowest in the world. The infection rate of [COVID-19](https://en.wikipedia.org/wiki/COVID-19) in India is reported to be 1.7, significantly lower than in the worst affected countries.

This is the junction period (Ritu sandhi) of two seasons. Strength (Immunity?) is less at such point of time. The dietary regimen should be based on the principle of Ritu sandhi kala.

For easy understanding the diet & yoga plan can be classified in 2 stages

1. ***Diet & Yoga during Quarantine***
2. ***Diet & Yoga during active infection state***

## *1. Diet & Yoga during Quarantine*

Dinacarya

1. Waking up at 5.30 AM – Bowel & Bladder clearance

Brushing

Asana & Pranayama Practice: Loosening exercises

Surya Namaskara 6 rounds

Tādāsana

Vriksāsana

Pāda-Hastāsana

Ardha Cakrāsana

Trikonāsana

Bhadrāsana

Vajrāsana

Ardha Ustrāsana

Ustrāsana

Śaśakāsana

Uttāna Mandūkāsana

Vakrāsana

Makarāsana

Bhujangāsana

Śalabhāsana

Setubandhāsana

Uttāna Pādāsana

Ardha Halāsana

Pavana MuktāsanaŚavāsana

Nadīśodhana or Anuloma viloma prānāyāma Bhastrika

Morning 7 AM: Kashaya Prepared from Dhanya+ Jeeraka 100ml

Bath & Prayer: 8.30 AM

*Sankalpa during prayer*: I commit myself to remain in a balanced state of mind all the time. It is in this state that my development reaches its greatest possibility. I commit to do my duty to self, family, at work, to society, and to the world, for the promotion of health and harmony.

Breakfast: 9.00 AM for breakfast any easily digestible rice items can be given for example, Akki Rave Uppittu, Pongal, Rice Ganji etc.

***For hydrating the body instead of plain water seasonal drinks like Shunthi jala, Vijayasara jala, Musta jala, Madhoodaka, Dhanyaka jala, Sariva jala etc. depending on the seasonal variation can be selected.***

After breakfast: News paper reading/watching TV/ Book reading/ Novel reading/ Watching Motivational talks/ Listening to spiritual discourses/ Movies or any other individual activity can be planned.

Lunch: 1.30 to 2.00 PM Depending on the dietary habits of the individual easily digestible vegetarian diet can be considered.

Post lunch: **No day sleep** if he is young. Aged persons & Children are allowed on the need basis.

The activities which are planned in before lunch session can be advocated here with modification on need basis.

Evening 5.00 to 7.00 PM A session of Dhyana can be advised, (Audio command dhyana are available in the market/internet/online)

Dinner 8.30 PM: Depending on the dietary habits of the individual easily light vegetarian diet can be considered.

Post Dinner 9.00 to 10.00 PM: Spiritual reading

Going to bed at 10.00 PM

*Sadvritta(Good Conducts) to be practiced during quarantine:*

Person should be; Truthful, free from anger, avoidance of alcohol & sex, do not indulging in violence & exhaustion, practicing some sacred chants, cleanliness, giving respect to elders, peaceful, pleasing in their speech, compassionate, free from ego, no narrow-mindedness.

***Practicing of Sadvritta will help the stimulation of Psycho-neuroimmunological response of the body, their by protecting the individual against the chance of getting infection.***

*Grains & Pulses that can be used in diet:*Rice, Wheat, Barley, Jowar, Ragi, Greengram dal, Tuar dal. (selection of the grain & pulses should be dependent on the habits & habitat of the individual)

Vegetables: Ridge gourd, Snake gourd, Bottle gourd, Bitter gourd, Beans, Carrot, Onion

Greens: Coriander, Pudeena and other leafy vegetables

**Note**: All Vegetables & greens should be baked with sufficient quantity of water, decant the water 7 then fry the vegetables in Ghee or oil before adding it to diet.

Dairy products: Milk in diluted form(1:1 dilution), Butter & Ghee in appropriate quantity, Properly churned butter milk can be used.

Fruits: Pomegranate, Papaya, Citrus fruits in limited quantity.

**To be avoided: Black gram, Bengal gram, All types of sprouts, All types of tubers, Green chilli, Tomato, Oil fried items, Curds, NonVeg foods, Fish, Egg Other beneficial practices include:**

**Gandoosha / Kavala (mouth rinsing and gargling)**

With warm Salt water / Turmeric water / Triphala Kashaya / Yashti Kashaya - Need Basis

**Dhoomapaana (Medicated smoke inhalation / fumigation) :**

Haridra +/- Vacha, Lashuna - Need Basis

**Steam inhalation :**

Dashamoola Kashaya / Tulasi boied water - Need Basis

**Quarantine Environmental cleansing: Sushutokta Post operative fumigation or Kapa sthanokta environmental cleansing methods can be adopted**

### General guidelines for using this protocol

1. As in any epidemic, take the travel history and contact history of the patient first.
2. Examine the patient well.
3. Assess the Rogi bala using the ten-point clinical examination protocol (dasha vidha pareeksha vidhi) and calculate the functional status of the patient including assessment of koshta and agni of the individual.
4. Order the needed laboratory or imaging panels as and when required
5. Definitely have an assessment of the vyaadhi-avastha in a meticulous manner, as some medicines may be contra-indicated in some specific avasthas.
6. Assess the status of ojus and predict the chance for an immediate casualty.
7. The selection and combinations of medicines should be done considering the Bala of Rogi, Agni, Koshta and the Rogavastha.
8. The dosage of each pharmaceutical preparation shall be fixed as per the classical guidelines and research updates.
9. The medicines described in each stage shall be utilized judiciously in the succeeding stages also.
10. General safety measures for doctors, paramedics and health workers need to be ensured in the facility.
11. The technological support of western medicine has to be ensured when and where necessary.

## *2. Diet & Yoga during active infection state*

**Day 1 & 2:**

● **Signs and Symptoms:** Will be asymptomatic or patients will be having mild fever; with fatigue, muscle pain, dry cough; Very few people may have diarrhea or nausea (1-2 days earlier)

### Diet & Activities

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Diet** | |
| Do’s |  |  | \* Light food (Ganji / rice, rasam  (prepared with pepper, avoid tomato).    \*Thin gruel prepared with Laaja + dry ginger + Coriander seeds + Long pepper (may add Pomegranate juice or ginger). |
| Avoid |  |  | Heavy food intake, Astringent food |
|  |  |  |  |
| Drinking water |  |  | Musta jala, Dhanyaka jala, Sarivajala, Shunthi jala, Shadanga Pana – Need basis |
|  |  | **Activities** | |
| Do’s |  |  | Complete rest (Physical as well as  Psychological) |
| Avoid |  |  | Day sleep, Oil application / massage,  Sex, Exposure to wind, Exercise, Anger |

**Day 3 & 4**

● **Signs and symptoms:** Low grade Fever which gradually increases. Itchy throat & Cough – mostly dry; gets more severe over time Shortness of Breath & breathing difficulties

### Diet & Activities

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Diet** | |
| Do’s |  |  | \* Light food (Ganji / rice, rasam  (prepared with pepper, avoid tomato).    \*Thin gruel prepared with Laaja + dry ginger + Coriander seeds + Long pepper (may add Pomegranate juice or ginger). |
| Avoid |  |  | Heavy food intake, Astringent food |
|  |  |  |  |
| Drinking water |  |  | Musta jala, Dhanyaka jala, Sarivajala, Shunthi jala, Shadanga Pana – Need basis |
|  |  | **Activities** | |
| Do’s |  |  | Complete rest (Physical as well as  Psychological) |
| Avoid |  |  | Day sleep, Oil application / massage,  Sex, Exposure to wind, Exercise, Anger |

**Day 5**

**Signs and Symptoms:** Gastro-intestinal symptoms like Diarrhea / cramps, head ache and fever might become normal or it may increase

### Diet & Activities

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Diet** | |
| Do’s |  |  | \* Light food (Ganji / rice, rasam  (prepared with pepper, avoid tomato).    \*Thin gruel prepared with Laaja + dry ginger + Coriander seeds + Long pepper (may add Pomegranate juice or ginger). |
| Avoid |  |  | Heavy food intake, Astringent food |
|  |  |  |  |
| Drinking water |  |  | Musta jala, Dhanyaka jala, Sarivajala, Shunthi jala, Shadanga Pana – Need basis |
|  |  | **Activities** | |
| Do’s |  |  | Complete rest (Physical as well as  Psychological) |
| Avoid |  |  | Day sleep, Oil application / massage,  Sex, Exposure to wind, Exercise, Anger |

**Day 6-7**

**Signs and Symptoms:** More body pain, head ache will reduce; diarrhea might increase / might reduce but stomach upset

### Diet & Activities

|  |  |  |
| --- | --- | --- |
|  | **Diet** | |
| Do’s |  | \* Light food (Ganji / rice, rasam  (prepared with pepper, avoid tomato).    \*Thin gruel prepared with Laaja + dry ginger + Coriander seeds + Long pepper (may add Pomegranate juice or ginger). |
| Avoid |  | Heavy food intake, Astringent food |
|  |  |  |
| Drinking water |  | Musta jala, Dhanyaka jala, Sarivajala, Shunthi jala, Shadanga Pana – Need basis |
|  | **Activities** | |
| Do’s |  | Complete rest (Physical as well as  Psychological) |
| Avoid |  | Day sleep, Oil application / massage,  Sex, Exposure to wind, Exercise, Anger |

**Day 8 & 9**

Symptoms start reducing, Keep watching if Lower fever, lower body pain, energy level will increase, Cough will be persisting with running nose.

 Once the patient is totally out of fever, appetite is improved; one can be prescribed with hunger increasing diet.

### Diet & Activities

|  |  |  |
| --- | --- | --- |
|  | **Diet** | |
| Do’s |  | \* Light food (Ganji / rice, rasam  (prepared with pepper, avoid tomato).    \*If required, Rice prepared with Shunthy (ginger) water.    \*Thin gruel prepared with Laaja + dry ginger + Coriander seeds + Long pepper (may add Pomegranate juice or ginger).    \*Yoosha with Mudga |
| Avoid |  | Heavy food intake, Astringent food |
|  |  |  |
| Drinking water |  | Musta jala, Dhanyaka jala, Sarivajala, Shunthi jala, Shadanga Pana – Need basis |
|  | **Activities** | |
| Do’s |  | Complete rest (Physical as well as  Psychological) |
| Avoid |  | Day sleep, Oil application / massage,  Sex, Exposure to wind, Exercise, Anger |

**Note**:

* During this day of active infection NO YOGASANA IS PRACTICED
* Breathing observation is done to maintain the psychological balance

1. **Drug review**

**UNANI MEDICINE: A BRIEF REVIEW**

Unani Medicine recognizes the influence of surroundings and ecological conditions on the state of health of human beings. Apart from treating disease conditions, Unani Medicine lays great emphasis on the prevention of disease and promotion of existing health through principles of six essential factors (Asbab-e-Sitta Zarooriyah) of life. It lays great emphasis on the maintenance of a proper ecological balance and on keeping air, water and food free from all possible pollution and pathogens. An eminent Unani physician Galen (129-200 CE) postulated that certain diseases caused by pollutants tend to be carried by wind and hence, do disseminate faster; these enter human body through respiratory route.

As per Unani classical wisdom, improving immunity with immune boosters is one of the key approaches for prevention of disease and maintenance of health. Therefore, a strategy to enhance immunity and provide symptomatic relief in upper respiratory tract infection is advocated in these guidelines for qualified Unani Medicine practitioners.`158

**What is Ayurveda System of medicine?**

Ayurveda is literally translated as ‘science of life’ but it can also be described as ‘the way of living with awareness and promoting longevity’. An early description given in the Caraka Samhita written c.150BCE–100CE says: It is called Ayurveda because it tells us which substances, qualities and actions are life enhancing, and which are not. Su-trasthana 30.23

Broadly speaking, Ayurveda is understood to be the generic term for traditional Indian medicine. But as well as being a medical system it includes aspects of philosophy, mythology, diet and yoga as well as mental and spiritual refinement as part of its teachings. Ayurveda’s medical branch uses herbal medicines, minerals, animal products, food, massage, air, water, heat, earth, surgery, detoxification and tonification to bring about health. Ayurveda focuses on preventing disease and optimising vitality as much as on removing an illness. Thus it has a holistic approach to health that includes every aspect of life in a philosophy where mind, body and spirit are considered to be an integrated whole159.

**Role of Ayurveda and Unani medicines in management of COVID 19:**

Ayurveda is an ancient system of medicine that has been used for thousands of years to promote holistic health and well-being. It plays an important role in managing various health conditions, including COVID-19.

Unani medicine is a traditional system of medicine that has its roots in ancient Greece and has been practiced for centuries in various parts of the world, including South Asia and the Middle East. It relies on natural remedies, herbal medicines, and dietary and lifestyle modifications to promote health and treat diseases.

Unani medicine may be used as complementary or supportive therapy in managing the symptoms of COVID-19 and in improving immunity.

The concept of "Arqee Ajeeb" and "Samshavana Vati" can be applied to support the management of COVID-19 symptoms

1. \*Arqee Ajeeb\*:

- Arqee Ajeeb is a type of herbal water infusion commonly used in Ayurvedic medicine.

- It can be prepared by soaking specific herbs and ingredients in water for a certain period.

- The herbs used in Arqee Ajeeb for managing COVID-19 might include tulsi (holy basil), ginger, turmeric, and neem, known for their antiviral and immune-boosting properties.

- The purpose of Arqee Ajeeb is to provide the body with the therapeutic benefits of these herbs in a liquid form.

Arq-e-Ajeeb is a liquid preparation that contains thymol, menthol, and camphor. Thymol is a promising candidate for topical application as an antiviral agent for herpetic infections

(Lai et al., 2012; Sharifi-Rad et al., 2017). Menthol has been reported as an anti-inflammatory agent (Zaia et al., 2016). The Unani physicians have a very successful history of treating NazlaSSS wabai (Swine flu) using Arq -e-Ajeeb. These studies support the use of Arq-e-Ajeeb for COVID-19.

2. \*Samshavana Vati\*:

- Samshavana Vati refers to herbal tablets or pills used in Ayurveda.

- These tablets are typically prepared by mixing various powdered herbs and binding agents.

- In the context of COVID-19, Samshavana Vati may contain herbs like ashwagandha, guduchi, and amla, which are known for their immune-strengthening properties.

- These tablets aim to boost immunity, reduce inflammation, and provide relief from symptoms.

The role of Ayurveda in managing COVID-19 using these formulations involves several aspects:

1. \*Boosting Immunity\*: Ayurveda places a strong emphasis on enhancing the body's natural defense mechanisms. Arqee Ajeeb and Samshavana Vati may contain immune-boosting herbs that help the body resist infections, including COVID-19.

2. \*Reducing Inflammation\*: Many COVID-19 patients experience inflammation and respiratory distress. Some Ayurvedic herbs are known for their anti-inflammatory properties, which may help alleviate these symptoms.

3. \*Symptomatic Relief\*: These Ayurvedic preparations may provide relief from common COVID-19 symptoms such as fever, cough, and sore throat. The herbs used often have soothing and anti-pyretic (fever-reducing) effects.

4.\*Holistic Approach\*: Ayurveda takes a holistic approach to health, focusing on balancing the body, mind, and spirit. This can help reduce stress and anxiety, which can be important during the recovery process.

* **Samshamani vati**

Samshamani vati (Guduchi ghana vati) is an ayurvedic formulation used in all types of fevers. It is also used as an antipyretic and anti-inflammatory remedy (Patgiri et al., 2014). Samshamani vati is made of aqueous extract of Tinospora cordifolia (Willd.) Miers (family Menispermaceae), and reported to be an immunomodulator (More and Pai, 2011) due to the synergistic effect of the various compounds present. It is also effective in various viral diseases (Sachan et al., 2019).

The word *Jwara* denotes the disease in general, and is commonest symptom in many diseases. For the treatment of Jwara there are ‘n’ number of formulations described in the ayurvedic literatures amongst Samshamani Vati is safe, potent preparation mentioned in Ayurvedic literatures. Literary sources of Samshamani Vati are available in **Siddhayoga Sangraha and in Rasoddhara Tantra.** According to **Yadavji Trikamji Acharya** *Guduchi Ghana Vati is itself Samshamani Vati,* and according to **Rasoddhara Tantra** the ingredients of Samshamani Vati are different but the indication is same. Review of Literature: Literary sources available from

1) In Siddhayoga Sangraha of Yadavji trikam ji Acharaya- **Guduchi Ghana is considered as Samshamani vati.**

2) In Rasoddhara tantra- the ingredients of Samshamani vati are **Guduchi, Ativisha, Pippali and Loha bhasma.**

**Preparation of Samshamani vati according to Rasoddhara tantra:**

**Loha Samanya Shodhana**- Thin sheets of loha (Kantavedi patra) are heated red-hot over fire and dipped into followng liquids:

* Tila taila
* Takra
* Gomutra
* Aranala
* Kulatta Kwatha for 5 times i.e 25 times heating and dipping. 160

**Loha Marana**- The suddha tikshna loha churna is taken in clean Khalava yantra .It is subjected to one bhavana.each with required quantities of ***sweta punarnava swarasa*** and ***vasa patra swarsa*** simultaneously. Later the bhavita loha churna is enclosed in ***sharava samputa*** and subjected for ***one gajaputa.***all this process is repeated 30 times to subject the drug for ***30 gajaputa***.finally ***red coloured loha bhasma*** is obtained.161

**The ingredients and their ratio of Samshamani Vati are:**

* Guduchi Ghana : 16 parts
* Loha Bhasma : 2 parts
* Ativisha : 1 part
* Pippali churna : 1 part.

**Procedure:** Above mentioned ingredients are taken in clean khalva yantra and triturated well. Then the tablets are prepared in ***Mudga pramana***. Then stored in airtight container.

**Preparation of Samshamani vati : According to Yadavji Trikamji.**

**Step 1**.Freshly collected guduchi stems are cleaned with water. Then cut in to small pieces then pounded in Khalva Yantra.

**Step 2.** Roughly pounded kalka is mixed with 4 parts of water. Then the vessel is kept on fire. Boiling should be carried out on mandagni and reduced to 1/4th .

**Step 3**. The obtained kwatha is reheated on mandagni till the whole watery content is get evaporated. At the end of procedure the semisolid material is collected, dried in shade and rolled in to fingers to prepare vatis.

**Step 4.** Guduchi Ghana vatis are preserved in airtight containers.

**Method of preparation of Vati**

• The dried herbal drugs are made into fine powders separately.

• In case of minerals, they are usually brought into the form of Bhasma or Sindura.

• Kajjali is made in case Parada and Gandhaka. Other drugs are added with it one by one according to the formula.

• These are put into a Khalwa and triturated to a soft paste with the prescribed fluids.

• When more than one liquid is mentioned for grinding they are used in succession.

• The mass is properly triturated and Sugandha Dravyas are added when the mass attains the condition, suitable to made pills and ground again.

• If the sugar or jiggery is mentioned, paka of these should be made on mild fire and removed from the oven. The powders of these ingredients are added to that Paka and properly mixed. Vatakas should be rolled when it is still warm and then dried in shade.

**Shelf life: According to Acharya Sharangadhara**,

* The Saveeryata avadhi of Vati is 1 year.
* The tablets which contain ***Rasoushdhis***can be used for ***infinite period****.*

**Dosage as per classics:**

Considering *rogi bala, roga bala, agni bala of the patient*, dosage may be decided. The general dose of **vati is 1 Karsha (12g.).**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SL.NO.** | **DRUG NANE** | **RASA** | **VIRYA** | **VIPAKA** | **GUNA** | **PART USED** |
| 1 | Guduchi | Tikta,kashaya | Ushna | Madhura | Tikshna | Stem |
| 2 | Pippali | Katu | Anushna | Madhura | Laghu, tikshna | Fruit. |
| 3 | Ativisha | Katu,Ttikta | Ushna | katu | Laghu, rooksha | Tuberous root |
| 4 | Loha bhasma | Tikta,Madhura,Kashaya | Sheeta | Madhura | Sara,Ruksha,Guru | Bhasma |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SL.NO.** | **DRUG NAME** | **DOSHAGHNATA** | **KARMA** | **ROGAGHNATA** |
| 1 | Guduchi | Tridoshahara | Deepana,Pachana ,Jwarahara, Anulomana | Chardhi, Agnimandya,Udarashoola, Jwara |
| 2 | Pippali | Vata kapha hara | Deepan,pachantruptighna  Shulaprashaaman  Vatanuloman | Aruchi, agnimandya  Ajirna, udarshul |
| 3 | Ativisha | Tridoshahara | Dīpana Pācana Śothahara Kaphavātaśāmaka | Agnimandya, jwaratisara,, udara,shotha ama etc |
| 4 | Loha bhasma | Kapha pittahara | Deepana,Balya ,Rasayana,vajikara | Pandu, Shoola, Krimi, Pliha, Medoroga |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SL.NO.** | **DRUG NAME** | **PHARMACOLOGICAL ACTION** | **CHEMICAL CONTAINS** | **MODE OF ACTIONS** |
| 1 | Guduchi | 1. Antispasmodic  2.antiinflammatory  3.anti stress  4.anti-cancer | Tinosporin,  Tinosporide, | Steroid-sitosterol-inhibit cox2.  Diterpenoid lactone-anti inflammatory  2. Inhibition of the proliferation of tumor cells.  Steroid-sitosterol inhibit tnf, i- 1, il- 6,alkaloids-  Palmatin- |
| 2 | Pippali | 1. Anti-ulcer  2.Anti-depressant | Piperinealkaloid | 1. Inhibit GE [Gastric emptying] activity of gastric  And pepsin secretion.17  2. Simulating and carminative properties, with  Increased secretion of gastric juice and improved  Appetite.  Gastrointestinal movements are included with relief  Of gas and colic |
| 3 | Ativisha | Anti-obesity  hypolipidemic | Atisine ,atidine, heterophyllisine, tannic acid | 1. Inhibit ge [gastric emptying] activity of gastric  And pepsin secretion.17  2. Simulating and carminative properties, with  Increased secretion of gastric juice and improved  Appetite.  Gastrointestinal movements are included with relief  Of gas and colic |

**1**. Computationally approached inhibition potential of Tinospora cordifolia towards COVID-19 targets.162

**2. PREPARATION OF CHANDRAMRUT RAS AND ITS**

**ANTIMICROBIAL ACTIVITY (IN VITRO)163**

**3. A pilot clinical study of an add-on Ayurvedic formulation containing**

**Tinospora cordifolia and Piper longum in mild to moderate COVID-19164**

**4. *Tinospora Cordifolia*-An immunomodulatory drug in Ayurveda for preventionand treatment of Covid-19 165**

**5. Review on potential antiviral and immunomodulatory**

**Properties of Piper Longum 166**

* **Arq-e-ajeeb**

|  |  |  |
| --- | --- | --- |
| **SL.NO** | **DRUG** | **QUANTITY** |
| 1 | Kafoor | 20gm |
| 2 | Jauhar- e- Pudina | 20gm |
| 3 | Jauhar –e- Ajwayn | 10gm |

**Method of preparation:**

All the three ingredients are kept in a glass stoppered bottles till they liquefy.

**Action:**

Kasir-e-Riyab, Musakkin-Alam

**Therapeutic uses:**

Nafkh-e-Shikam, Ghasiyan,Qai,Su-e-Hazam, Waj- meda, Is- hal, Waj-ul-Fawad, Haiza,Qulanj,Nazla, Zukam, Laza-e- Hashrat, Shaqiqa,Suda.

**Dose:**

2 to 5 drops

**Note:** *for Laza-e-Hashrat,Shaqiqa,and Suda the drug is used externally.*

**Description and its therapeutic applications of Ark-e-ajeeb.**

Arq Ajīb is a viscous liquid preparation light pale in color, highly pungent in taste with camphor like smell. It is obtained by mixing *Kafoor*, *Jauhar-e-Pudina* and *Jauhar-e-Ajwain* in air tight glass container at room temperature and allowing it to liquefy. The liquid is then filtered to get the transparent homogenous liquid and stored in moisture free glass containers.

**2.1 Formulation composition**

*Jauhar-e-Ajwain* (seed extract of *Trachyspermum ammi*) = 1 part (6 gram)

*Jauhar -e-Pudina* (plant extract of *Mentha arvensis*) = 2 parts (12 gram)

*Kafoor* (Camphor – *Cinnamomum camphora*) = 2 parts (12 gram)

**2.2 *Istemal* (Therapeutic uses)**

The formulation has been in use in Unani medicine to treat various afflictions justifying its nomenclature as ArqAjīb iniment of wonder It has been used to treat *Hayḍa* (Cholera), *Ishāl* (Diarrhoea), *S l-H ḍm* (Dyspepsia), *Sill* (Pthisis), *W j ‘ l-Mi‘d* (Gastralgia), *W j ‘ l- Am‘a* (intestinal colic), *W j ‘ l-Fu ād* (GERD), *W j ‘ l-Qalb* (Cardiac Pain), *W j ‘ l-kabid* (Hepatic Pain), *Pechish* (Dysentery), *Q l nj* (Colicky pain), *Ṭā‘ n* (Plague), *Matli* (Nausea), *Q y* (Vomiting), *udā‘* (Headache), *W j ‘ l-‘Aqib* (achillodynia), *Dard-e-Abr* (pain in eyebrows), *W j ‘ l-Asnān* (Toothache), *Nafkh al-Mi‘d* (Flatulence), *W j ‘ l-Udhun* (Otalgia). It is also useful in snake, scorpion and other poisonous insects sting

**2.3 Miqdar -e- Khurak (Dosage)**

Orally- 2-5 drops with water; external application Q.S

**3. Potential of ingredients**

**3.1 Pudina (*Mentha arvensis*)**

**3.1.1 Overview:**

Pudina (*Mentha arvensis* Linn) belongs to the family Lamiaceae is a common edible and aromatic perennial herb cultivated throughout India and widely used in pharmaceutical, cosmetic and flavoring industries. It is a well known kitchen herb and has been utilized medicinally since ages in Unani medicine as an analgesic, stomachic, carminative, anthelmintic, anti-inflammatory, diuretic, diaphoretic, antidote. Mostly, leaves and stem of *Pudina* are used for medicinal purpose. It is administered to treat diarrhea, dysentery, gastric problem, liver and spleen diseases, asthma, jaundice, rheumatic pains, arthritis. It has also been used to treat patients with hypertension and ischemic heart disease. The oil contents of *Pudina* leaves yields 40-50% menthol, which exhibits antiseptic, carminative, refrigerant, stimulant and diuretic properties. Menthol is widely utilized in pharmaceutical, perfumery and food industries and has also been used against various skin infections

**3.1.2 *Mizaj* (Temperament):** Hār Yabis (Hot & Dry)

**3.1.3 *Afaal* (Action):**

*Muḥammir* (Rubefacient), *Musakkin-i-Alam* (Analgesic), *Mu‘ rriq* (Diaphoretic), *Muqawwī-i-Mi‘d* (Stomachic), *Qātil-i-Dīdān* (Anthelmintic), *Mujaffif* (Dessicative), *Musakhkhin* (Calorific), *Munḍij* (Concoctive), *Mulaṭṭif* (Demulcent), *Mudirr-i-Ḥayḍ* (Emmenagogue), *Muḥallil* (Resolvent), *Kāsir-i-Riyāḥ* (Carminative), *Mudirr-i-Bawl* (Diuretic), *Tiryāq* (Antidote), *Qābiḍ* (Astringent)

**3.1.4 *Istemal* (Therapeutic uses):**

*W j ‘ l-Mi‘d* (Gastralgia), *Iḥtibās l-Tamth* (Amenorrhoea), *īq l-Nafas* (Bronchial Asthma), *Q y* (Vomiting), *u‘ l-Mi‘d* (Gastric Debility), *u‘ l-Ishtihā* (Anorexia), *Nafkh al-Mi‘d* (Flatulence), *G zīdgī-i-‘Aqr b* (Scorpion Sting), *H yḍ* (Cholera), *Dīdān l-Am‘ā* (Intestinal worms), *W j ‘ l-Udhun* (Otalgia), *udā‘* (Headache), *Nafth al-Dam* (Haemoptysis), *Khafaqān* (Palpitation), *Githyān* (Nausea), *Dā l-Fīl* (Filariasis), *Dawālī* (varicose veins)*, Niqras* (Gout), *W j ‘ l-Asnān* (Toothache)

**3.1.5 *Miqdar-e-Khurak* (Dose):** 7 grams

**3.1.6 Chemical constituents:**

Organic constituents of *Mentha arvensis* (MA) include glycosides, phenolics, tannins, steroids, terpenes and terpenoids, proteins, reducing sugars and resins. The leaves yield about 0.2 - 0.8% essential oil of which menthol is the major component (30-55%). Other constituents include limonene (1.0-5.0%), cineole (3.5-14.0%), menthone (14.0-32.0%), menthofuran (1.0-9.0%), isomenthone (1.5-10.0%), menthyl acetate (2.8-10.0%), isopulegol (max. 0.2%), menthol (30.0-55.0%), pulegone (max. 4.0%) and carvone (max. 1.0%). Inorganic chemical constituents include antimony, calcium, iron, magnesium, potassium and sodium. It also contains flavonoids such as quercetin, menthoside, and isorhoifolin, vitamin K, thymol and eugenol

**3.1.7 Pharmacological activities:**

MA has been reported for a wide range of biological activities including antiviral and cytotoxic20, antimicrobial21-24, antioxidant, analgesic21, anti-inflammatory & anti-allergic25, anticancer26,27, radioprotective28,29, anticataleptic, antidepressant, antifertility activitie**.  165**

**3.1.7.1 Antiviral & cytotoxic activity:**

A study investigated antiviral activity of 61 medicinal plants including *Mentha arvensis* (MA) against herpes simplex type 1 (HSV-1) and vesicular stomatitis (VSV). Cytotoxic activity was assayed using HeLa cell line. MA exhibited potent cytotoxic activity and very strong antiviral activity against HSV-1 but weak activity against VSV20. Cytotoxic potential of ethanolic extract of MA was investigated using Brine shrimp lethality assay. The extract exhibited lethality against the brine shrimp nauplii with the LC50 values of 40 μg/ml, and also 90% mortality (LC90) value was found to be 160 μg/ml21.

**3.1.7.2 Antimicrobial activity:**

Various reports suggest potent antimicrobial activity of MA. The essential oil of MA has been reported to inhibit the proliferation of *Helicobacter pylori*, *Salmonella enteritidis*, *Escherichia coli* O157:H7, methicillin-resistant *Staphylococcus aureus,* and methicillin sensitive *S. aureus* in liquid culture in a dose dependent manner. It exhibited bactericidal activity in phosphate-buffered saline against both antibiotic-resistant and antibiotic-sensitive strains22. The essential oil of MA exhibited promising antibacterial activity against zoonotic enteropathogens including *Salmonella* spp., *E. coli* O157, *Campylobacter jejuni,* and *Clostridium perfringens*23. Ethanolic extract of MA produced prominent antimicrobial activity against *Salmonella typhi*, *Salmonella paratyphi*, *Shigella boydii*, *Streptococcus pyogenes* and *Staphylococcus aureus*21. MA extract has been reported to exhibit potent antimicrobial activity and potentiating effect on antibiotics such as gentamicin, kanamycin and neomycin.

**3.1.7.3 Antioxidant activity:**

A number of studies have demonstrated significant protective effects of MA extracts and its active components. Ethanolic extract of MA exhibited significant free radical scavenging activity *in vitro* comparable to standard drug ascorbic acid. Methanolic extract showed more powerful radical scavenging activity compared to aqueous extract15. Cineole, an important phytoconstituent of MA, mitigated the ethanol-induced gastric mucosal damage in rats which is attributed to its antioxidant, lipoxygenase inhibitory activity and capacity to restore the non-protein sulfhydryl to the normal level. Cineol, eugenol, thymol, terpenes, flavonoids like quercetin are reported to be good antioxidant and inhibit lipid peroxidation.

**3.1.7.4 Anti-inflammatory & anti-allergic activity:**

A study evaluated anti-inflammatory and anti-allergic potential of ethanolic and aqueous extracts of MA by using histamine- induced paw edema mice and histamine release inhibition test respectively. Results for anti-allergic activity revealed that ethanolic extracts of leaf and root possessed marked inhibitory activity expressed as percentage inhibition, that is, 57% and 53%, respectively. Anti-inflammatory potential exhibited by ethanolic extracts of plant parts was leaf = 68.30 > root = 48.80 > stem = 10.70% and compared with percentage inhibitory potential of standard drug, diclofenac sodium which caused 77.87% edema inhibition.

**3.1.7.5 Anticancer activity:**

A study demonstrated that ethanolic extract of MA significantly suppressed the growth and induced apoptosis in Hep G2 cell lines by MTT assay. Another report suggests potent anticancer activity of methanolic and aqueous extracts against eight human cancer cell lines -A-549, COLO-205, HCT-116, MCF-7, NCI-H322, PC-3, THP-1 and U-87MG, from different origins which include breast, colon, glioblastoma, lung, leukemia and prostate. Methanolic extracts of Mentha Spp. displayed anti-proliferative effect against four human cancer cell lines, namely COLO-205, MCF-7, NCI-H322 and THP-1; however, aqueous extracts were found to be active against HCT-116 and PC-3.

**3.2 Ajwain (*Trachyspermum ammi*)**

**3.2.1 Overview:**

Ajwain (*Trachyspermum ammi* Linn) belonging to the family Apiaceae, is a popular spice and highly valued medicinal herb. It is extensively used in Unani System of medicine for various diseases such as amenorrhoea, leucorrhoea, pruritus vulvae, renal stone, dyspepsia, obesity, diarrhea, epilepsy, intestinal worms and asthma in different forms. The roots act as diuretic and the seeds as excellent aphrodisiac, carminative, laxative, stomachic and anthelmintic. The fruit possesses stimulant, antispasmodic and carminative properties. It is an important remedy for diarrhea, flatulence, and atonic dyspepsia. It also cures piles, abdominal pain, abdominal tumors, and respiratory problems. Essential oil of seeds contains about 50% thymol which acts as a strong anti-spasmodic, germicide and fungicide.

**3.2.2 *Mizaj* (Temperament):** Haar Yabis (Hot & Dry 3).

**3.2.3 *Afaal* (Action):**

*Musakkin* (Anodyne), *Mufattiḥ Sudad* (Deobstruent), *Jālī* (Detergent), *Musht hī* (Appetizer), *Qātil wa Mukhrij-i-Dīdān-i-Am‘ā* (Anthelmintic & Vermifuge), *Dā i‘-i-Tashannuj* (Antispasmodic), *Dā i‘-i-T ‘ un* (Antiseptic), *Musakhkhin* (Calorific), *Mujaffif* (Desiccant), *Muḥallil* (Resolvent), *Mudirr-i-Bawl* (Diuretic), *Tiryāq-i-S m m* (Antidote), *Kāsir-i-Riyāḥ* (Carminative), *Mudirr-i-Ḥayḍ* (Emmenagogue.

**3.2.4 *Istemal* (Therapeutic uses):**

*lāb l-Kabid* (Cirrhosis of Liver), *lāb l-Ṭiḥāl* (Chronic Splenitis), *Shahīqa* (Whooping Cough), *ghṭ al-D m Q wī* (Hypertension), *‘Usr l-Bawl* (Dysuria), *Ḥumma* (Fever), *u‘ l-Ishtihā* (Anorexia), *W j ‘ l-Fu ād* (GERD), *Nafkh al-Mi‘d* (Flatulence), *G zīdgī-i-‘Aqr b* (Scorpion Sting), *Dard* (Pain), *Ḥ āh l-Kulya* (Nephrolithiasis), *Ḥ āh al-M thān* (Cystolithiasis), *Q l nj* (Colicky pain), *r* (Leucoderma), *Bahaq* (Pitryasis), *uth r L b niyy* (Acne vulgaris), *Waram* (Inflammation).

**3.2.5 *Miqdar-e-Khurak* (Dose):** 3-5 grams.

**3.2.6 Chemical constituents:**

Ajwain seeds contain fiber, carbohydrates, tannins, glycosides, protein, fat, saponins, flavone and mineral matters containing calcium, phosphorous, iron and nicotinic acid. Ajwain fruits yield 2% to 4% essential oil, with thymol as the major constituent (35% to 60%). The constituents other than thymol include *p*- cymene γ-terpenine α- and β-pinenes dipentene α-terpinene, and carvacrol. Camphene, myrcene and α-3-carene have also been found in minute quantity in the plant. A yellow, crystalline flavone and a steroid-like substance have been isolated from the fruits. It also contains 6-O-β-glucopyranosyloxythymol, glucoside and reported to produce 25% oleoresin containing 12% volatile oil. The principal oil constituents of *T. ammi* include carvone, limonene and dillapiole167.

**3.2.7 Pharmacological activities:**

Ajwain (*Trachyspermum ammi*) has been reported for antiviral32,33, antimicrobial, insecticidal, anthelmintic, antioxidant, anti-inflammatory activities. Besides these, it has also been reported for hypolipidemic, digestive stimulant, antihypertensive, hepatoprotective, antispasmodic, broncho-dilating, antilithiasis, diuretic, abortifacient, galactogogic, antiplatelet-aggregatory, antitussive, antifilarial, gestroprotective, nematicidal activities.

**3.2.7.1 Antiviral activity:**

A study evaluated cytotoxic and antiviral effect of Ajwain essential oil against Japanese encephalitis virus (JEV). *In vitro* cytotoxic effect was examined in vero cell line by MTT assay method. Plaque assay was used to determine JEV titer and plaque reduction neutralization test (PRNT) was employed to quantify the *in vitro* antiviral activity of ajwain oil. The study demonstrated potent cytotoxic and antiviral effect of Ajwain essential oil. The study reported cytotoxic concentration of Ajwain essential oil as 1 mg/ml by MTT assay. The titer of the virus pool was found to be 50× 107 PFU/ml. The study demonstrated that 0.5mg/ml of Ajwain oil exhibited 80% and 40% virus inhibition in pre-exposure treatment and post-exposure treatment (antiviral activity), respectively32. Another study has demonstrated potent inhibitory effect of methanolic extract of Ajwain against hepatitis C virus (>/=90% inhibition at 100 microg/mL).

**3.2.7.2 Antimicrobial, insecticidal, anthelmintic activities:**

A number of research studies have demonstrated significant antimicrobial effect against a wide range of bacteria and fungi, both sensitive and resistant. Ajwain essential oil has been reported to exhibit remarkable activity against vaginal pathogens including *Candida spp*., *Gardnerella vaginalis*, *Escherichia coli*, *Staphylococcus aureus*, *Streptococcus agalactiae* and *Lactobacillus acidophilus* and *Trichomonas vaginalis*34. Ajwain essential oil fractions γ-terpinene ρ-cymene and thymol exhibited potent antibacterial and antifungal activity35. Ajwain essential oil possessed remarkable antibacterial activity against three Gram − bacterial strains *E. coli*-MTCC 443, *P. vulgaris*-MTCC 1771, and *K. pneumoniae*-MTCC number 7028) and three Gram (+) bacterial strains (*S. aureus*-MTCC 3381, *B. subtilis*-MTCC 10619, and *B. megaterium*-MTCC 2412). It also exhibited potent insecticidal activity against *Plodia interpunctella*36. Ajwain extracts have also been reported for potent anthelmintic activity against *Ascaris lumbricoides* and *Haemonchus contortus*. It is suggested that Ajwain exert anthelmintic activity by interference with the energy metabolism of parasites through potentiation of ATPase activity and thus loss of energy reserves. The plant has also been reported to possess cholinergic activity with peristaltic movements of the gut, thus helping in expulsion of intestinal parasites which might also be a contributory factor to its anthelmintic activity.

**3.2.7.3 Antioxidant activity:**

Ajwain extract and essential oils have been reported to possess significant antioxidant activity. Pre-feeding of ajwain extract in hexachlorocyclohexane (HCH)-induced oxidative stress and toxicity in rats resulted in increased GSH, GSH-peroxidase, G-6-PDH, SOD, catalase, glutathione S-transferase (GST) activities and decreased hepatic levels of lipid peroxides37. Antioxidant activity of Ajwain essential oil determined by the DPPH and superoxide scavenging methods revealed significant antioxidant activity. In vitro radical scavenging and antioxidant capacities of Ajwain essential oil and its main components were investigated and an antioxidant enzyme response to Ajwain essential oil at the gene expression levels was determined. The inhibitory effects of Ajwain essential oil and its main components on superoxide and nitric oxide production and NADH oxidase (NOX) and nitric oxide synthase (NOS) expression examined in lipopolysaccharide (LPS)-stimulated macrophages. Ajwain essential oil and thymol displayed a robust antioxidant activity while γ-terpinene and p-cymene have presented a few antioxidant activities. Ajwain essential oil at 10 μg/m strongly reduced NO but potently increased reactive oxygen species (ROS) in LPS-stimulated macrophages. Ajwain essential oil significantly decreased inducible nitric oxide synthase (iNOS) mRNA expression but upregulated NOX mRNA in LPS-stimulated macrophages at 10 μg/m Ajwain essential oil had strong synergism with LPS to enhance ROS, a condition that is suitable against tumors propagation. It was observed that the thymol at 10 μg/m significantly reduced NO, and ROS production and expression of iNOS mRNA and NOX mRNA in LPS-stimulated macrophages, however, γ-terpinene and p-cymene did not exhibited such activities. Thymol was found to be the most promising compound responsible for antioxidant activity of Ajwain essential oil, however, the strong synergism between all monoterpenes and monoterpenoids components of essential oils may also have contributed enough to the presentation of its biological action.

**3.2.7.4 Anti-inflammatory activity:**

A study investigated the anti–inflammatory effect of aqueous extract of Ajwain seed on type II collagen-induced arthritis (CIA) in Wistar rats. The study demonstrated a significant increase in paw thickness, arthritis score, and *COX2* and *iNOS* mRNA levels in CIA treated group compared to those of the normal group. Treatment with standard drug ibuprofen and aqueous extract of Ajwain seed alone or in combination significantly reduced the studied variables. Ibuprofen-treated group showed higher rate of reduction in the paw thickness, arthritis score, and *iNOS* mRNA level than the Ajwain extract-treated group, however, treatment with Ajwain extract reduced *COX2* mRNA level more than ibuprofen. The study suggested that the aqueous extract of Ajwain can be used alone or in combination with ibuprofen to treat RA.

**3.3 Kafoor (*Cinnamomum camphora*)**

**3.3.1 Overview:**

*Kafoor* (camphor) is a well acclaimed Unani drug used for a number of pathological conditions since ages. Camphor is a waxy, white crystalline substance derived from the wood of camphor laurel (*Cinnamomum camphora* L.) tree through steam distillation. Its therapeutic values are clearly defined in classical Unani literature. It acts as resolvent, rubefacient, counter-irritant and has anti- inflammatory and mild analgesic action. It is one among the major ingredients of different liniments used for the treatment of neuralgia, fibrositis and other similar conditions. It is also used as expectorant and has irritant and carminative properties when ingested. It has also been used in many skin disorders. The drug has shown diverse biological and pharmacological activities.

**3.3.2 Mizaj (Temperament):** Barid Yabis (Cold Dry).

**3.3.3 *Afaal* (Action):**

**Externally:** *Dā i‘-i-T ‘ un* (Antiseptic), *Muḥarrik* (Stimulant), *Muḥammir* (Rubefacient), *Mubarrid*

(Refrigerant), *Mukhaddir* (Anaesthetic), *Musakkin-i-Alam* (Analgesic).

**Internally:** *Mu‘ rriq* (Diaphoretic), *Muqawwī-i-Mi‘d* (Stomachic), *Mufarriḥ* (Exhilarant), *Muq wwī-i-Qalb* (Cardiac Tonic), *Dā i‘-i-Ḥummā* (Antipyretic), *Qābiḍ* (Astringent), *Dā i‘-i-Tashannuj* (Antispasmodic), *Munaffith-i- Balgham* (Expectorant), *Tiryāq-i-Hayḍa* (anti-cholera), *Kāsir-i-Riyāḥ* (Carminative)

**3.3.4 *Istemal* (Therapeutic uses):**

**Externally-** *W j ‘ l-Khā ir* (Lowbackache), *W j ‘ l-M ā il* (Polyarthritis), *Dhāt l-Janb* (Pleurisy), *Dhat al-Ri* (Pneumonia), *W j ‘ l-Asnān* (Toothache), *W j ‘ l-Udhun* (Otalgia), *Sozish-i-Jild* (Burning Sensation of Skin), *Ramad* (conjunctivitis), *Qulā‘* (Stomatitis), *Ru‘āf* (Epistaxis), *udā‘* (Headache)

**Internally-** *Nafkh al-Mi‘d* (Flatulence), *Hayḍa* (Food poisoning), *Diq* (Tuberculosis), *Dā i‘-i-Aṭāsh* (Anti-Thirst), *K thr l-Iḥtilām* (Nocturnal emission), *J r yān* (Spermatorrhea), *G zīdgī-i-‘Aqr b* (Scorpion Sting), *Nazla* (Catarrh), *Zukām* (coryza), *Munawwim* (Sedative), *Ishāl* (Diarrhea), *Su‘āl* (Cough), *Ḥumm* (Fever), *īq l-Nafas* (Bronchial Asthma), *‘Usr l-Bawl* (Dysuria), *Ḥurq al-Bawl* (Burning micturition), *‘Usr l-Tamth* (Dysmenorrhoea), *Kh qān* (Palpitation)

**3.3.5 *Miqdar-e-Khurak (Dose):*** Oral - 1-3Ratti (125mg – 375mg)17,18.

**3.3.6 Chemical constituents of *C. camphora*:**

Fractionation of the camphor-free oil obtained from *C. camphora* provides an oil rich in safrole (80% or more), usually called Chinese sassafras oil. *C. camphora* is a well- known chemotype; on distillation, the wood from different groups of trees may yield camphor, linalool, safrole or cineole as the major chemical. The use of *C. camphora* as a source of leaf oil has expanded in recent years, and it is now an important source of natural linalool (which is still preferred over the synthetic form for some fragrant applications). Major oil constituents of *C. camphora* include camphor, linalool, camphene, safrole, borneol, dipentene, terpeneol and cineole

**3.3.7 Pharmacological activities:**

Kafoor (*C. camphora*) has been reported to exhibit several biological activities such as antiviral43, antimicrobial, insecticidal antitussive ,anti-inflammatory and antioxidant48, anti-allergic, antimutagenic and anticancer activities.

**3.3.7.1 Antiviral, antimicrobial, insecticidal activities:**

Camphor has been used as a fumigant during the outbreak of plague, also known as Black Death that spread through Europe in the 14th century, as well as during outbreaks of small pox and cholera. Essential oils of several species containing camphor have been reported to possess potent antiviral, antimicrobial and antitussive activities. Essential oil of *Salvia Fruticosa* he Greek sage and its main components (1,8-cineole, α-β-thujone and camphor) exhibited highly promising virucidal activity against herpes simplex virus-1 (HSV-1). Essential oil of Lavender cotton (*Santolina insularis*), rich in camphor has been reported to deactivate HSV-1 and HSV-2 by inhibiting cell to cell transmission of both the viruses.

Essential oils of different species containing camphor exhibited marked inhibitory activity again various bacterial and fungal strains. A study demonstrated prominent antibacterial activity and quorum-sensing inhibitory activity of *C. camphora* essential oil (EO) against *Chromobacterium violaceum*. It significantly inhibited the formation of biofilm and swarming movement and decreased the production of violacein and biofilm biomass in *C. violaceum*. In addition, it also downregulated the expression of the acyl-homoserine lactones (AHL) synthesis gene (*cviI*) and transcription regulator (*cviR*), and exhibited inhibitory effects on the expression of QS-regulated virulence genes44. The essential oils extracted from the stem barks, leaves, and fruits of *C. camphora* (L.) are reported to possess strong fumigant toxicity against *Tribolium castaneum* and *Lasioderma serricorne* adults measured by seal-spaced fumigation.

**3.3.7.2 Antitussive activity:**

Menthol and other aromatic vapors have been widely used in the symptomatic treatment of upper respiratory tract infections. A study investigated the action of aromatic vapors (menthol, camphor and cineole) in different doses on the chemically induced cough reflex in conscious guinea-pigs. Menthol possessed the most effective antitussive effect and produced a significant 28 and 56% reduction in cough frequency. Camphor gave a significant 33% reduction, while cineole, at the concentrations used, showed no significant effect46. A study examined antitussive effect of camphor and synthesized camphor lactam in citric acid-induced cough in guinea pig model. The result revealed significant reduction in cough response induced by citric acid and also increased latency to initial cough response at different concentrations. It was observed that the slight modification in chemical structure of camphor resulted in increased antitussive effect as it significantly increased cough latency and decreased cough frequency47.

**3.3.7.3 Anti-inflammatory, antioxidant activity:**

A study investigated the inhibitory effects of different extract of *C. camphora* on various pro-inflammatory mediators to explore its potential anti-inflammatory mechanisms. Result revealed that the hexane and ethyl acetate (EtOAc) extracts significantly blocked the production of interleukin (IL)-1 beta, IL-6 and the tumor necrosis factor (TNF)-alpha from RAW264.7 cells stimulated by lipopolysaccharide (LPS) up to 20-70%. The hexane and EtOAc extracts (100 microg/ml) also inhibited nitric oxide (NO) production in LPS/interferon (IFN)-gamma-activated macrophages by 65%. The methanol extract and two other fractions prepared by solvent partition with n-butanol (BuOH) and EtOAc at 100 microg/ml exhibited strong suppressant effect on prostaglandin E(2) production in LPS/IFN-gamma-activated macrophages up to 70%. Hexane, BuOH and EtOAc extracts (100 microg/ml) also inhibited the functional activation of beta1-integrins (CD29) assessed by U937 homotypic aggregation up to 70-80%. Further, EtOAc and BuOH extracts were tested for their antioxidant effect by using 1,1-diphenyl-2-picrylhydrazyl (DPPH) and xanthine oxide (XO) assays and displayed strong anti-oxidative activity with IC(50) values of 14 and 15 microM, respectively. It was suggested that the possible mechanism involve in the anti-inflammatory actions of *C. camphora* may be the modulation of cytokine, NO and PGE(2) production and oxidative stress.

**3.3.7.4 Anti-allergic activity:**

Immunoglobulin E (IgE) is known to plays an important role in allergic diseases. A study demonstrated that methanol extract of leaves of the camphor tree reduced the amount of IgE secreted by human myeloma U266 cells. Upon fractionation of methanol extract by extraction with organic solvents, it was observed that the ethyl acetate fraction had the highest activity 165 . the fraction was further subdivided into

several subfractions by preparative TLC and dimethylmatairesinol was identified as the main component of one of the active subfractions. The study suggested *C. camphora* extract and its component including dimethylmatairesinol as a potent anti- allergic agent.

1. **Plausible role of Arq Ajīb in combating COVID-19: A multi-faceted review168**

***2.* Effect of Unani Pharmacopoeial Formulation  *‘Araq-i-‘Ajéb* in Cases of *Ñudä*‘(Headache): A Preliminary Study 169**

**3. Indian Medicinal Plants and Formulations and Their Potential against COVID-19–Preclinical and Clinical Research170**

1. **MATERIALS AND METHODS**

The review of literature provides insights into the profound health risks posed by the COVID-19 pandemic and its multifaceted impact on society. It underscores the significance of immunoboosters, particularly Arqee Ajeeb and Samshamani Vati, and their historical references within ancient systems of medicine, as well as the available scientific evidence pertaining to their efficacy in managing COVID-like pandemics. Consequently, it can be posited that these immunoboosters exhibit considerable potential in mitigating COVID symptoms and enhancing immunity in the human population and this protocol is a unique protocol wherein integration of Ayurveda and Unani formulations are tried to get maximum benefit to the subjects and it also provide a platform to study efficacy of an integrated immunobooster therapy which was a real vision in Government of India health policy 2017 which really showed the future roadmap of integrated, holistic approach to wellness.

**MATERIALS:**

An immunobooster therapy was designed meticulously after thorough scientific review for the COVID 19 pandemic in April 2020 and was given to the employees of Infosys of all categories including IT professionals, Administration department and D-Group workers after taking their consent.

* Consent by the subjects has been taken, a copy of it form has been attached in

Annexure 1.

* The assessment criteria was by telephonic interview about the efficacy of the immunobooster and side effects was done once in every 3 months for a period of one year.
* Hence, the aggregate responses are collected in a specially designed and developed standardized questionnaire which was examined for acceptability, validity and repeatability.

Immunoboosters were prepared in the following forms:

* Arqe Ajeeb: as an inhaler
* Samshamani Vati: in tablet form

These forms were given to the employees for the mentioned time period and the responses were recorded.

The Ethical Committee approval has been taken.

**METHODOLOGY:**

**Aims and Objectives of the Study:**

* To evaluate the efficacy of the AYUSH immunoboosters- Arqe Ajeeb and Samshamani Vati in preventive care of Covid 19.
* To determine the safety and side effects of the immunoboosters to further generalize its use for the better prevention of the pandemic.

Source of data: The sample is selected randomly among the employees and workers of the software company, Infosys, Mysuru. The selected individuals have to take the given immunoboosters for the period of one month.

Selection type: Randomized selection, with permission and consent of the respected individual and management authority.

Sample Size: A sample size of 478 subjects was taken which included either genders.

Inclusion Criteria:

* The subjects who have given their consent to participate are included in the study.
* Age group of 15-70 years are included in the study.
* Participants who have got no Covid infection prior to the intervention are included in the study.
* Subjects of either gender are included.

Exclusion criteria:

* Subjects with any systemic illness are excluded.
* Pediatrics below 12 years of age are excluded from the study.
* Pregnant and lactating women are also excluded.

Tools: A set of 12 questions were formulated after a discussion with the resource persons, experts and peer groups. The questionnaire contained qualitative type of questions regarding the immunobooster, its notable efficacy, probable side effects, personal history, its mode of administration, etc. The questionnaire was subjected to standardization with acceptability, repeatability, validity criteria.

**MATERIALS:**

The standard questionnaire was designed and developed by GARC, Mysuru with the help of peer experts and stakeholders and was scientifically, systematically subjected for validation, exceptability, repeatability criteria. All the above criteria are benchmarked to more than 95% and the standardized questionnaire was designed and developed in a scientific manner and administered to the consented subjects who were ready to receive the immunobooster therapy with a proper consent form.

The interventional drugs Samhamani Vati and Arqe Ajeeb are procured and supplied by Department of AYUSH, Government of Karnataka, and administered to the subjects as per the protocol designed and developed by GARC, Mysuru for this special project of immunobooster therapy of COVID 19.

1. **OBSERVATIONS**

**Table 1: Age \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Age | 0-10 | Count | 19 | 7 | 26 |
| % within sex | 5.9% | 4.5% | 5.4% |
| 11-20 | Count | 30 | 16 | 46 |
| % within sex | 9.3% | 10.2% | 9.6% |
| 21-30 | Count | 53 | 32 | 85 |
| % within sex | 16.5% | 20.4% | 17.8% |
| 31-40 | Count | 96 | 42 | 138 |
| % within sex | 29.9% | 26.8% | 28.9% |
| 41-50 | Count | 63 | 28 | 91 |
| % within sex | 19.6% | 17.8% | 19.0% |
| 51-60 | Count | 41 | 14 | 55 |
| % within sex | 12.8% | 8.9% | 11.5% |
| 61-70 | Count | 14 | 14 | 28 |
| % within sex | 4.4% | 8.9% | 5.9% |
| 71-80 | Count | 5 | 4 | 9 |
| % within sex | 1.6% | 2.5% | 1.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 2: Chi square test-1**  **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 7.568 | 7 | .372 |

**Graph 1: Age \* sex**

OBSERVATION ABOUT AGE AND SEX DISTRIBUTION:

According to the data above, 19 males and 7 females in the age group 0-10 have taken immunobooster. Under the age group 11-20, 30 males and 16 females have taken immunobooster. In the Age group 21-30 years, 53 males and 32 females have taken immunobooster. 96 males and 42 females have taken immunobooster. in the age group of 31-40 years.

63 males and 28 females have taken immunobooster in the age group of 41-50 years. Under the age group 51 – 60 years, 41 males and 14 females have taken immunobooster. 14 males and 14 females have taken immunobooster in the age group of 61-70 years. Under the age group of 71-80 years, 5 males and 4 females have taken immunobooster.

**Table 3: Days\*Sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Days | 15 days | Count | 258 | 132 | 390 |
| % within sex | 80.4% | 84.1% | 81.6% |
| 30 daya | Count | 31 | 9 | 40 |
| % within sex | 9.7% | 5.7% | 8.4% |
| 7-10 days | Count | 32 | 16 | 48 |
| % within sex | 10.0% | 10.2% | 10.0% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 4: Chi square test-2**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 2.123 | 2 | .346 |

**Graph 2: Days\*sex**

OBSERVATION:

According to the above data 258 males and 132 females have taken immunobooster for 15 days. 31 males and 9 females have taken for 30 days and 32 males and 16 females have taken for 7 to 10 days.

**Table 5: Times\*sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Times\_day | 1 | Count | 32 | 7 | 39 |
| % within sex | 10.0% | 4.5% | 8.2% |
| 2 | Count | 288 | 150 | 438 |
| % within sex | 89.7% | 95.5% | 91.6% |
| 3 | Count | 1 | 0 | 1 |
| % within sex | 0.3% | 0.0% | 0.2% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 6: Chi square test-3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 4.803 | 2 | .091 |

**Graph 3: Times\*Sex**

OBSERVATION:

According to the data above, 32 males and 7 females have taken once in a day. 288 males and 150 females taken twice a day and 1male took thrice a day.

**Table 7: Health\_issues\*sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | sex | | Total |
| Male | female |
| Health\_issues | Yes | Count | 9 | 1 | 10 |
| % within sex | 2.8% | 0.6% | 2.1% |
| No | Count | 312 | 156 | 468 |
| % within sex | 97.2% | 99.4% | 97.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 8: Chi square test-4**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 2.417 | 1 | .120 |  |
| Fisher's Exact Test |  |  |  | .177 |

**Graph 4: Health\_issues\*sex**

OBSERVATION:

According to the above data , 9 males and 1 female had health issues where 312 males and 156 females had no health issues post immunobooster.

**Table 9: Recommend\*sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| recommend | Yes | Count | 260 | 141 | 401 |
| % within sex | 81.0% | 89.8% | 83.9% |
| No | Count | 61 | 16 | 77 |
| % within sex | 19.0% | 10.2% | 16.1% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 10: Chi square test-5**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 6.058 | 1 | .014 |  |
| Fisher's Exact Test |  |  |  | .017 |

**Graph 5: Recommend\*sex**

OBSERVATION:

According to the above data 260 males and 141 females recommended immunobooster where 61 males and 16 females didn’t recommend.

**Table 11:** **Necessity\_in\_future \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Necessity\_in\_future | Yes | Count | 227 | 128 | 355 |
| % within sex | 70.7% | 81.5% | 74.3% |
| No | Count | 94 | 29 | 123 |
| % within sex | 29.3% | 18.5% | 25.7% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 12: Chi square test-6**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 6.449 | 1 | .011 |  |
| Fisher's Exact Test |  |  |  | .014 |

**Graph 6: Necessity\_in\_future \* sex**

OBSERVATION:

According to the above data 227 males and 128 females interested in taking immunobooster in future whereas 94 males and 29 females did not.

**Table 13: Form\*sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Form | Tab | Count | 122 | 56 | 178 |
| % within sex | 38.0% | 35.7% | 37.2% |
| Choorna | Count | 4 | 3 | 7 |
| % within sex | 1.2% | 1.9% | 1.5% |
| any form | Count | 101 | 68 | 169 |
| % within sex | 31.5% | 43.3% | 35.4% |
| None | Count | 94 | 30 | 124 |
| % within sex | 29.3% | 19.1% | 25.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 14: Chi square test-7**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 8.867 | 3 | .031 |

**Graph 7: Form\*sex**

OBSERVATION:

According to the above data 122 males and females liked to deliver the medicine in tablet from, 4 males and 3 females in choorna form, 101 males and 68 females in any form. 94 males and 30 females liked to be delivered in any form.

**Table 15: Place\*sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Place | Hosp | Count | 10 | 7 | 17 |
| % within sex | 3.1% | 4.5% | 3.6% |
| Work | Count | 85 | 32 | 117 |
| % within sex | 26.5% | 20.4% | 24.5% |
| druh house | Count | 7 | 12 | 19 |
| % within sex | 2.2% | 7.6% | 4.0% |
| anywhere | Count | 124 | 77 | 201 |
| % within sex | 38.6% | 49.0% | 42.1% |
| None | Count | 95 | 29 | 124 |
| % within sex | 29.6% | 18.5% | 25.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 16: Chi square test-8**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 17.800 | 4 | .001 |

**Graph 8: Place\*sex**

OBSERVATION:

According the above data 10 males and 7 females like to deliver the medicine via hospital, 85 males and 32 females from work place, 7 males and 12 from drug house, 124 males and 77 females from anywhere and 95 males and 29 females are not interested to take the medicine through any channel.

**Table 17: Drug\_course\*sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Drug\_course | App | Count | 313 | 155 | 468 |
| % within sex | 97.5% | 98.7% | 97.9% |
| More | Count | 8 | 2 | 10 |
| % within sex | 2.5% | 1.3% | 2.1% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 18: Chi square test-9**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | .764 | 1 | .382 |  |
| Fisher's Exact Test |  |  |  | .509 |

**Graph 9: Drug\_course\*sex**

OBSERVATION:

According to the above data 313 males and 155 females felt the drug course is appropriate and according 8 males and 2 females the drug course was more.

**Table 19: Vaccination\*sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Vaccination | single | Count | 92 | 43 | 135 |
| % within sex | 28.7% | 27.4% | 28.2% |
| two | Count | 200 | 95 | 295 |
| % within sex | 62.3% | 60.5% | 61.7% |
| none | Count | 29 | 19 | 48 |
| % within sex | 9.0% | 12.1% | 10.0% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 20: Chi square test-10**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 1.104 | 2 | .576 |

**Graph 10: Vaccination\*sex**

OBSERVATIONS:

According the above data 92 males and 43 females took a single dose of vaccine, 200 males and 95 females took two doses of vaccine and 29 males and 19 females did not take any vaccine.

**Table 21: Covid\_attack \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Covid\_attack | Before | Count | 1 | 1 | 2 |
| % within sex | 0.3% | 0.6% | 0.4% |
| After | Count | 8 | 4 | 12 |
| % within sex | 2.5% | 2.5% | 2.5% |
| No | Count | 312 | 152 | 464 |
| % within sex | 97.2% | 96.8% | 97.1% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 22: chi square test-11**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | .270 | 2 | .874 |

**Graph 11: Covid\_attack\*sex**

OBSERVATIONS:

According to above data, 1 male and female each have been attacked with covid before taking immunobooster, 8 males and 4 females were attacked with covid after taking and 312 males and 152 females were not affected with covid.

**Table 23: Effectiveness\_of\_Immunobooster \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | Sex | | Total |
| Male | female |
| Effectiveness\_of\_Immunobooster | helpful | Count | 233 | 107 | 340 |
| % within sex | 72.6% | 68.2% | 71.1% |
| didnt use | Count | 31 | 8 | 39 |
| % within sex | 9.7% | 5.1% | 8.2% |
| didnt get | Count | 57 | 42 | 99 |
| % within sex | 17.8% | 26.8% | 20.7% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 24: Chi square tests-12**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 7.099 | 2 | .029 |

**Graph 12: Effectiveness\_of\_Immunobooster \* sex**

OBSERVATIONS:

According to the above data the immunobooster was helpful to 233 males and 107 females while 31 males and 8 females did not use. 57 males and 42 females did not get it.

**Table 25: intake \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| intake | Yes | Count | 314 | 157 | 471 |
| % within sex | 97.8% | 100.0% | 98.5% |
| No | Count | 7 | 0 | 7 |
| % within sex | 2.2% | 0.0% | 1.5% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 26: Chi Square test-13**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 3.475 | 1 | .062 |  |
| Fisher's Exact Test |  |  |  | .102 |

**Graph 13: Intake\*sex**

OBSERAVTIONS:

According to the above data 314 males and 157 females have taken immunobooster while 7 males didn’t take the immunobooster.

**Table 27: Health\_in\_check \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Health\_in\_check | Yoga & Pra | Count | 36 | 32 | 68 |
| % within sex | 11.2% | 20.4% | 14.2% |
| Exc | Count | 106 | 48 | 154 |
| % within sex | 33.0% | 30.6% | 32.2% |
| Diet | Count | 29 | 13 | 42 |
| % within sex | 9.0% | 8.3% | 8.8% |
| None | Count | 150 | 64 | 214 |
| % within sex | 46.7% | 40.8% | 44.8% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Table 28: Chi Square test-14**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 7.331 | 3 | .062 |

**Graph 14: Health\_in\_check \* sex**

OBSERVATIONS:

According to the above data 36 males and 32 females were interested in doing yoga and pranayama along with taking medicine. 106 males and 48 females were interested in doing exercise along with taking medicine.29 males and 13 females were interested to follow diet along with medicine. 150 males and 64 females are not interested in anything along with medicine.

**Table 29: Days \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Days | 15 days | Count | 13 | 26 | 72 | 114 | 79 | 51 | 27 | 8 | 390 |
| % within Age | 50.0% | 56.5% | 84.7% | 82.6% | 86.8% | 92.7% | 96.4% | 88.9% | 81.6% |
| 30 daya | Count | 3 | 5 | 8 | 16 | 5 | 2 | 1 | 0 | 40 |
| % within Age | 11.5% | 10.9% | 9.4% | 11.6% | 5.5% | 3.6% | 3.6% | 0.0% | 8.4% |
| 7-10 days | Count | 10 | 15 | 5 | 8 | 7 | 2 | 0 | 1 | 48 |
| % within Age | 38.5% | 32.6% | 5.9% | 5.8% | 7.7% | 3.6% | 0.0% | 11.1% | 10.0% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 30: Chi Square test-15**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 68.923 | 14 | .000 |

**Graph 15: Days \* Age**

OBSERVATIONS:

According to the above data 0-10 years 13 members have taken medicine for 15 days, 3 members have taken for 30 days and 10 members have taken for 7 to 10 days.

In the age group 11-20 years 26 members have taken for 15 days, 5 members have taken for 30 days and 15 members have taken for 7 to 10 days.

In the age group 21-30 years 72 members have taken for 15 days, 8 members have taken for 30 days and 5 members have taken for 7 to 10 days.

In the age group 31-40 years 114 members have taken for 15 days, 16 members have taken for 30 days and 8 members have taken for 7 to 10 days.

In the age group 41-50 years 79 members have taken for 15 days, 5 members have taken for 30 days and 7 members have taken for 7 to 10 days.

In the age group 51-60 years 51 members have taken for 15 days, 2members have taken for 30 days and 2members have taken for 7 to 10 days.

In the age group 61-70 years 27 members have taken for 15 days, 1 member have taken for 30 days.

In the age group 71-80 years 8 members have taken for 15 days, and 1 member have taken for 7 to 10 days.

**Table 31: intake \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| intake | Yes | Count | 26 | 45 | 84 | 135 | 90 | 55 | 27 | 9 | 471 |
| % within Age | 100.0% | 97.8% | 98.8% | 97.8% | 98.9% | 100.0% | 96.4% | 100.0% | 98.5% |
| No | Count | 0 | 1 | 1 | 3 | 1 | 0 | 1 | 0 | 7 |
| % within Age | 0.0% | 2.2% | 1.2% | 2.2% | 1.1% | 0.0% | 3.6% | 0.0% | 1.5% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 32: Chi Square tests-16**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 2.974 | 7 | .887 |

**Graph 16: Intake \* Age**

OBSERVATIONS:

In the age group 0-10 years 26 members have taken immunobooster.

In the age group 11-20 years 45 members have taken immunobooster and 1 member have not taken immunobooster.

In the age group 21-30 years 84 members have taken the immunobooster while 1 member have not taken.

In the age group 31- 40 years 135 members have taken immunobooster and 3 members have not taken.

In the age group 41-50 years 90 members have taken the immunobooster while 1 member have not taken.

In the age group 51-60 years 55 members have taken the immunobooster.

In the age group 61-70 years 27 members have taken the immunobooster while 1 member have not taken.

In the age group 71-80 years 9 members have taken the immunobooster.

**Table 33: Times a day \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Times\_day | 1 | Count | 7 | 10 | 6 | 7 | 4 | 4 | 1 | 0 | 39 |
| % within Age | 26.9% | 21.7% | 7.1% | 5.1% | 4.4% | 7.3% | 3.6% | 0.0% | 8.2% |
| 2 | Count | 19 | 36 | 79 | 130 | 87 | 51 | 27 | 9 | 438 |
| % within Age | 73.1% | 78.3% | 92.9% | 94.2% | 95.6% | 92.7% | 96.4% | 100.0% | 91.6% |
| 3 | Count | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| % within Age | 0.0% | 0.0% | 0.0% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.2% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 34: Chi Square tests-17**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 31.201 | 14 | .005 |

**Graph 17: Times a day\*age**

OBSERVATIONS:

In the age group 0-10 years 7 members, in the age group 11-21 years 10 subjects , in the age group 21-30 years 6 subjects, in the age group 31- 40 years 7 subejcts , in 41-50 years 4 subjects, in 51-60 years 4 subjects, in 61-70 years 1 subject have taken immunobooster 1 time.

In the age group 0-10 years 19 members, in the age group 11-21 years 36 subjects , in the age group 21-30 years 79 subjects, in the age group 31- 40 years 130 subejcts , in 41-50 years 87 subjects, in 51-60 years 51 subjects, in 61-70 years 27 subjects, in 71-80 years 9 subjects have taken immunobooster twice.

In the age group 31- 40 years 1 subejct has taken immunobooster three times.

**Table 35: Health\_issues \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Health\_issues | Yes | Count | 2 | 0 | 4 | 0 | 1 | 1 | 2 | 0 | 10 |
| % within Age | 7.7% | 0.0% | 4.7% | 0.0% | 1.1% | 1.8% | 7.1% | 0.0% | 2.1% |
| No | Count | 24 | 46 | 81 | 138 | 90 | 54 | 26 | 9 | 468 |
| % within Age | 92.3% | 100.0% | 95.3% | 100.0% | 98.9% | 98.2% | 92.9% | 100.0% | 97.9% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 36: Chi Square test-18**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 14.886 | 7 | .037 |

**Graph 18: Health\_issues \* Age**

OBSERVATIONS:

According to the above data, In the age group 0-10 years 2 members have experienced health issues after taking immunobooster and 24 members didn’t experience.

In the age group 11-20 years 46 members didn’t experience any health issues after taking immunobooster.

In the age group 21-30 years 4 members have experienced health issues after taking immunobooster and 81 members didn’t experience.

In the age group 31-40 years 138 members didn’t experience any health issues.  
In the age group 41-50 years 1 member have experienced health issues after taking immunobooster and 90 members didn’t experience.

In the age group 51-60 years 1 member have experienced health issues after taking immunobooster and 54 members didn’t experience.

In the age group 61-70 years 2 members have experienced health issues after taking immunobooster and 26 members didn’t experience.

In the age group 71-80 years 9 members didn’t experience any health issues.

**Table 37: Necessity\_in\_future \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Necessity\_in\_future | Yes | Count | 20 | 35 | 71 | 95 | 66 | 43 | 21 | 4 | 355 |
| % within Age | 76.9% | 76.1% | 83.5% | 68.8% | 72.5% | 78.2% | 75.0% | 44.4% | 74.3% |
| No | Count | 6 | 11 | 14 | 43 | 25 | 12 | 7 | 5 | 123 |
| % within Age | 23.1% | 23.9% | 16.5% | 31.2% | 27.5% | 21.8% | 25.0% | 55.6% | 25.7% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 38: Chi Square test-19**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 10.899 | 7 | .143 |

**Graph 19: Necessity\_in\_future \* Age**

OBSERVATIONS:

In the age group 0-10 years 20 members, in the age group 11-21 years 35 subjects , in the age group 21-30 years 71 subjects, in the age group 31- 40 years 95 subejcts, in 41-50 years 66 subjects, in 51-60 years 43 subjects, in 61-70 years 21 subjects and in age group 71-80 years 4 subjects have said yes for there is necessity for the immunobooster in future.

In the age group 0-10 years 6 members, in the age group 11-21 years 11 subjects , in the age group 21-30 years 14 subjects, in the age group 31- 40 years 43 subejcts, in 41-50 years 25 subjects, in 51-60 years 12 subjects, in 61-70 years 7 subjects and in age group 71-80 years 5 subjects have said no for the necessity of the immunobooster in future.

**Table 39: Form \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Form | Tab | Count | 8 | 17 | 34 | 59 | 32 | 19 | 8 | 1 | 178 |
| % within Age | 30.8% | 37.0% | 40.0% | 42.8% | 35.2% | 34.5% | 28.6% | 11.1% | 37.2% |
| Choorna | Count | 0 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 7 |
| % within Age | 0.0% | 2.2% | 1.2% | 0.0% | 0.0% | 7.3% | 3.6% | 0.0% | 1.5% |
| any form | Count | 12 | 17 | 36 | 36 | 33 | 20 | 12 | 3 | 169 |
| % within Age | 46.2% | 37.0% | 42.4% | 26.1% | 36.3% | 36.4% | 42.9% | 33.3% | 35.4% |
| None | Count | 6 | 11 | 14 | 43 | 26 | 12 | 7 | 5 | 124 |
| % within Age | 23.1% | 23.9% | 16.5% | 31.2% | 28.6% | 21.8% | 25.0% | 55.6% | 25.9% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 40: Chi Square test-20**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 35.725 | 21 | .023 |

**Graph 20: Form\*age**

OBSERVATIONS:

According to the above data , in the age group 0-10 years 8 members recommended to deliver the drug via tablet , 0 members via choorna , 12 members via any form and 6 members didn’t want the medicine.

In the age group 11-20 years 17 members recommended to deliver the drug via tablet, 1 member via choorna , 17 members via any form and 11 members didn’t want the medicine.

In the age group 21-30 years 34 members recommended to deliver the drug via tablet, 1 member via choorna , 36 members via any form and 14 members didn’t want the medicine.

In the age group 31- 40 years 59 members recommended to deliver the drug via tablet, 0 member via choorna , 36 members via any form and 43 members didn’t want the medicine.

In the age group 41-50 years 32 members recommended to deliver the drug via tablet, 0 member via choorna , 33 members via any form and 26 members didn’t want the medicine.

In the age group 51-60 years 19 members recommended to deliver the drug via tablet, 4 members via choorna , 20 members via any form and 12 members didn’t want the medicine.

In the age group 61-70 years 8 members recommended to deliver the drug via tablet, 1 member via choorna , 12 members via any form and 7 members didn’t want the medicine.

In the age group 71-80 years 1 member recommended to deliver the drug via tablet, 0 member via choorna , 3 members via any form and 5 members didn’t want the medicine.

**Table 41: Place \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Place | Hosp | Count | 1 | 2 | 2 | 4 | 1 | 3 | 3 | 1 | 17 |
| % within Age | 3.8% | 4.3% | 2.4% | 2.9% | 1.1% | 5.5% | 10.7% | 11.1% | 3.6% |
| Work | Count | 10 | 13 | 22 | 39 | 19 | 11 | 3 | 0 | 117 |
| % within Age | 38.5% | 28.3% | 25.9% | 28.3% | 20.9% | 20.0% | 10.7% | 0.0% | 24.5% |
| druh house | Count | 1 | 1 | 4 | 3 | 5 | 4 | 1 | 0 | 19 |
| % within Age | 3.8% | 2.2% | 4.7% | 2.2% | 5.5% | 7.3% | 3.6% | 0.0% | 4.0% |
| anywhere | Count | 8 | 19 | 42 | 49 | 41 | 25 | 14 | 3 | 201 |
| % within Age | 30.8% | 41.3% | 49.4% | 35.5% | 45.1% | 45.5% | 50.0% | 33.3% | 42.1% |
| None | Count | 6 | 11 | 15 | 43 | 25 | 12 | 7 | 5 | 124 |
| % within Age | 23.1% | 23.9% | 17.6% | 31.2% | 27.5% | 21.8% | 25.0% | 55.6% | 25.9% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 42: Chi square test-21**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 32.301 | 28 | .262 |

**Graph 21: Place \* Age**

OBSERVATIONS:

From the observations according to the data, in the age group of 0-10 years, 1 person would like the immunobooster to be delivered to hospital, 10 to work, 1 to drug house, 8 of them anywhere, 6 of them did not want the drug to be delivered to any place.

Among the age group of 11-20 years, 2 of them would like the immnobooster to be delivered to the hospital, 13 to work place, 1 of them to the drug house,19 anywhere around, and 11 people to none of the place.

In the age group of 21-30 years, 2 people would like the immunobooster to be delivered to hospital, 22 to work, 4 to drug house, 42 of them anywhere, 15 of them did not want the drug to be delivered to any place.

Among the age group of 31-40 years, 4 of them would like the immnobooster to be delivered to the hospital, 39 to work place, 3 of them to the drug house, 49 anywhere around, and 43 people to none of the place.

Among the age group of 41-50 years, 1 of them would like the immnobooster to be delivered to the hospital, 19 to work place, 5 of them to the drug house, 41 anywhere around, and 25 people to none of the place.

From the age group of 51-60 years, 3 of them would like the immnobooster to be delivered to the hospital, 11 to work place, 4 of them to the drug house, 25 anywhere around, and 12 people to none of the place.

In the age group of 61-70 years, 3 people would like the immunobooster to be delivered to hospital, 3 to work, 1 to drug house, 14 of them anywhere, 7 of them did not want the drug to be delivered to any place.

In the age group of 71-80 years, 1 people would like the immunobooster to be delivered to hospital, 0 to work, 0 to drug house, 3 of them anywhere, 5 of them did not want the drug to be delivered to any place.

**Table 43: Health\_in\_check \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Health\_in\_check | Yoga & Pra | Count | 1 | 3 | 10 | 23 | 21 | 6 | 3 | 1 | 68 |
| % within Age | 3.8% | 6.5% | 11.8% | 16.7% | 23.1% | 10.9% | 10.7% | 11.1% | 14.2% |
| Exc | Count | 3 | 7 | 31 | 45 | 31 | 22 | 14 | 1 | 154 |
| % within Age | 11.5% | 15.2% | 36.5% | 32.6% | 34.1% | 40.0% | 50.0% | 11.1% | 32.2% |
| diet | Count | 1 | 2 | 7 | 8 | 10 | 9 | 4 | 1 | 42 |
| % within Age | 3.8% | 4.3% | 8.2% | 5.8% | 11.0% | 16.4% | 14.3% | 11.1% | 8.8% |
| none | Count | 21 | 34 | 37 | 62 | 29 | 18 | 7 | 6 | 214 |
| % within Age | 80.8% | 73.9% | 43.5% | 44.9% | 31.9% | 32.7% | 25.0% | 66.7% | 44.8% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 44: Chi Square test-22**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 56.911 | 21 | .000 |

**Graph 22: Health\_in\_check \* Age**

OBSERVATIONS:

As found in the data mentioned above, one person kept their health in check by performing Yoga and Pranayama in the age group 0-10 years 3 people by exercising and one by diet in the same age group and 21 of them did not do anything.

Among the age group 11-20 years, 3 of them performed yoga and pranayama, 7 people performed exercise, and 2 of them followed a diet pattern and the rest 34 did not keep their health in check.

Among the age group 21-30 years, 10 of them performed yoga and pranayama, 31 people performed exercise, and 7 of them followed a diet pattern and the rest 37 did not keep their health in check.

In the age group of 31-40 years, 23 of them performed yoga and pranayama, 45 people performed exercise, and 8 of them followed a diet pattern and the rest 62 did not keep their health in check.

Among the age group 41-50 years, 21 of them performed yoga and pranayama, 31 people performed exercise, and 10 of them had a specific diet pattern and the rest 29 did not keep their health in check.

In the age group of 51-60 years, 6 of them performed yoga and pranayama, 22 people performed exercise, and 9 of them followed a diet pattern and the rest 18 did not keep their health in check.

Among the age group 61-70 years, 3 of them performed yoga and pranayama, 14 people performed exercise, and 4 of them followed a diet pattern and the rest 7 did not keep their health in check.

In the age group of 71-80 years, 1 of them performed yoga and pranayama, 1 people performed exercise, and 1 of them followed a diet pattern and the rest 6 did not keep their health in check.

**Table 45: Vaccination \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Vaccination | single | Count | 5 | 14 | 33 | 43 | 23 | 11 | 4 | 2 | 135 |
| % within Age | 19.2% | 30.4% | 38.8% | 31.2% | 25.3% | 20.0% | 14.3% | 22.2% | 28.2% |
| two | Count | 4 | 5 | 52 | 92 | 68 | 43 | 24 | 7 | 295 |
| % within Age | 15.4% | 10.9% | 61.2% | 66.7% | 74.7% | 78.2% | 85.7% | 77.8% | 61.7% |
| none | Count | 17 | 27 | 0 | 3 | 0 | 1 | 0 | 0 | 48 |
| % within Age | 65.4% | 58.7% | 0.0% | 2.2% | 0.0% | 1.8% | 0.0% | 0.0% | 10.0% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 46: Chi Square test-23**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 266.370 | 14 | .000 |

**Graph 23: Vaccination \* Age**

OBSERVATIONS:

According to the data presented above, in the age group of 0-10 years, 5 have taken single dose of covid vaccine, 4 of them have taken 2 doses and 17 have not taken any dose of vaccination.

In the age group of 11-20 years, 14 of them have taken single dose vaccine, 5 have taken two doses and 27 have not taken any dose.

In the age group of 21-30 years, 33 of them have taken single dose vaccine, 52 have taken two doses.

In the age group of 31-40 years, 43 of them have taken single dose vaccine, 92 have taken two doses and 3 of them have not taken vaccination.

In the age group of 41-50 years, 23 took single dose of vaccine, 68 have taken two doses of vaccination.

In the age group of 51-60 years, 11 of them have taken single dose vaccine, 43 have taken two doses and 1 of them have not taken vaccination.

In the age group of 61-70 years, 4 of them have taken single dose vaccine, 24 have taken two doses.

In the age group of 71-80 years, 2 of them have taken single dose vaccine, 7 have taken two doses of vaccination.

**Table 47:** **Covid\_attack \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Covid\_attack | before | Count | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| % within Age | 0.0% | 0.0% | 1.2% | 0.0% | 0.0% | 1.8% | 0.0% | 0.0% | 0.4% |
| after | Count | 0 | 1 | 1 | 2 | 6 | 2 | 0 | 0 | 12 |
| % within Age | 0.0% | 2.2% | 1.2% | 1.4% | 6.6% | 3.6% | 0.0% | 0.0% | 2.5% |
| no | Count | 26 | 45 | 83 | 136 | 85 | 52 | 28 | 9 | 464 |
| % within Age | 100.0% | 97.8% | 97.6% | 98.6% | 93.4% | 94.5% | 100.0% | 100.0% | 97.1% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 48: Chi Square test-24**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 14.556 | 14 | .409 |

**Graph 24: Covid\_attack \* Age**

OBSERVATIONS:

According to the data above, under the age group of 21-30 years and under the age group 51-60 years were had covid before they took immunobooster.

When combined in all the age groups total 12 had the covid after it .

Total of 464 didnt have covid in a total of 478 sample size.

**Table 49: Effectiveness\_of\_Immunobooster \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Effectiveness\_of\_immunobooster | helpful | Count | 20 | 28 | 63 | 104 | 54 | 43 | 21 | 7 | 340 |
| % within Age | 76.9% | 60.9% | 74.1% | 75.4% | 59.3% | 78.2% | 75.0% | 77.8% | 71.1% |
| didnt use | Count | 2 | 5 | 4 | 10 | 15 | 1 | 2 | 0 | 39 |
| % within Age | 7.7% | 10.9% | 4.7% | 7.2% | 16.5% | 1.8% | 7.1% | 0.0% | 8.2% |
| didnt get | Count | 4 | 13 | 18 | 24 | 22 | 11 | 5 | 2 | 99 |
| % within Age | 15.4% | 28.3% | 21.2% | 17.4% | 24.2% | 20.0% | 17.9% | 22.2% | 20.7% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 50: Chi Square test-25**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 19.575 | 14 | .144 |

**Graph 25: Effectiveness\_of\_Immunobooster \* Age**

OBSERVATIONS:

According to the data above, under the age group of 0-10 years 20 found immunobooster helpful, 2 did not use and 4 did not get the medicine.

28 people found it helpful, 5 dint use and 13 did not get the medicine under the age group of 11-20 years.

Among 21-30 years, 63 found it helpful and 4 did not use and 8 did not get the medicine. 104 people found it helpful, 10 did not use and 24 did not get in the age group 31-40 years.

Among age 41-50 years, 54 found it helpful, 15 did not use and 22 did not get.

Among 61-70 years, 43 found it helpful, 1 did not use and 11 did not get.

Among 71-80 years, 21 found it useful, 2 did not use and 5 did not get.

**Table 51: Recommend\*covid\_attack**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **recommend \* Covid\_attack Crosstabulation** | | | | | | |
|  | | | Covid\_attack | | | Total |
| before | after | no |
| recommend | Yes | Count | 2 | 10 | 389 | 401 |
| % within Covid\_attack | 100.0% | 83.3% | 83.8% | 83.9% |
| No | Count | 0 | 2 | 75 | 77 |
| % within Covid\_attack | 0.0% | 16.7% | 16.2% | 16.1% |
| Total | | Count | 2 | 12 | 464 | 478 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 52: Chi Square test-26**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | .388 | 2 | .824 |

**Graph 26: : Recommend\*covid\_attack**

OBSERVATIONS:

As per the data listed above, 401 people responded yes to recommend the medicines and 77 responded no to recommend the medicines.

**Table 53: Intake\*drug\_course**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | | | |
|  | | | Drug\_course | | Total |
| app | more |
| intake | Yes | Count | 462 | 9 | 471 |
| % within Drug\_course | 98.7% | 90.0% | 98.5% |
| No | Count | 6 | 1 | 7 |
| % within Drug\_course | 1.3% | 10.0% | 1.5% |
| Total | | Count | 468 | 10 | 478 |
| % within Drug\_course | 100.0% | 100.0% | 100.0% |

**Table 54: Chi Square test-27**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 5.157 | 1 | .023 |  |
| Fisher's Exact Test |  |  |  | .138 |

**Graph 27: Intake\*drug\_course**

OBSERVATIONS:

According to the above data 471 subjects have taken immunobooster in which 462 subjects agreed with drug course as appropriate and 9 subjects needed more drug course.

7 subjects did not take the immunobooster in which 6 subjects liked the drug course where 1 subject needed more.

**Table 55: Effectiveness\_of immunobooster \* Drug\_course**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | Drug\_course | | Total |
| app | more |
| Effectiveness\_of\_immunobooster | helpful | Count | 332 | 8 | 340 |
| % within Drug\_course | 70.9% | 80.0% | 71.1% |
| didnt use | Count | 38 | 1 | 39 |
| % within Drug\_course | 8.1% | 10.0% | 8.2% |
| didnt get | Count | 98 | 1 | 99 |
| % within Drug\_course | 20.9% | 10.0% | 20.7% |
| Total | | Count | 468 | 10 | 478 |
| % within Drug\_course | 100.0% | 100.0% | 100.0% |

**Table 56: Chi Square test-28**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | .721 | 2 | .697 |

**Graph 28:**

OBSERAVTIONS:

As per the data cited above, immunobooster was found helpful by 332 people, 38 did not use and 98 did not get acc to the app survey. While 8 found it helpful, 1 did not use and 1 did not get among the population of 10 who have not used app.

**Table 57: Effectiveness\_of\_immunobooster \* intake**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | intake | | Total |
| Yes | No |
| Effectiveness\_of\_immunobooster | helpful | Count | 336 | 4 | 340 |
| % within intake | 71.3% | 57.1% | 71.1% |
| didnt use | Count | 37 | 2 | 39 |
| % within intake | 7.9% | 28.6% | 8.2% |
| didnt get | Count | 98 | 1 | 99 |
| % within intake | 20.8% | 14.3% | 20.7% |
| Total | | Count | 471 | 7 | 478 |
| % within intake | 100.0% | 100.0% | 100.0% |

**Table 58: Chi Square test-29**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 3.965 | 2 | .138 |

**Graph 29: Effectiveness\_of\_immunobooster \* intake**

OBSERVATIONS:

According to the above data 340 subjects found immunobooster as helpful where 336 have taken it 4 have not taken. 39 subjects have not used where 37 have taken it and 2 subjects did not. 99 subjects did not get the immunobooster.

**Table 59: recommend \* Covid\_attack \* Vaccination**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Vaccination | | | | Covid\_attack | | | Total |
| before | after | no |
| single | recommend | Yes | Count | 1 | 2 | 99 | 102 |
| % within Covid\_attack | 100.0% | 66.7% | 75.6% | 75.6% |
| No | Count | 0 | 1 | 32 | 33 |
| % within Covid\_attack | 0.0% | 33.3% | 24.4% | 24.4% |
| Total | | Count | 1 | 3 | 131 | 135 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |
| two | recommend | Yes | Count | 1 | 7 | 251 | 259 |
| % within Covid\_attack | 100.0% | 87.5% | 87.8% | 87.8% |
| No | Count | 0 | 1 | 35 | 36 |
| % within Covid\_attack | 0.0% | 12.5% | 12.2% | 12.2% |
| Total | | Count | 1 | 8 | 286 | 295 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |
| none | recommend | Yes | Count |  | 1 | 39 | 40 |
| % within Covid\_attack |  | 100.0% | 83.0% | 83.3% |
| No | Count |  | 0 | 8 | 8 |
| % within Covid\_attack |  | 0.0% | 17.0% | 16.7% |
| Total | | Count |  | 1 | 47 | 48 |
| % within Covid\_attack |  | 100.0% | 100.0% | 100.0% |
| Total | recommend | Yes | Count | 2 | 10 | 389 | 401 |
| % within Covid\_attack | 100.0% | 83.3% | 83.8% | 83.9% |
| No | Count | 0 | 2 | 75 | 77 |
| % within Covid\_attack | 0.0% | 16.7% | 16.2% | 16.1% |
| Total | | Count | 2 | 12 | 464 | 478 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 60: Chi Square test-30**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | | |
| Vaccination | | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| single | Pearson Chi-Square | .452 | 2 | .798 |  |
| two | Pearson Chi-Square | .140 | 2 | .932 |  |
| none | Pearson Chi-Square | .204 | 1 | .651 |  |
| Fisher's Exact Test |  |  |  | 1.000 |
| Total | Pearson Chi-Square | .388 | 2 | .824 |  |

**Graph 30: Recommend \* Covid\_attack \* Vaccination**

OBSERVATIONS:

According to the above data 135 subjects have taken single dose of covid vaccine in which 102 subjects recommended immunobooster where 1 subject was attacked by covid before taking immmunobooster, 2 subjects were attacked after taking and 99 subjects were not attacked by covid. 33 subjects did not recommend immunobooster where 1 subject was attacked with covid after taking and 32 subjects did not affected by covid.

295 subjects have taken two doses of covid vaccine in which 259 subjects recommended immunobooster where 1 subject was attacked by covid before taking immmunobooster, 7 subjects were attacked after taking and 251 subjects were not attacked by covid. 36 subjects did not recommend immunobooster where 1 subject was attacked with covid after taking and 35 subjects did not affected by covid .

48 subjects have not taken covid vaccine in which 40 subjects recommended immunobooster where 1 subject was attacked after taking and 39 subjects were not attacked by covid. 8 subjects did not recommend and 8 subjects did not affected by covid.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 61: Recommend \* Effectiveness\_of\_immunobooster \* intake** | | | | | | | |
| Intake | | | | Effectiveness\_of\_immunobooster | | | Total |
| helpful | didnt use | didnt get |
| Yes | recommend | Yes | Count | 286 | 25 | 85 | 396 |
|  | 85.1% | 67.6% | 86.7% | 84.1% |
| No | Count | 50 | 12 | 13 | 75 |
|  | 14.9% | 32.4% | 13.3% | 15.9% |
| Total | | Count | 336 | 37 | 98 | 471 |
|  | 100.0% | 100.0% | 100.0% | 100.0% |
| No | recommend | Yes | Count | 4 | 1 | 0 | 5 |
|  | 100.0% | 50.0% | 0.0% | 71.4% |
| No | Count | 0 | 1 | 1 | 2 |
|  | 0.0% | 50.0% | 100.0% | 28.6% |
| Total | | Count | 4 | 2 | 1 | 7 |
|  | 100.0% | 100.0% | 100.0% | 100.0% |
| Total | recommend | Yes | Count | 290 | 26 | 85 | 401 |
|  | 85.3% | 66.7% | 85.9% | 83.9% |
| No | Count | 50 | 13 | 14 | 77 |
|  | 14.7% | 33.3% | 14.1% | 16.1% |
| Total | | Count | 340 | 39 | 99 | 478 |
|  | 100.0% | 100.0% | 100.0% | 100.0% |

**Table 62: Chi Square test- 31**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
| Intake | | Value | df | Asymp. Sig. (2-sided) |
| Yes | Pearson Chi-Square | 8.322 | 2 | .016 |
| No | Pearson Chi-Square | 4.550 | 2 | .103 |
| Total | Pearson Chi-Square | 9.341 | 2 | .009 |

**Graph 31: recommend \* Effectiveness\_of\_immunobooster \* intake**

OBSERVATIONS:

According to the above data, 471 subjects have taken immunobooster in which 396 people recommended immunobooster where 286 people felt it as useful 25 people did not use it and 85 people did not get it.

75 subjects did not recommend where 50 subjects felt it as useful, 12 subjects did not use it and 13 subjects did not get.

7 subjects have not taken immunobooster in which 5 people recommended immunobooster where 4 people felt it as useful 1 people did not use it.

2 subjects did not recommend where 1 subject did not use it and 1 subjects did not get.

1. **RESULTS**

**Table 63:** **Age \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Age | 0-10 | Count | 19 | 7 | 26 |
| % within sex | 5.9% | 4.5% | 5.4% |
| 11-20 | Count | 30 | 16 | 46 |
| % within sex | 9.3% | 10.2% | 9.6% |
| 21-30 | Count | 53 | 32 | 85 |
| % within sex | 16.5% | 20.4% | 17.8% |
| 31-40 | Count | 96 | 42 | 138 |
| % within sex | 29.9% | 26.8% | 28.9% |
| 41-50 | Count | 63 | 28 | 91 |
| % within sex | 19.6% | 17.8% | 19.0% |
| 51-60 | Count | 41 | 14 | 55 |
| % within sex | 12.8% | 8.9% | 11.5% |
| 61-70 | Count | 14 | 14 | 28 |
| % within sex | 4.4% | 8.9% | 5.9% |
| 71-80 | Count | 5 | 4 | 9 |
| % within sex | 1.6% | 2.5% | 1.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 32: Age \* sex**

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 64: Chi square test-32**  **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 7.568 | 7 | .372 |

The result of the chi square is 0.372, hence insignificant. This maybe attributed to the sample is taken from a corporate entity wherein there is no uniform distribution of gender as the employees are selected based on their academic excellence and skill.

**Table 65: Days \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Days | 15 days | Count | 258 | 132 | 390 |
| % within sex | 80.4% | 84.1% | 81.6% |
| 30 daya | Count | 31 | 9 | 40 |
| % within sex | 9.7% | 5.7% | 8.4% |
| 7-10 days | Count | 32 | 16 | 48 |
| % within sex | 10.0% | 10.2% | 10.0% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 33: Days \* sex**

**Table 66: Chi square test-33**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 2.123 | 2 | .346 |

The result of the data is insignificant since the Asymp. Sig. (2 sided) is 0.346. As the range of interventional age group was high, there will be more and more variability, hence, the results got an insignificant p value.

**Table 67: Times\_day \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Times\_day | 1 | Count | 32 | 7 | 39 |
| % within sex | 10.0% | 4.5% | 8.2% |
| 2 | Count | 288 | 150 | 438 |
| % within sex | 89.7% | 95.5% | 91.6% |
| 3 | Count | 1 | 0 | 1 |
| % within sex | 0.3% | 0.0% | 0.2% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 34: Times\_day \* sex**

**Table 68: Chi Square test-34**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 4.803 | 2 | .091 |

The result is insignificant as the chi square value is 0.091. As the protocol has designed and developed in a scientific way, strict protocol wise intake of medicine is advised to the subjects however, as part of convenience to the subjects under acceptability and adaptability criteria, a small avenue was opened to take medicines at their convenient time. Hence an insignificant p value is observed.

**Table 69: Health\_issues \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Health\_issues | Yes | Count | 9 | 1 | 10 |
| % within sex | 2.8% | 0.6% | 2.1% |
| No | Count | 312 | 156 | 468 |
| % within sex | 97.2% | 99.4% | 97.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 35: Health\_issues \* sex**

**Table 70: Chi square test- 35**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 2.417 | 1 | .120 |  |
| Fisher's Exact Test |  |  |  | .177 |

As the Fisher’s Exact value shows p value of (0.177), the result is insignificant. As the age group range was high, in this study many health issues were observed, and it is also observed health issues were more in higher age group subjects and this being a variable factor, p value showed an insignificant result because in the higher age group, the health issues were obviously unpredictable.

**Table 71: recommend \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| recommend | Yes | Count | 260 | 141 | 401 |
| % within sex | 81.0% | 89.8% | 83.9% |
| No | Count | 61 | 16 | 77 |
| % within sex | 19.0% | 10.2% | 16.1% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 36: recommend \* sex**

**Table 72: Chi square test-36**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 6.058 | 1 | .014 |  |
| Fisher's Exact Test |  |  |  | .017 |

As the Fisher's Exact value shows significant at results of (0.017), the result is significant. The significant results were observed because the given intervention is simple, time tested and valid and also acceptable to community and the other reason maybe subjects are aware of the immunobooster therapy because of behaviour change communication about COVID 19.

**Table 73: Neccessity\_in\_future \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Neccessity\_in\_future | Yes | Count | 227 | 128 | 355 |
| % within sex | 70.7% | 81.5% | 74.3% |
| No | Count | 94 | 29 | 123 |
| % within sex | 29.3% | 18.5% | 25.7% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 37: Neccessity\_in\_future \* sex**

**Table 74: Chi square test-37**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 6.449 | 1 | .011 |  |
| Fisher's Exact Test |  |  |  | .014 |

As the Fisher's Exact value shows significant at results of (0.014), the result is significant. The significance for this component is observed because of its acceptance in the community.

**Table 75: Form \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Form | Tab | Count | 122 | 56 | 178 |
| % within sex | 38.0% | 35.7% | 37.2% |
| choorna | Count | 4 | 3 | 7 |
| % within sex | 1.2% | 1.9% | 1.5% |
| any form | Count | 101 | 68 | 169 |
| % within sex | 31.5% | 43.3% | 35.4% |
| none | Count | 94 | 30 | 124 |
| % within sex | 29.3% | 19.1% | 25.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 38: Form \* sex**

**Table 76: Chi square test-38**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 8.867 | 3 | .031 |

As the Chi square value shows significant at results of (0.031), the result is significant. This shows that form of administration is not the criteria, availability in the population is the prime criteria.

**Table 77: Place \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Place | hosp | Count | 10 | 7 | 17 |
| % within sex | 3.1% | 4.5% | 3.6% |
| work | Count | 85 | 32 | 117 |
| % within sex | 26.5% | 20.4% | 24.5% |
| drug house | Count | 7 | 12 | 19 |
| % within sex | 2.2% | 7.6% | 4.0% |
| anywhere | Count | 124 | 77 | 201 |
| % within sex | 38.6% | 49.0% | 42.1% |
| none | Count | 95 | 29 | 124 |
| % within sex | 29.6% | 18.5% | 25.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 39: Place \* sex**

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 78: Chi square test-39**  **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 17.800 | 4 | .001 |

As the Chi square value shows significant at results of (0.001), the result is significant. The distribution location is not at all an issue hence, the p value became significant. This shows that the population is ready to take any immunobooster herbal intervention at any specified place which is notified in that area.

**Table 79: Drug\_course \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Drug\_course | App | Count | 313 | 155 | 468 |
| % within sex | 97.5% | 98.7% | 97.9% |
| More | Count | 8 | 2 | 10 |
| % within sex | 2.5% | 1.3% | 2.1% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 40: Drug\_course \* sex**

**Table 80: Chi square test-40**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | .764 | 1 | .382 |  |
| Fisher's Exact Test |  |  |  | .509 |

As the Fisher's Exact value shows insignificant at results of (0.509), the result is insignificant. The insignificant value observed because the subjects are not worried about course of medicine and they are ready to adhere scientifically systematically developed and designed protocol.

**Table 81: Vaccination \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Vaccination | single | Count | 92 | 43 | 135 |
| % within sex | 28.7% | 27.4% | 28.2% |
| two | Count | 200 | 95 | 295 |
| % within sex | 62.3% | 60.5% | 61.7% |
| none | Count | 29 | 19 | 48 |
| % within sex | 9.0% | 12.1% | 10.0% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 41: Vaccination \* sex**

**Table 82: Chi square test-41**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 1.104 | 2 | .576 |

As the Chi square value shows insignificant at results of (0.576), the result is insignificant. The insignificant p value shows that administration of vaccine and intervention of immunobooster therapy has no relationship as per as subjects’ knowledge about COVID 19. The patients are interested to take multilevel precautions because of effect of pandemic in the population.

**Table 83: Covid\_attack \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Covid\_attack | Before | Count | 1 | 1 | 2 |
| % within sex | 0.3% | 0.6% | 0.4% |
| After | Count | 8 | 4 | 12 |
| % within sex | 2.5% | 2.5% | 2.5% |
| No | Count | 312 | 152 | 464 |
| % within sex | 97.2% | 96.8% | 97.1% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 42: Covid\_attack \* sex**

**Table 84: Chi square test-42**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | .270 | 2 | .874 |

As the Chi square value shows insignificant at results of (0.874), the result is insignificant. As the drug given mostly to the subjects who are not infected with COVID 19 as per the protocol, the insignificant result shows strict adherence to protocol.

**Table 85: Effectiveness\_of\_immunobooster \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | Sex | | Total |
| Male | female |
| Effectiveness\_of\_immunobooster | helpful | Count | 233 | 107 | 340 |
| % within sex | 72.6% | 68.2% | 71.1% |
| didnt use | Count | 31 | 8 | 39 |
| % within sex | 9.7% | 5.1% | 8.2% |
| didnt get | Count | 57 | 42 | 99 |
| % within sex | 17.8% | 26.8% | 20.7% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 43: Effectiveness\_of\_immunobooster \* sex**

**Table 86: Chi square test-43**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 7.099 | 2 | .029 |

As the Chi square value shows significant at results of (0.029), the result is significant. The significant results for this component shows the immunobooster therapy’s effectiveness and its acceptability in the population.

**Table 87: intake \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| intake | Yes | Count | 314 | 157 | 471 |
| % within sex | 97.8% | 100.0% | 98.5% |
| No | Count | 7 | 0 | 7 |
| % within sex | 2.2% | 0.0% | 1.5% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 44: intake \* sex**

**Table 88: Chi square test-44**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 3.475 | 1 | .062 |  |
| Fisher's Exact Test |  |  |  | .102 |

As the Fisher's Exact value shows insignificant at results of (0.102), the result is significant. As majority of the subjects have taken the medicine as per prescribed protocol and only few of them discontinued/ not taken medicine because of variable circumstances, an insignificant p value is observed for the above component.

**Table 89: Health\_in\_check \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Health\_in\_check | Yoga & Pra | Count | 36 | 32 | 68 |
| % within sex | 11.2% | 20.4% | 14.2% |
| Exc | Count | 106 | 48 | 154 |
| % within sex | 33.0% | 30.6% | 32.2% |
| Diet | Count | 29 | 13 | 42 |
| % within sex | 9.0% | 8.3% | 8.8% |
| none | Count | 150 | 64 | 214 |
| % within sex | 46.7% | 40.8% | 44.8% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 45: Health\_in\_check \* sex**

**Table 90: Chi square test-45**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 7.331 | 3 | .062 |

As the Chi square value shows insignificant at results of 0.062 the result is insignificant. The association between immunobooster therapy and any other wellness therapies does not have any relationship according to the p value , so hence it is insignificant.

**Table 91: Days \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Days | 15 days | Count | 13 | 26 | 72 | 114 | 79 | 51 | 27 | 8 | 390 |
| % within Age | 50.0% | 56.5% | 84.7% | 82.6% | 86.8% | 92.7% | 96.4% | 88.9% | 81.6% |
| 30 daya | Count | 3 | 5 | 8 | 16 | 5 | 2 | 1 | 0 | 40 |
| % within Age | 11.5% | 10.9% | 9.4% | 11.6% | 5.5% | 3.6% | 3.6% | 0.0% | 8.4% |
| 7-10 days | Count | 10 | 15 | 5 | 8 | 7 | 2 | 0 | 1 | 48 |
| % within Age | 38.5% | 32.6% | 5.9% | 5.8% | 7.7% | 3.6% | 0.0% | 11.1% | 10.0% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 46: Days \* Age**

**Table 92: Chi square test-46**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 68.923 | 14 | .000 |

The result is significant as the chi square value is 0. There is no relation between the age of the subject and interest to take immunobooster medicine because the p value says it is 0.00. Hence, the immunobooster therapy is universally acceptable for the criteria of age.

**Table 93: Intake \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| intake | Yes | Count | 26 | 45 | 84 | 135 | 90 | 55 | 27 | 9 | 471 |
| % within Age | 100.0% | 97.8% | 98.8% | 97.8% | 98.9% | 100.0% | 96.4% | 100.0% | 98.5% |
| No | Count | 0 | 1 | 1 | 3 | 1 | 0 | 1 | 0 | 7 |
| % within Age | 0.0% | 2.2% | 1.2% | 2.2% | 1.1% | 0.0% | 3.6% | 0.0% | 1.5% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 47:**  **Intake \* Age**

**Table 94: Chi square test-47**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 2.974 | 7 | .887 |

The chi square value is 0.887 hence the result is insignificant. Intake of medicine in age of subjects has no correlation hence p value is insignificant.

**Table 95: Times\_day \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Times\_day | 1 | Count | 7 | 10 | 6 | 7 | 4 | 4 | 1 | 0 | 39 |
| % within Age | 26.9% | 21.7% | 7.1% | 5.1% | 4.4% | 7.3% | 3.6% | 0.0% | 8.2% |
| 2 | Count | 19 | 36 | 79 | 130 | 87 | 51 | 27 | 9 | 438 |
| % within Age | 73.1% | 78.3% | 92.9% | 94.2% | 95.6% | 92.7% | 96.4% | 100.0% | 91.6% |
| 3 | Count | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| % within Age | 0.0% | 0.0% | 0.0% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.2% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 48: Times\_day \* Age**

**Table 96: Chi square test-48**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 31.201 | 14 | .005 |

The result is significant as the chi square value is .005. As the protocol is designed and developed for a standard dosage form significant result is observed.

**Table 97: Health\_issues \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Health\_issues | Yes | Count | 2 | 0 | 4 | 0 | 1 | 1 | 2 | 0 | 10 |
| % within Age | 7.7% | 0.0% | 4.7% | 0.0% | 1.1% | 1.8% | 7.1% | 0.0% | 2.1% |
| No | Count | 24 | 46 | 81 | 138 | 90 | 54 | 26 | 9 | 468 |
| % within Age | 92.3% | 100.0% | 95.3% | 100.0% | 98.9% | 98.2% | 92.9% | 100.0% | 97.9% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 49: Health\_issues \* Age**

**Table 98: Chi square test-49**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 14.886 | 7 | .037 |

The chi square value is 0.037 hence the result is significant. The p value shows a significant value because there is no relation between age and health issues. Hence, health issues are independent of age and there are other variable factors which may influence health issues for the subjects.

**Table 99: Neccessity\_in\_future \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Neccessity\_in\_future | Yes | Count | 20 | 35 | 71 | 95 | 66 | 43 | 21 | 4 | 355 |
| % within Age | 76.9% | 76.1% | 83.5% | 68.8% | 72.5% | 78.2% | 75.0% | 44.4% | 74.3% |
| No | Count | 6 | 11 | 14 | 43 | 25 | 12 | 7 | 5 | 123 |
| % within Age | 23.1% | 23.9% | 16.5% | 31.2% | 27.5% | 21.8% | 25.0% | 55.6% | 25.7% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 50: Neccessity\_in\_future \* Age**

**Table 100: Chi square test-50**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 10.899 | 7 | .143 |

The result is insignificant as the chi square value is .143. Necessity of the medication is independent of the age group and p value shows that age cannot influence the necessity of the medication. And it is influenced by COVID pandemic and behaviour change in COVID pandemic.

**Table 101:** **Form \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Form | Tab | Count | 8 | 17 | 34 | 59 | 32 | 19 | 8 | 1 | 178 |
| % within Age | 30.8% | 37.0% | 40.0% | 42.8% | 35.2% | 34.5% | 28.6% | 11.1% | 37.2% |
| Choorna | Count | 0 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 7 |
| % within Age | 0.0% | 2.2% | 1.2% | 0.0% | 0.0% | 7.3% | 3.6% | 0.0% | 1.5% |
| any form | Count | 12 | 17 | 36 | 36 | 33 | 20 | 12 | 3 | 169 |
| % within Age | 46.2% | 37.0% | 42.4% | 26.1% | 36.3% | 36.4% | 42.9% | 33.3% | 35.4% |
| None | Count | 6 | 11 | 14 | 43 | 26 | 12 | 7 | 5 | 124 |
| % within Age | 23.1% | 23.9% | 16.5% | 31.2% | 28.6% | 21.8% | 25.0% | 55.6% | 25.9% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 51: Form \* Age**

**Table 102: Chi square test-51**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 35.725 | 21 | .023 |

The chi square value is 0.023, hence the result is significant. The subjects age and form of medication when taken into consideration for association it is said to be significant and subjects are ready to take any form of medications for immunobooster.

**Table 103: Place \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Place | Hosp | Count | 1 | 2 | 2 | 4 | 1 | 3 | 3 | 1 | 17 |
| % within Age | 3.8% | 4.3% | 2.4% | 2.9% | 1.1% | 5.5% | 10.7% | 11.1% | 3.6% |
| Work | Count | 10 | 13 | 22 | 39 | 19 | 11 | 3 | 0 | 117 |
| % within Age | 38.5% | 28.3% | 25.9% | 28.3% | 20.9% | 20.0% | 10.7% | 0.0% | 24.5% |
| druh house | Count | 1 | 1 | 4 | 3 | 5 | 4 | 1 | 0 | 19 |
| % within Age | 3.8% | 2.2% | 4.7% | 2.2% | 5.5% | 7.3% | 3.6% | 0.0% | 4.0% |
| anywhere | Count | 8 | 19 | 42 | 49 | 41 | 25 | 14 | 3 | 201 |
| % within Age | 30.8% | 41.3% | 49.4% | 35.5% | 45.1% | 45.5% | 50.0% | 33.3% | 42.1% |
| None | Count | 6 | 11 | 15 | 43 | 25 | 12 | 7 | 5 | 124 |
| % within Age | 23.1% | 23.9% | 17.6% | 31.2% | 27.5% | 21.8% | 25.0% | 55.6% | 25.9% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 52: Place \* Age**

**Table 104: Chi square test-52**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 32.301 | 28 | .262 |

The result is insignificant as the Chi Square value is0.262 which shows that age and collection of intervention drug has no relation and the subjects are ready to take interventional medicine at any prescribed location irrespective of age.

**Table 105: Health\_in\_check \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Health\_in\_check | Yoga & Pra | Count | 1 | 3 | 10 | 23 | 21 | 6 | 3 | 1 | 68 |
| % within Age | 3.8% | 6.5% | 11.8% | 16.7% | 23.1% | 10.9% | 10.7% | 11.1% | 14.2% |
| Exc | Count | 3 | 7 | 31 | 45 | 31 | 22 | 14 | 1 | 154 |
| % within Age | 11.5% | 15.2% | 36.5% | 32.6% | 34.1% | 40.0% | 50.0% | 11.1% | 32.2% |
| diet | Count | 1 | 2 | 7 | 8 | 10 | 9 | 4 | 1 | 42 |
| % within Age | 3.8% | 4.3% | 8.2% | 5.8% | 11.0% | 16.4% | 14.3% | 11.1% | 8.8% |
| none | Count | 21 | 34 | 37 | 62 | 29 | 18 | 7 | 6 | 214 |
| % within Age | 80.8% | 73.9% | 43.5% | 44.9% | 31.9% | 32.7% | 25.0% | 66.7% | 44.8% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 53: Health\_in\_check \* Age**

**Table 106: Chi square test-53**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 56.911 | 21 | .000 |

The Chi Square test value is 0.000 hence the result is significant. This shows that age and health status has got minimum association and along with immunobooster therapy, there is a good response for other form of therapies like exercise, yoga and pranayama, and diet irrespective of age.

**Table 107: Vaccination \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Vaccination | single | Count | 5 | 14 | 33 | 43 | 23 | 11 | 4 | 2 | 135 |
| % within Age | 19.2% | 30.4% | 38.8% | 31.2% | 25.3% | 20.0% | 14.3% | 22.2% | 28.2% |
| two | Count | 4 | 5 | 52 | 92 | 68 | 43 | 24 | 7 | 295 |
| % within Age | 15.4% | 10.9% | 61.2% | 66.7% | 74.7% | 78.2% | 85.7% | 77.8% | 61.7% |
| none | Count | 17 | 27 | 0 | 3 | 0 | 1 | 0 | 0 | 48 |
| % within Age | 65.4% | 58.7% | 0.0% | 2.2% | 0.0% | 1.8% | 0.0% | 0.0% | 10.0% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 54:**  **Vaccination \* Age**

**Table 108: Chi square test-54**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 266.370 | 14 | .000 |

The chi square value is 0.000 and hence the result is significant. This shows that subjects are inclined towards both immunisations and immunobooster therapy.

**Table 109: Covid\_attack \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Covid\_attack | before | Count | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| % within Age | 0.0% | 0.0% | 1.2% | 0.0% | 0.0% | 1.8% | 0.0% | 0.0% | 0.4% |
| after | Count | 0 | 1 | 1 | 2 | 6 | 2 | 0 | 0 | 12 |
| % within Age | 0.0% | 2.2% | 1.2% | 1.4% | 6.6% | 3.6% | 0.0% | 0.0% | 2.5% |
| no | Count | 26 | 45 | 83 | 136 | 85 | 52 | 28 | 9 | 464 |
| % within Age | 100.0% | 97.8% | 97.6% | 98.6% | 93.4% | 94.5% | 100.0% | 100.0% | 97.1% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 55: Covid\_attack \* Age**

**Table 110: Chi square test- 55**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 14.556 | 14 | .409 |

The result is insignificant as the chi square value is 0.409. As the subjects are selected according to protocol, an insignificant p value is observed.

**Table 111: Effectiveness\_of\_Immunobooster \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Effectiveness\_of\_Immunobooster | helpful | Count | 20 | 28 | 63 | 104 | 54 | 43 | 21 | 7 | 340 |
| % within Age | 76.9% | 60.9% | 74.1% | 75.4% | 59.3% | 78.2% | 75.0% | 77.8% | 71.1% |
| didnt use | Count | 2 | 5 | 4 | 10 | 15 | 1 | 2 | 0 | 39 |
| % within Age | 7.7% | 10.9% | 4.7% | 7.2% | 16.5% | 1.8% | 7.1% | 0.0% | 8.2% |
| didnt get | Count | 4 | 13 | 18 | 24 | 22 | 11 | 5 | 2 | 99 |
| % within Age | 15.4% | 28.3% | 21.2% | 17.4% | 24.2% | 20.0% | 17.9% | 22.2% | 20.7% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 56: Effectiveness\_of\_Immunobooster \* Age**

**Table 112: Chi square test- 56**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 19.575 | 14 | .144 |

As the Chi square value shows insignificant at results of 0.144 for age parameter, the result is insignificant for the age group criteria because strict adherence of protocol wherein non- COVID subjects are taken for this study.

**Table 113: Recommend \* Covid\_attack**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | |
|  | | | Covid\_attack | | | Total |
| before | after | no |
| recommend | Yes | Count | 2 | 10 | 389 | 401 |
| % within Covid\_attack | 100.0% | 83.3% | 83.8% | 83.9% |
| No | Count | 0 | 2 | 75 | 77 |
| % within Covid\_attack | 0.0% | 16.7% | 16.2% | 16.1% |
| Total | | Count | 2 | 12 | 464 | 478 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 57: Recommend \* Covid\_attack**

**Table 114: hi square test- 57**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | .388 | 2 | .824 |

As the Chi square value shows non significant at results of (0.824) for age parameter. For this component maybe because of the subjects are worried about infection of COVID 19 hence they don’t want to recommend, maybe because of fear and doubt about its action and reaction.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 115: intake \* Drug\_course** | | | | | |
|  | | | Drug\_course | | Total |
| app | more |
| intake | Yes | Count | 462 | 9 | 471 |
| % within Drug\_course | 98.7% | 90.0% | 98.5% |
| No | Count | 6 | 1 | 7 |
| % within Drug\_course | 1.3% | 10.0% | 1.5% |
| Total | | Count | 468 | 10 | 478 |
| % within Drug\_course | 100.0% | 100.0% | 100.0% |

**Graph 58: Intake \* Drug\_course**

**Table 116: Chi square test-58**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 5.157 | 1 | .023 |  |
| Fisher's Exact Test |  |  |  | .138 |

The result is insignificant as the Fishers test value is 0.138 which shows that the subjects are not worried about about course of drug intake. They adhere the standardized protocol designed for the study.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 117: Effectiveness\_of\_immunobooster \* Drug\_course** | | | | | |
|  | | | Drug\_course | | Total |
| app | more |
| Effectiveness\_of\_immunobooster | helpful | Count | 332 | 8 | 340 |
| % within Drug\_course | 70.9% | 80.0% | 71.1% |
| didnt use | Count | 38 | 1 | 39 |
| % within Drug\_course | 8.1% | 10.0% | 8.2% |
| didnt get | Count | 98 | 1 | 99 |
| % within Drug\_course | 20.9% | 10.0% | 20.7% |
| Total | | Count | 468 | 10 | 478 |
| % within Drug\_course | 100.0% | 100.0% | 100.0% |

**Graph 59: Effectiveness\_of\_immunobooster \* Drug\_course**

**Table 118: Chi square test- 59**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | .721 | 2 | .697 |

As the Chi square value shows non-significant at results of 0.697 for age parameter, the result is non-significant, and this shows that the drug course and effectiveness has no relationship according to thoughts of the subjects and subjects doesn’t have any problem for any prescribed protocol which is designed for effectiveness of the intervention.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 119: Effectiveness\_of\_immunobooster \* intake** | | | | | |
|  | | | intake | | Total |
| Yes | No |
| Effectiveness\_of\_immunobooster | helpful | Count | 336 | 4 | 340 |
| % within intake | 71.3% | 57.1% | 71.1% |
| didnt use | Count | 37 | 2 | 39 |
| % within intake | 7.9% | 28.6% | 8.2% |
| didnt get | Count | 98 | 1 | 99 |
| % within intake | 20.8% | 14.3% | 20.7% |
| Total | | Count | 471 | 7 | 478 |
| % within intake | 100.0% | 100.0% | 100.0% |

**Graph 60: Effectiveness\_of\_immunobooster \* intake**

**Table 120: Chi square test- 60**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 3.965 | 2 | .138 |

The result is insignificant as the chi square value is 0.138 because most of them have taken the medicine as per protocol and percentage of not taken medicines are very less, hence it is acceptable to the subject.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 121: recommend \* Covid\_attack \* Vaccination** | | | | | | | |
| Vaccination | | | | Covid\_attack | | | Total |
| before | after | no |
| single | recommend | Yes | Count | 1 | 2 | 99 | 102 |
| % within Covid\_attack | 100.0% | 66.7% | 75.6% | 75.6% |
| No | Count | 0 | 1 | 32 | 33 |
| % within Covid\_attack | 0.0% | 33.3% | 24.4% | 24.4% |
| Total | | Count | 1 | 3 | 131 | 135 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |
| two | recommend | Yes | Count | 1 | 7 | 251 | 259 |
| % within Covid\_attack | 100.0% | 87.5% | 87.8% | 87.8% |
| No | Count | 0 | 1 | 35 | 36 |
| % within Covid\_attack | 0.0% | 12.5% | 12.2% | 12.2% |
| Total | | Count | 1 | 8 | 286 | 295 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |
| none | recommend | Yes | Count |  | 1 | 39 | 40 |
| % within Covid\_attack |  | 100.0% | 83.0% | 83.3% |
| No | Count |  | 0 | 8 | 8 |
| % within Covid\_attack |  | 0.0% | 17.0% | 16.7% |
| Total | | Count |  | 1 | 47 | 48 |
| % within Covid\_attack |  | 100.0% | 100.0% | 100.0% |
| Total | recommend | Yes | Count | 2 | 10 | 389 | 401 |
| % within Covid\_attack | 100.0% | 83.3% | 83.8% | 83.9% |
| No | Count | 0 | 2 | 75 | 77 |
| % within Covid\_attack | 0.0% | 16.7% | 16.2% | 16.1% |
| Total | | Count | 2 | 12 | 464 | 478 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 61: recommend \* Covid\_attack \* Vaccination**

**Table 122: Chi square test- 61**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | | |
| Vaccination | | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| single | Pearson Chi-Square | .452 | 2 | .798 |  |
| two | Pearson Chi-Square | .140 | 2 | .932 |  |
| none | Pearson Chi-Square | .204 | 1 | .651 |  |
| Fisher's Exact Test |  |  |  | 1.000 |
| Total | Pearson Chi-Square | .388 | 2 | .824 |  |

The result is insignificant as the chi square value is 1. This shows there is no relation between covid attack and recommendation for immunobooster therapy because it is acceptable in the community.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 124: Recommend\*Effectiveness\_of\_immunobooster \* intake** | | | | | | | |
| Intake | | | | Effectiveness\_of\_immunobooster | | | Total |
| helpful | didnt use | didnt get |
| Yes | recommend | Yes | Count | 286 | 25 | 85 | 396 |
|  | 85.1% | 67.6% | 86.7% | 84.1% |
| No | Count | 50 | 12 | 13 | 75 |
|  | 14.9% | 32.4% | 13.3% | 15.9% |
| Total | | Count | 336 | 37 | 98 | 471 |
|  | 100.0% | 100.0% | 100.0% | 100.0% |
| No | recommend | Yes | Count | 4 | 1 | 0 | 5 |
|  | 100.0% | 50.0% | 0.0% | 71.4% |
| No | Count | 0 | 1 | 1 | 2 |
|  | 0.0% | 50.0% | 100.0% | 28.6% |
| Total | | Count | 4 | 2 | 1 | 7 |
|  | 100.0% | 100.0% | 100.0% | 100.0% |
| Total | recommend | Yes | Count | 290 | 26 | 85 | 401 |
|  | 85.3% | 66.7% | 85.9% | 83.9% |
| No | Count | 50 | 13 | 14 | 77 |
|  | 14.7% | 33.3% | 14.1% | 16.1% |
| Total | | Count | 340 | 39 | 99 | 478 |
|  | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 62: Recommend\*Effectiveness\_of\_immunobooster \* intake**

**Table 124: Chi square test- 62**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
| intake | | Value | df | Asymp. Sig. (2-sided) |
| Yes | Pearson Chi-Square | 8.322 | 2 | .016 |
| No | Pearson Chi-Square | 4.550 | 2 | .103 |
| Total | Pearson Chi-Square | 9.341 | 2 | .009 |

The result is significant as the Asymp. Sig, (2 sided value ) is 0.009. This shows that people who have taken immunobooster therapy are ready to recommend it for others.

1. **Discussion**

**Discussion on Covid 19:**

According to the literature review, covid 19 pandemic is an unavoidable phenomenon since the spread had been air borne and also through human contact. Since its emergence, various countries including India formulated many vaccinations of which Covaxin, Covishield and Pfizer are a few. AYUSH department has also come up with Ayurvedic and Unani medications to prevent the occurrence and recurrence of the disease. Also along with medications, one need to follow proper lifestyle and diet to improve immunity and strength.

As there is no perfect remedy for this malady, the preventive care is only solution and this can be done with integrative approach in AYUSH with the use of immunobooster therapy which is designed and developed by department of AYUSH for the distribution to the population.

**Discussion on Materials:**

**Discussion on Ayurveda and Unani Medications on Covid 19:**

Ayurveda and Unani systems of medicines are among the ancient systems of medicines that have been used to treat a wide variety of diseases since time immemorial. These systems mainly use natural herbal and animal products to treat the diseases. These use the knowledge transferred through various Gurus and Hakims and also ancient textual knowledge that’s written by saints ages ago. Since the symptoms of the Covid 19 mainly pose as cough, fever or chills, shortness of breath, anosmia, loss of sense of taste, runny nose, sore throat, the ancient systems of medicine have formulations that can easily fight off these symptoms and the viruses.

**Discussion on Arqe ajeeb:**

Arqe Ajeeb is a potent drug used in respiratory diseases and it is widely acceptable by the vaidyas because it has to be taken through inhalation and it brings down the symptom immediately which can also be noticed by the subjects and most of the drugs being aromatic in nature, hence, it is effective as inhalers or can be administered easily from nasal route, hence acceptance is high because of its minimum side effects and adverse reactions. As many studies have already documented its effectiveness to reduce the symptoms in COVID 19 an attempt is made in the study to integrate this with an Ayurvedic oral formulation and assess its validity in a systematic and scientific way. As this drug when we do the literary review, most of the ingredients are highly effective in relieving the symptoms of COVID 19.

**Discussion on Samshamani Vati:**

Samshamani Vati is an Ayurvedic formulation that has antipyretic and anti-inflammatory property. Samshamani vati is made of aqueous extract of Tinospora cordifolia (Willd.) Miers (family Menispermaceae). Samshamani vati is jwaragna tridoshahara and very useful formulation in many respiratory conditions and it is used widely as one of the potent ayurvedic, antipyretic formulation mainly because it is safe, effective, and used by Ayurveda fraternity since its inception. When we look into the composition of the compound formulation, guduchi and ativisha are good antipyretic drugs and pipali will act as rasayana and loha Bhasma is dhathu poshaka and raktha vardhaka. Hence the compound formulation probably may act as a symptomatic remedy to get rid of complex covid symptoms which includes mainly fever and many respiratory symptoms along with some gastrointestinal symptoms in few cases. The above formulation probably act on majority of the above symptoms and provide a satisfactory answer to the agony of covid 19. The results are encouraging as the above formulation is given as an immunobooster because the compound contains the drugs which act as rasayana, dhathu poshana, agnivardhana, raktha vardhaka, immunity enhancer, antioxidant and also act as a catalyst of well being, hence the compound provided encouraging results which acted as immunobooster in more than 90% of the subjects who consumed the formulation for the prescribed period and the follow up in the study showed 92% of the subjects, not had any covid 19 infections in the follow up period and 8% of the patients who tested positive for covid 19 were also recovered quickly because of mild symptoms and the highlight of the study was none of them were hospitalized and there is no report of death who have consumed the drugs mentioned in the protocol in the prescribed period.

**Discussion on Methodology:**

**Discussions on Sampling:**

The selection of the sample is by random selection where participants who were interested in the study were made to sign the consent and then selected randomly by lottery method.

**Discussions on the Source of Data:**

The subjects were selected from Infosys, Mysuru. Subjects who tallied with the selection criteria and who gave their written consent to participate in the study were selected randomly from the software company Infosys, Mysuru. Subjects from various departments- administrative department, D-group workers, and other office workers of the company who fit the inclusion criteria properly were selected for the study.

**Discussion on inclusion criteria:**

The subjects of age group 15-70 years were selected without any severe systemic disease. This age group was carefully selected as most of the people here are deemed to be healthier without any severe illness. There was no preference on a single gender and any of the either sex was equally given opportunity to participate in the study. This study was conducted with due consent from the respective participant.

**Discussion on exclusion criteria:**

The subjects with severe systemic illness, people with prior covid infection, pregnant and lactating mothers, pediatrics below age 12 were excluded. This is because it’s not feasible for them to participate in the study, as for the pregnant and lactating women it may also result in teratogenic effects that could harm the fetus or the child. They would need careful supervision which isn’t possible as the study is on a large scale and the period of study is of long interval.

**Discussion on Tools:**

The questionnaire was well structured and formed after a complete discussion with experts and peer groups, which was then given to the participants to fill up. All the participants were able to answer the questions with little or no confusions and doubts regarding the interventions and the alternative options that were given. The telephonic interview where the questions were asked was satisfactorily answered. Thus, the pilot questionnaire was prepared and subjected for standardization with criteria like acceptability, repeatability, validity more than 95%. The standardized questionnaire was administered to the subject by trained volunteers to minimize the bias in the study.

**Discussion on intervention method:**

Intervention method was designed and developed by department of AYUSH by an expert group and two drugs are given as immunobooster. In that one drug is an oral Ayurveda preparation Samshamani Vati which is given two times a day in a tablet form, the other one is a Unani drug which can be administered though a nasal route just like an inhaler. The selection of the above combination is because one will act locally and the other will act systematically. The focus is given for immediate relief of signs and symptoms and thus get rid of the disease in a usual course of time. Because there is no standard treatment protocol for COVID19 in Ayurveda which is valid and accepted by the stakeholders.

**Discussion on Observation:**

The questionnaire was designed in such a way that the whole sequence of phenomena can be recorded with past present and future approach. Hence, the questionnaire is a perfect approach to capture all data which is needed to validate its effectiveness in COVID 19. The main focus is given to enquire about the effectiveness of the intervention with few of the questions aimed to collect data for the future course of action. The questions which are aimed to collect data to assess the effectiveness of the intervention will definitely give inputs about validity of the intervention. The other questions are aimed at acceptability of the intervention with focus given to form of medication, type of medication, dosage and duration of medication, distribution location of medication and finally, recommendation of the medication, thus giving a futuristic approach which can be utilized as a data for future COVID 19 government policies.

**Table 125: Age \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Age | 0-10 | Count | 19 | 7 | 26 |
| % within sex | 5.9% | 4.5% | 5.4% |
| 11-20 | Count | 30 | 16 | 46 |
| % within sex | 9.3% | 10.2% | 9.6% |
| 21-30 | Count | 53 | 32 | 85 |
| % within sex | 16.5% | 20.4% | 17.8% |
| 31-40 | Count | 96 | 42 | 138 |
| % within sex | 29.9% | 26.8% | 28.9% |
| 41-50 | Count | 63 | 28 | 91 |
| % within sex | 19.6% | 17.8% | 19.0% |
| 51-60 | Count | 41 | 14 | 55 |
| % within sex | 12.8% | 8.9% | 11.5% |
| 61-70 | Count | 14 | 14 | 28 |
| % within sex | 4.4% | 8.9% | 5.9% |
| 71-80 | Count | 5 | 4 | 9 |
| % within sex | 1.6% | 2.5% | 1.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 63: Age \* sex**

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 126: Chi square test- 63**  **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 7.568 | 7 | .372 |

**Discussion**:

As the intervention is given to the employees of one software company, the sex wise and age wise distribution is not uniform. Here, the age group of 31-40 years have greater dominance than other age groups and males dominate over the females. Hence, the p value is insignificant, however when the whole population is considered as a whole, the whole population gets equally distributed among the agewise and sexwise distribution. But in this study, all the employees participated equally wholeheartedly and has taken the medications presented in the intervention timely. The insignificance here is due to the distribution of more male youngsters in the company rather than all age groups taken in inclusion criteria.

**Table 127: Days \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Days | 15 days | Count | 258 | 132 | 390 |
| % within sex | 80.4% | 84.1% | 81.6% |
| 30 daya | Count | 31 | 9 | 40 |
| % within sex | 9.7% | 5.7% | 8.4% |
| 7-10 days | Count | 32 | 16 | 48 |
| % within sex | 10.0% | 10.2% | 10.0% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 64: Days \* sex**

**Table 128: Chi square test- 64**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 2.123 | 2 | .346 |

**Discussion:**

Most of the participants have taken up the immunobooster for 15 days in a month than 30 days as per their convinience. Hence, uniformity is not aintained according to the protocol. However, dosage has been maintained, so because of this variation, p value became insignificant.

**Table 129: Times\_day \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Times\_day | 1 | Count | 32 | 7 | 39 |
| % within sex | 10.0% | 4.5% | 8.2% |
| 2 | Count | 288 | 150 | 438 |
| % within sex | 89.7% | 95.5% | 91.6% |
| 3 | Count | 1 | 0 | 1 |
| % within sex | 0.3% | 0.0% | 0.2% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 65: Times\_day \* sex**

**Table 130: Chi square test- 65**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 4.803 | 2 | .091 |

**Discussion:**

In the study, we find that around 90% of the total participants have taken the immunobooster twice a day and the rest 10% belongs to those who have taken immunobooster once or thrice a day. Most of the participants being IT professionals, need to work continuously for around 12-18 hours per day leading to occasional skipping of meals, thus they found that taking the drug twice a day could be more feasible. The distribution is non- uniform as seen in the graph, hence the p value is non- significant.

**Table 131: Health\_issues \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Health\_issues | Yes | Count | 9 | 1 | 10 |
| % within sex | 2.8% | 0.6% | 2.1% |
| No | Count | 312 | 156 | 468 |
| % within sex | 97.2% | 99.4% | 97.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 66: Health\_issues \* sex**

**Table 132: Chi square test- 66**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 2.417 | 1 | .120 |  |
| Fisher's Exact Test |  |  |  | .177 |

**Discussion:**

According to the above study, most of the participants did not have any health issues after the ingestion of the medicines while few members, that is 10 of them had health issues. This implies that health risks are as low as 2% whereas the advantages take up the major space in the study. Despite this, the study has seen positive impact on the prevention of the disease and its further complication.

**Table 133: Recommend \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| recommend | Yes | Count | 260 | 141 | 401 |
| % within sex | 81.0% | 89.8% | 83.9% |
| No | Count | 61 | 16 | 77 |
| % within sex | 19.0% | 10.2% | 16.1% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 67: Recommend \* sex**

**Table 134: Chi square test- 67**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 6.058 | 1 | .014 |  |
| Fisher's Exact Test |  |  |  | .017 |

**Discussion:**

As in the above-mentioned data, the most of the people have recommended to take the medicine for the prevention of covid, while as few as 16% of the participants have declined in recommending it to others. The p value is significant and it shows the intervention is simple, acceptable and community wholeheartedly accepted the intervention and also recommend it for the others because of its efficacy.

**Table 135:** **Neccessity\_in\_future \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Neccessity\_in\_future | Yes | Count | 227 | 128 | 355 |
| % within sex | 70.7% | 81.5% | 74.3% |
| No | Count | 94 | 29 | 123 |
| % within sex | 29.3% | 18.5% | 25.7% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 68: Neccessity\_in\_future \* sex**

**Table 136: Chi square test- 68**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 6.449 | 1 | .011 |  |
| Fisher's Exact Test |  |  |  | .014 |

**Discussion:**

As mentioned in the data that is presented above, around 75% of the participants found that the medicines given is needed in the future to prevent the recurrence and also its occurrence and the rest of the participants did not find it necessary. The subjects might have felt the need for the medicines in the future depending upon its efficacy and their immunity that has responded to it which through data has showed obvious positive effects with minimal side effects. The p value here is significant due to uniform distribution of the data and the subjects highlighted future need of immunobooster because of its advantage to prevent the infection spreading in and around their area.

**Table 137: Form \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Form | Tab | Count | 122 | 56 | 178 |
| % within sex | 38.0% | 35.7% | 37.2% |
| choorna | Count | 4 | 3 | 7 |
| % within sex | 1.2% | 1.9% | 1.5% |
| any form | Count | 101 | 68 | 169 |
| % within sex | 31.5% | 43.3% | 35.4% |
| none | Count | 94 | 30 | 124 |
| % within sex | 29.3% | 19.1% | 25.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 69: Form \* sex**

**Table 138: Chi square test-69**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 8.867 | 3 | .031 |

**Discussion:**

From observing the given data, we find that the data is uniformly distributed where people further recommend the immunoboosters to be given in tablet, choorna or any form and also those who don’t find its need. The p value is significant being below 0.05 which shows that people accepted the immunobooster therapy and they are not worried about form of medicine but for efficacy.

**Table 139: Place \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Place | hosp | Count | 10 | 7 | 17 |
| % within sex | 3.1% | 4.5% | 3.6% |
| work | Count | 85 | 32 | 117 |
| % within sex | 26.5% | 20.4% | 24.5% |
| druh house | Count | 7 | 12 | 19 |
| % within sex | 2.2% | 7.6% | 4.0% |
| anywhere | Count | 124 | 77 | 201 |
| % within sex | 38.6% | 49.0% | 42.1% |
| none | Count | 95 | 29 | 124 |
| % within sex | 29.6% | 18.5% | 25.9% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 70: Place \* sex**

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 140: Chi square test- 70**  **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 17.800 | 4 | .001 |

**Discussion:**

Future delivery point for immunobooster therapy was mentioned for many places and subjects responded with a significant p value which implies that delivery point is not the criteria to take the medicine but the effectiveness of the intervention is really criteria for the subjects.

**Table 141: Drug\_course \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Drug\_course | App | Count | 313 | 155 | 468 |
| % within sex | 97.5% | 98.7% | 97.9% |
| More | Count | 8 | 2 | 10 |
| % within sex | 2.5% | 1.3% | 2.1% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 71: Drug\_course \* sex**

**Table 142: Chi square test- 71**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | .764 | 1 | .382 |  |
| Fisher's Exact Test |  |  |  | .509 |

**Discussion:**

Referring to the given data, we find that the data is statistically insignificant and non- uniform between the male and female group of workers who find the drug course to be appropriate and also those who need more of it and this implies that both genders are not worried about course of intervention and are ready to strictly adhere the prescribed duration as per protocol.

**Table 143: Vaccination \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Vaccination | single | Count | 92 | 43 | 135 |
| % within sex | 28.7% | 27.4% | 28.2% |
| two | Count | 200 | 95 | 295 |
| % within sex | 62.3% | 60.5% | 61.7% |
| none | Count | 29 | 19 | 48 |
| % within sex | 9.0% | 12.1% | 10.0% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 72: Vaccination \* sex**

**Table 144: Chi square test- 72**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 1.104 | 2 | .576 |

**Discussion:**

This shows there is no difference between gender acceptance of vaccine along with immunobooster. This signifies that subjects are ready to take immunobooster along with vaccine for to get higher immunity for COVID 19.

**Table 145: Covid\_attack \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Covid\_attack | Before | Count | 1 | 1 | 2 |
| % within sex | 0.3% | 0.6% | 0.4% |
| After | Count | 8 | 4 | 12 |
| % within sex | 2.5% | 2.5% | 2.5% |
| No | Count | 312 | 152 | 464 |
| % within sex | 97.2% | 96.8% | 97.1% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 73: Covid\_attack \* sex**

**Table 146: Chi square test- 73**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | .270 | 2 | .874 |

**Discussion:**

There is no difference between genders about this component wherein people accepted the immunobooster irrespective of COVID infection before ingestion of immunobooster. However, according to protocol, the maximum number of subjects received immunobooster therapy without having prior attack of COVID 19 infection.

**Table 147: Effectiveness\_of\_immunobooster \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | Sex | | Total |
| Male | female |
| Effectiveness\_of\_immunobooster | helpful | Count | 233 | 107 | 340 |
| % within sex | 72.6% | 68.2% | 71.1% |
| didnt use | Count | 31 | 8 | 39 |
| % within sex | 9.7% | 5.1% | 8.2% |
| didnt get | Count | 57 | 42 | 99 |
| % within sex | 17.8% | 26.8% | 20.7% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 74: Effectiveness\_of\_immunobooster \* sex**

**Table 148: Chi square test- 74**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 7.099 | 2 | .029 |

**Discussion:**

Both genders are confident about effectiveness about immunobooster therapy for COVID 19 infections and it implies that subjects are confident about effectiveness of immunobooster therapy and it is accepted in the community irrespective of gender.

**Table 149: Intake \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| intake | Yes | Count | 314 | 157 | 471 |
| % within sex | 97.8% | 100.0% | 98.5% |
| No | Count | 7 | 0 | 7 |
| % within sex | 2.2% | 0.0% | 1.5% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 75: Intake \* sex**

**Table 150: Chi square test- 75**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 3.475 | 1 | .062 |  |
| Fisher's Exact Test |  |  |  | .102 |

**Discussion:**

Irrespective of gender maximum number of subjects accepted and consumed the interventional drug and there is no side effects or untoward effects while consuming the medication barring few subjects hence, p value showed an insignificant value.

**Table 151: Health\_in\_check \* sex**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | sex | | Total |
| Male | female |
| Health\_in\_check | Yoga & Pra | Count | 36 | 32 | 68 |
| % within sex | 11.2% | 20.4% | 14.2% |
| Exc | Count | 106 | 48 | 154 |
| % within sex | 33.0% | 30.6% | 32.2% |
| Diet | Count | 29 | 13 | 42 |
| % within sex | 9.0% | 8.3% | 8.8% |
| none | Count | 150 | 64 | 214 |
| % within sex | 46.7% | 40.8% | 44.8% |
| Total | | Count | 321 | 157 | 478 |
| % within sex | 100.0% | 100.0% | 100.0% |

**Graph 76: Health\_in\_check \* sex**

**Table 152: Chi square test- 76**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 7.331 | 3 | .062 |

**Discussion:**

This implies that yoga and pranayama, exercise and diet are also part of immunity enhancing activity and there is no difference between performing this activity along with immunobooster therapy in between genders.

**Table 153: Days \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Days | 15 days | Count | 13 | 26 | 72 | 114 | 79 | 51 | 27 | 8 | 390 |
| % within Age | 50.0% | 56.5% | 84.7% | 82.6% | 86.8% | 92.7% | 96.4% | 88.9% | 81.6% |
| 30 daya | Count | 3 | 5 | 8 | 16 | 5 | 2 | 1 | 0 | 40 |
| % within Age | 11.5% | 10.9% | 9.4% | 11.6% | 5.5% | 3.6% | 3.6% | 0.0% | 8.4% |
| 7-10 days | Count | 10 | 15 | 5 | 8 | 7 | 2 | 0 | 1 | 48 |
| % within Age | 38.5% | 32.6% | 5.9% | 5.8% | 7.7% | 3.6% | 0.0% | 11.1% | 10.0% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 77: Days \* Age**

**Table 154: Chi square test- 77**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 68.923 | 14 | .000 |

**Discussion:**

This implies that the protocol prescribed dosage and duration are accepted by all irrespective of age group.

**Table 155: Intake \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| intake | Yes | Count | 26 | 45 | 84 | 135 | 90 | 55 | 27 | 9 | 471 |
| % within Age | 100.0% | 97.8% | 98.8% | 97.8% | 98.9% | 100.0% | 96.4% | 100.0% | 98.5% |
| No | Count | 0 | 1 | 1 | 3 | 1 | 0 | 1 | 0 | 7 |
| % within Age | 0.0% | 2.2% | 1.2% | 2.2% | 1.1% | 0.0% | 3.6% | 0.0% | 1.5% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 78: Intake \* Age**

**Table 156: Chi square test- 78**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 2.974 | 7 | .887 |

**Discussion:**

This implies that intake of prescribed dosage and duration are not dependent on age criteria and they have consumed the medicine uniformly and this gives a strong indication of acceptance of protocol by all.

**Table 157: Times\_day \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Times\_day | 1 | Count | 7 | 10 | 6 | 7 | 4 | 4 | 1 | 0 | 39 |
| % within Age | 26.9% | 21.7% | 7.1% | 5.1% | 4.4% | 7.3% | 3.6% | 0.0% | 8.2% |
| 2 | Count | 19 | 36 | 79 | 130 | 87 | 51 | 27 | 9 | 438 |
| % within Age | 73.1% | 78.3% | 92.9% | 94.2% | 95.6% | 92.7% | 96.4% | 100.0% | 91.6% |
| 3 | Count | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| % within Age | 0.0% | 0.0% | 0.0% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.2% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 79: Times\_day \* Age**

**Table 158: Chi square test- 79**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 31.201 | 14 | .005 |

**Discussion:**

For the criteria of daily consumption of interventional medicine all have consumed the prescribed medicine as per prescribed protocol barring few casesirrespective of age (time of medication/day).

**Table 159: Health\_issues \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Health\_issues | Yes | Count | 2 | 0 | 4 | 0 | 1 | 1 | 2 | 0 | 10 |
| % within Age | 7.7% | 0.0% | 4.7% | 0.0% | 1.1% | 1.8% | 7.1% | 0.0% | 2.1% |
| No | Count | 24 | 46 | 81 | 138 | 90 | 54 | 26 | 9 | 468 |
| % within Age | 92.3% | 100.0% | 95.3% | 100.0% | 98.9% | 98.2% | 92.9% | 100.0% | 97.9% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 80: Health\_issues \* Age**

**Table 160: Chi square test- 80**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 14.886 | 7 | .037 |

**Discussion:**

This implies that health issues are one of the major concerns for the subjects irrespective of age group. Higher the age group, higher health issue concerns are observed and there is a clear association between health issues and age.

**Table 161: Neccessity\_in\_future \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Neccessity\_in\_future | Yes | Count | 20 | 35 | 71 | 95 | 66 | 43 | 21 | 4 | 355 |
| % within Age | 76.9% | 76.1% | 83.5% | 68.8% | 72.5% | 78.2% | 75.0% | 44.4% | 74.3% |
| No | Count | 6 | 11 | 14 | 43 | 25 | 12 | 7 | 5 | 123 |
| % within Age | 23.1% | 23.9% | 16.5% | 31.2% | 27.5% | 21.8% | 25.0% | 55.6% | 25.7% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 81: Neccessity\_in\_future \* Age**

**Table 162: Chi square test- 81**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 10.899 | 7 | .143 |

The result is insignificant as the chi square value is .143

**Discussion:**

This implies that subjects are ready to take any therapy which enhances immunity for COVID 19 and they are not particular about any particular therapy because they are not aware about a particular therapy and its effectiveness because they have not experienced it at all.

**Table 163: Form \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Form | Tab | Count | 8 | 17 | 34 | 59 | 32 | 19 | 8 | 1 | 178 |
| % within Age | 30.8% | 37.0% | 40.0% | 42.8% | 35.2% | 34.5% | 28.6% | 11.1% | 37.2% |
| Choorna | Count | 0 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 7 |
| % within Age | 0.0% | 2.2% | 1.2% | 0.0% | 0.0% | 7.3% | 3.6% | 0.0% | 1.5% |
| any form | Count | 12 | 17 | 36 | 36 | 33 | 20 | 12 | 3 | 169 |
| % within Age | 46.2% | 37.0% | 42.4% | 26.1% | 36.3% | 36.4% | 42.9% | 33.3% | 35.4% |
| None | Count | 6 | 11 | 14 | 43 | 26 | 12 | 7 | 5 | 124 |
| % within Age | 23.1% | 23.9% | 16.5% | 31.2% | 28.6% | 21.8% | 25.0% | 55.6% | 25.9% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 82: Form \* Age**

**Table 164: Chi square test- 82**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 35.725 | 21 | .023 |

**Discussion:**

This implies that acceptability of immunobooster therapy irrespective of any age and they are not worried about form of medication but effectiveness of the medication.

**Table 165: Place \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Place | Hosp | Count | 1 | 2 | 2 | 4 | 1 | 3 | 3 | 1 | 17 |
| % within Age | 3.8% | 4.3% | 2.4% | 2.9% | 1.1% | 5.5% | 10.7% | 11.1% | 3.6% |
| Work | Count | 10 | 13 | 22 | 39 | 19 | 11 | 3 | 0 | 117 |
| % within Age | 38.5% | 28.3% | 25.9% | 28.3% | 20.9% | 20.0% | 10.7% | 0.0% | 24.5% |
| drug house | Count | 1 | 1 | 4 | 3 | 5 | 4 | 1 | 0 | 19 |
| % within Age | 3.8% | 2.2% | 4.7% | 2.2% | 5.5% | 7.3% | 3.6% | 0.0% | 4.0% |
| anywhere | Count | 8 | 19 | 42 | 49 | 41 | 25 | 14 | 3 | 201 |
| % within Age | 30.8% | 41.3% | 49.4% | 35.5% | 45.1% | 45.5% | 50.0% | 33.3% | 42.1% |
| None | Count | 6 | 11 | 15 | 43 | 25 | 12 | 7 | 5 | 124 |
| % within Age | 23.1% | 23.9% | 17.6% | 31.2% | 27.5% | 21.8% | 25.0% | 55.6% | 25.9% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 83: Place \* Age**

**Table 166: Chi square test- 83**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 32.301 | 28 | .262 |

**Discussion:**

This implies that patients are ready to take medications and are not worried about delivery modality but their concern is about availability.

**Table 167: Health\_in\_check \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Health\_in\_check | Yoga & Pra | Count | 1 | 3 | 10 | 23 | 21 | 6 | 3 | 1 | 68 |
| % within Age | 3.8% | 6.5% | 11.8% | 16.7% | 23.1% | 10.9% | 10.7% | 11.1% | 14.2% |
| Exc | Count | 3 | 7 | 31 | 45 | 31 | 22 | 14 | 1 | 154 |
| % within Age | 11.5% | 15.2% | 36.5% | 32.6% | 34.1% | 40.0% | 50.0% | 11.1% | 32.2% |
| diet | Count | 1 | 2 | 7 | 8 | 10 | 9 | 4 | 1 | 42 |
| % within Age | 3.8% | 4.3% | 8.2% | 5.8% | 11.0% | 16.4% | 14.3% | 11.1% | 8.8% |
| none | Count | 21 | 34 | 37 | 62 | 29 | 18 | 7 | 6 | 214 |
| % within Age | 80.8% | 73.9% | 43.5% | 44.9% | 31.9% | 32.7% | 25.0% | 66.7% | 44.8% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 84: Health\_in\_check \* Age**

**Table 168: Chi square test- 84**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 56.911 | 21 | .000 |

**Discussion:**

This implies that irrespective of age group the subjects are ready to take up any health activity which boost the immunity for COVID 19 along with immunoboosters.

**Table 169: Vaccination \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Vaccination | single | Count | 5 | 14 | 33 | 43 | 23 | 11 | 4 | 2 | 135 |
| % within Age | 19.2% | 30.4% | 38.8% | 31.2% | 25.3% | 20.0% | 14.3% | 22.2% | 28.2% |
| two | Count | 4 | 5 | 52 | 92 | 68 | 43 | 24 | 7 | 295 |
| % within Age | 15.4% | 10.9% | 61.2% | 66.7% | 74.7% | 78.2% | 85.7% | 77.8% | 61.7% |
| none | Count | 17 | 27 | 0 | 3 | 0 | 1 | 0 | 0 | 48 |
| % within Age | 65.4% | 58.7% | 0.0% | 2.2% | 0.0% | 1.8% | 0.0% | 0.0% | 10.0% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 85:**  **Vaccination \* Age**

**Table 170: Chi square test- 85**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 266.370 | 14 | .000 |

**Discussion:**

This implies that irrespective of age group subjects are ready to accept immunobooster therapy along with vaccination to increase their immunity power.

**Table 171: Covid\_attack \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Covid\_attack | before | Count | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| % within Age | 0.0% | 0.0% | 1.2% | 0.0% | 0.0% | 1.8% | 0.0% | 0.0% | 0.4% |
| after | Count | 0 | 1 | 1 | 2 | 6 | 2 | 0 | 0 | 12 |
| % within Age | 0.0% | 2.2% | 1.2% | 1.4% | 6.6% | 3.6% | 0.0% | 0.0% | 2.5% |
| no | Count | 26 | 45 | 83 | 136 | 85 | 52 | 28 | 9 | 464 |
| % within Age | 100.0% | 97.8% | 97.6% | 98.6% | 93.4% | 94.5% | 100.0% | 100.0% | 97.1% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 86: Covid\_attack \* Age**

**Table 172: Chi square test- 86**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 14.556 | 14 | .409 |

**Discussion:**

This implies that the subjects are not worried about taking immunobooster therapy irrespective of prior COVID infection however, according to protocol care has been taken not to include the subjects who are already having COVID infections. However, few of them consumed the medicine on their own interest to prevent the reinfection.

**Table 173: Effectiveness\_of\_immunobooster \* Age**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | | | | | | | |
|  | | | Age | | | | | | | | Total |
| 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Effectiveness\_of\_immunobooster | helpful | Count | 20 | 28 | 63 | 104 | 54 | 43 | 21 | 7 | 340 |
| % within Age | 76.9% | 60.9% | 74.1% | 75.4% | 59.3% | 78.2% | 75.0% | 77.8% | 71.1% |
| didnt use | Count | 2 | 5 | 4 | 10 | 15 | 1 | 2 | 0 | 39 |
| % within Age | 7.7% | 10.9% | 4.7% | 7.2% | 16.5% | 1.8% | 7.1% | 0.0% | 8.2% |
| didnt get | Count | 4 | 13 | 18 | 24 | 22 | 11 | 5 | 2 | 99 |
| % within Age | 15.4% | 28.3% | 21.2% | 17.4% | 24.2% | 20.0% | 17.9% | 22.2% | 20.7% |
| Total | | Count | 26 | 46 | 85 | 138 | 91 | 55 | 28 | 9 | 478 |
| % within Age | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 87: Effectiveness\_of\_immunobooster \* Age**

**Table 174: Chi square test- 87**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 19.575 | 14 | .144 |

**Discussion:**

This implies that people are not worried about the effectiveness of immunoboosters but they don’t have any doubt about its still they are readily accepting the therapy with a confidence note.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 175: Recommend \* Covid\_attack** | | | | | | |
|  | | | Covid\_attack | | | Total |
| before | after | no |
| recommend | Yes | Count | 2 | 10 | 389 | 401 |
| % within Covid\_attack | 100.0% | 83.3% | 83.8% | 83.9% |
| No | Count | 0 | 2 | 75 | 77 |
| % within Covid\_attack | 0.0% | 16.7% | 16.2% | 16.1% |
| Total | | Count | 2 | 12 | 464 | 478 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 88: Recommend \* Covid\_attack**

**Table 176: Chi square test- 88**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | .388 | 2 | .824 |

**Discussion:**

This implies that people are interested in recommending this drug for others irrespective of its outcome because they are worried about pandemic of COVID attack and they need a remedy which can be a preventive solution.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 177: Intake \* Drug\_course** | | | | | |
|  | | | Drug\_course | | Total |
| app | more |
| intake | Yes | Count | 462 | 9 | 471 |
| % within Drug\_course | 98.7% | 90.0% | 98.5% |
| No | Count | 6 | 1 | 7 |
| % within Drug\_course | 1.3% | 10.0% | 1.5% |
| Total | | Count | 468 | 10 | 478 |
| % within Drug\_course | 100.0% | 100.0% | 100.0% |

**Graph 89: Intake \* Drug\_course**

**Table 178: Chi square test- 89**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
|  | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| Pearson Chi-Square | 5.157 | 1 | .023 |  |
| Fisher's Exact Test |  |  |  | .138 |

**Discussion:**

This implies that subjects are readily accepted prescribed protocol of ingestion. They are not having any complaints about dosage and duration.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 179: Effectiveness\_of\_immunobooster\* Drug\_course** | | | | | |
|  | | | Drug\_course | | Total |
| app | more |
| Effectiveness\_of\_immunobooster | helpful | Count | 332 | 8 | 340 |
| % within Drug\_course | 70.9% | 80.0% | 71.1% |
| didnt use | Count | 38 | 1 | 39 |
| % within Drug\_course | 8.1% | 10.0% | 8.2% |
| didnt get | Count | 98 | 1 | 99 |
| % within Drug\_course | 20.9% | 10.0% | 20.7% |
| Total | | Count | 468 | 10 | 478 |
| % within Drug\_course | 100.0% | 100.0% | 100.0% |

**Graph 90: Effectiveness\_of\_immunobooster\* Drug\_course**

**Table 180: Chi square test- 90**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | .721 | 2 | .697 |

**Discussion:**

According to the subjects there is no relation between effectiveness of immunobooster and the drug course. This implies that subjects are not having any problem in adhering the prescribed protocol.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 181: Effectiveness\_of\_immunobooster \* intake** | | | | | |
|  | | | intake | | Total |
| Yes | No |
| Effectiveness\_of\_imunobooster | helpful | Count | 336 | 4 | 340 |
| % within intake | 71.3% | 57.1% | 71.1% |
| didnt use | Count | 37 | 2 | 39 |
| % within intake | 7.9% | 28.6% | 8.2% |
| didnt get | Count | 98 | 1 | 99 |
| % within intake | 20.8% | 14.3% | 20.7% |
| Total | | Count | 471 | 7 | 478 |
| % within intake | 100.0% | 100.0% | 100.0% |

**Table 182: Chi square test- 91**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chi-Square Tests** | | | |
|  | Value | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 3.965 | 2 | .138 |

**Discussion:**

As mentioned in the data, very low number of participants did not take the drug given, in which most people felt that helpful while one person did not get the drug while the other couldn’t use it. The majority of the people felt Arqe Ajeeb to be helpful in covid prevention. The distribution being uneven p value shows insignificance.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 183: Recommend \* Covid\_attack \* Vaccination** | | | | | | | |
| Vaccination | | | | Covid\_attack | | | Total |
| before | after | no |
| single | recommend | Yes | Count | 1 | 2 | 99 | 102 |
| % within Covid\_attack | 100.0% | 66.7% | 75.6% | 75.6% |
| No | Count | 0 | 1 | 32 | 33 |
| % within Covid\_attack | 0.0% | 33.3% | 24.4% | 24.4% |
| Total | | Count | 1 | 3 | 131 | 135 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |
| two | recommend | Yes | Count | 1 | 7 | 251 | 259 |
| % within Covid\_attack | 100.0% | 87.5% | 87.8% | 87.8% |
| No | Count | 0 | 1 | 35 | 36 |
| % within Covid\_attack | 0.0% | 12.5% | 12.2% | 12.2% |
| Total | | Count | 1 | 8 | 286 | 295 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |
| none | recommend | Yes | Count |  | 1 | 39 | 40 |
| % within Covid\_attack |  | 100.0% | 83.0% | 83.3% |
| No | Count |  | 0 | 8 | 8 |
| % within Covid\_attack |  | 0.0% | 17.0% | 16.7% |
| Total | | Count |  | 1 | 47 | 48 |
| % within Covid\_attack |  | 100.0% | 100.0% | 100.0% |
| Total | recommend | Yes | Count | 2 | 10 | 389 | 401 |
| % within Covid\_attack | 100.0% | 83.3% | 83.8% | 83.9% |
| No | Count | 0 | 2 | 75 | 77 |
| % within Covid\_attack | 0.0% | 16.7% | 16.2% | 16.1% |
| Total | | Count | 2 | 12 | 464 | 478 |
| % within Covid\_attack | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 92: Recommend \* Covid\_attack \* Vaccination**

**Table 184: Chi square test- 92**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | | |
| Vaccination | | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
| single | Pearson Chi-Square | .452 | 2 | .798 |  |
| two | Pearson Chi-Square | .140 | 2 | .932 |  |
| none | Pearson Chi-Square | .204 | 1 | .651 |  |
| Fisher's Exact Test |  |  |  | 1.000 |
| Total | Pearson Chi-Square | .388 | 2 | .824 |  |

**Discussion:**

This signifies participants are recommending the COVID immunobooster medications to their kith and kin and this implies that the immunobooster therapy is acceptable in the community and there is no doubt in the efficacy of the intervention because of this they are ready to recommend it to the society.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 185: Recommend \* Effectiveness\_of\_immunobooster\* intake** | | | | | | | |
| Intake | | | | Effectiveness\_of\_immunobooster | | | Total |
| helpful | didnt use | didnt get |
| Yes | recommend | Yes | Count | 286 | 25 | 85 | 396 |
|  | 85.1% | 67.6% | 86.7% | 84.1% |
| No | Count | 50 | 12 | 13 | 75 |
|  | 14.9% | 32.4% | 13.3% | 15.9% |
| Total | | Count | 336 | 37 | 98 | 471 |
|  | 100.0% | 100.0% | 100.0% | 100.0% |
| No | recommend | Yes | Count | 4 | 1 | 0 | 5 |
|  | 100.0% | 50.0% | 0.0% | 71.4% |
| No | Count | 0 | 1 | 1 | 2 |
|  | 0.0% | 50.0% | 100.0% | 28.6% |
| Total | | Count | 4 | 2 | 1 | 7 |
|  | 100.0% | 100.0% | 100.0% | 100.0% |
| Total | recommend | Yes | Count | 290 | 26 | 85 | 401 |
|  | 85.3% | 66.7% | 85.9% | 83.9% |
| No | Count | 50 | 13 | 14 | 77 |
|  | 14.7% | 33.3% | 14.1% | 16.1% |
| Total | | Count | 340 | 39 | 99 | 478 |
|  | 100.0% | 100.0% | 100.0% | 100.0% |

**Graph 93: Recommend \* Effectiveness\_of\_immunobooster\* intake**

**Table 186: Chi square test- 93**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chi-Square Tests** | | | | |
| intake | | Value | df | Asymp. Sig. (2-sided) |
| Yes | Pearson Chi-Square | 8.322 | 2 | .016 |
| No | Pearson Chi-Square | 4.550 | 2 | .103 |
| Total | Pearson Chi-Square | 9.341 | 2 | .009 |

**Discussion:**

As the immunobooster therapy is acceptable to the society the subjects are ready to recommend this therapy and they are ready to abide the prescribed dosage and duration. That is the reason p value is significant for this component.

1. **RECOMMENDATION FOR FUTURE STUDY**

* The study can be employed for a larger sample including many software companies for receiving better results and also for testing the efficacy of the intervention.
* The preventive aspect of the immunobooster can also be tested for other common viral infections.
* One can also introduce a multi-centric study so that most people of the area can be covered and also benefited.
* Ayurveda and Unani being ancient systems of medicines have wide scope for research and benefits, hence, validation of integrative approach is the need of our and many researches can be carried out for infections and infestations in a preventive model.

1. **CONCLUSIONS**

On the basis of concepts, analysis and clinical observations made in this study, the following conclusions were drawn-

COVID 19 pandemic is an inevitable, infectious disease wave which can be symptomatic or asymptomatic that can only be prevented by taking appropriate measures to improve the immunity of the individuals with tools like vaccines and immunoboosters.

The data collection was through a precisely constructed questionnaire, which included a set of questions that covered all the important aspects of the intervention. The data was recorded though telephonic interview method.

Statistical analysis showed significance in all major areas. However, significant improvement in the immunity was observed clinically and statistically. Hence to conclude the interventional immunobooster drug was highly efficacious and prevented spreading of COVID 19 infections in the community and community acceptance for the intervention was appreciated by the subjects.

The community also recommended immunobooster therapy to halt the spreading of COVID 19 in the community that implies the interventional immunobooster is efficacious, valid, and accepted in the society and this conclusion is drawn based on the special questionnaire designed to collect the data.

As the intervention is acceptable and effective in the society, the subjects are ready to recommend it to others to check the spread of COVID 19 as a preventive tool which implies that the drug is really effective and accepted by the community.

1. **SUMMARY**

The study titled “AN OBSERVATIONAL STUDY TO EVALUATE THE EFFICACY OF IMMUNOBOOSTER AYUSH THERAPY AS PREVENTIVE MEASURE FOR COVID 19” was conducted. It was an observational clinical study in which the drug administered to the participants were assessed for its benefits and side effects.

The objective of the study is to evaluate the efficacy of the immunobooster AYUSH therapy in preventing COVID 19.

To observe the effects of the immunobooster drug in individuals with special reference to their improvement in immunity which thus worked in preventing the disease.

First part of the clinical study involves contents like Review of Literature, which further included Disease review, Treatment, Drug review and interventional review. It includes detailed review of covid 19, its preventive measures, treatment protocols and guidelines issued by WHO and Government of India. It also comprises of the detailed treatment reviews which includes the drugs – Samshamana Vati and Arqe Ajeeb and also the details of each drug, its composition, method of preparation and its use. When we analytically analyze all the drugs in the intervention, we logically concluded the above intervention is a better tool for preventive strategy to halt spread of the disease in the population. To prove this, this study is undertaken as an observational study in which effectiveness of integrated interventional medicine was tried for clinical trial.

Second part of the study details about the materials and methodology used in the present study, observations and results, discussions on review of literature, materials and methods, observations and results. This part also includes general observations, recommendation for further study, conclusion and summary of the study.

Total of 478 subjects were employed for the study, and the data was collected systematically through specifically and scientifically structured questionnaire and it is found that in the observation subjects were ready to take the immunobooster therapy in any form, at any place and they are ready to adhere prescribed dosage and duration according to protocol of the study and this implies that the interventional integrated medicine is wholeheartedly accepted by the community.

The highlights of the observations were majority of the subjects have no issues with the consumption of the medicine but few cases had some challenges for which amicable solutions were also developed and when we take up in an overall phenomenon it was a uniformly accepted venture that implies that the immunobooster therapy is valid and effective.

In the discussion part, there is no standardized protocol available in any system of medicine for COVID 19, still there are few successive models of treatment protocols but they are not uniform and there is no data available in any international publications where it says the protocol designed and developed was perfect. Hence, to resolve this miserable disease the successful answer is prevention. When we search many successful models of preventive tools, integrated model of AYUSH can give a good solace in the form of immunobooster therapy. Hence, this project is a successful model, a valid model, an effective model, when examined in a systematic, scientific way.

The study revealed immunobooster therapy for COVID 19 is must to halt the spread of infections in the community even though its awareness is poor, those subjects who have taken the medications are comfortable for its efficacy, duration and the designed protocol and there were a few health issues during the interventional period and all these shows that the experimental intervention is valid, is effective, and accepted in the community and subjects are ready to recommend it to their kith and kin irrespective of gender and age.

1. **BIBLIOGRAPHY:**

1.www.emedicine.medscape.com

2. W. Joost Wiersinga, MD, PhD; Andrew Rhodes, MD, PhD; Allen C. Cheng, MD, PhD; Sharon J. Peacock, PhD; Hallie C. Prescott, MD, MSc: Pathophysiology, Transmission, Diagnosis, and Treatment of Coronavirus Disease 2019 (COVID-19); A Review

3. Richman DD, Whitley RJ, Hayden FG. Clinical Virology, 4th ed. Washington: ASM Press; 2016

4. Xinhua. China’s CDC detects a large number of new coronaviruses in the South China seafood market in Wuhan.

Available at: [https://www.xinhuanet.com/2020-01/27/c\_1125504355.htm. Accessed 20 Feb 2020](https://www.xinhuanet.com/2020-01/27/c_1125504355.htm.%20Accessed%2020%20Feb%202020)

5. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, Zhang L, Fan G, Xu J, Gu X, Cheng Z, Yu T, Xia J, Wei Y, Wu W, Xie X, Yin W, Li H, Liu M, Xiao Y, Gao H, Guo L, Xie J, Wang G, Jiang R, Gao Z, Jin Q, Wang J, Cao B. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet.*2020;395:497–506. doi: 10.1016/S0140-6736(20)30183-5. [[PMC free article](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7159299/)] [[PubMed](https://pubmed.ncbi.nlm.nih.gov/31986264)] [[CrossRef](https://doi.org/10.1016%2FS0140-6736(20)30183-5)] [[Google Scholar](https://scholar.google.com/scholar_lookup?journal=Lancet&title=Clinical+features+of+patients+infected+with+2019+novel+coronavirus+in+Wuhan,+China&author=C+Huang&author=Y+Wang&author=X+Li&author=L+Ren&author=J+Zhao&volume=395&publication_year=2020&pages=497-506&pmid=31986264&doi=10.1016/S0140-6736(20)30183-5&)]

6. Rothe C, Schunk M, Sothmann P, Bretzel G, et al: Transmission of 2019-nCoV Infection from an Asymptomatic Contact in Germany. *New England Journal of Medicine.*2020;382(10):970–971. doi: 10.1056/NEJMc2001468. [[PMC free article](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7120970/)] [[PubMed](https://pubmed.ncbi.nlm.nih.gov/32003551)] [[CrossRef](https://doi.org/10.1056%2FNEJMc2001468)] [[Google Scholar](https://scholar.google.com/scholar_lookup?journal=New+England+Journal+of+Medicine&title=Transmission+of+2019-nCoV+Infection+from+an+Asymptomatic+Contact+in+Germany&author=Camilla+Rothe&author=Mirjam+Schunk&author=Peter+Sothmann&author=Gisela+Bretzel&author=Guenter+Froeschl&volume=382&issue=10&publication_year=2020&pages=970-971&pmid=32003551&doi=10.1056/NEJMc2001468&)]

7. Liu J, Xie W, Wang Y, Xiong Y, Chen S, Han J, et al. A comparative overview of COVID-19, MERS and SARS. Int J Surg. 2020;81:1–8

8. Grifoni A, Sidney J, Zhang Y, Scheuermann RH, Peters B, Sette A. A sequence homology and bioinformatic approach can predict candidate targets for immune responses to SARS-CoV-2. Cell Host Microbe. 2020;27:671–80

9. Gordon DE, Jang GM, Bouhaddou M, Xu J, Obernier K, White KM, et al. A SARSCoV-2 protein interaction map reveals targets for drug repurposing. Nature. 2020;583:459–68

10. <https://www.who.int/initiatives/act-accelerator/covax>

11. <https://www.who.int/initiatives/act-accelerator/covax>

12.https://www.mohfw.gov.in/pdf/FAQsCOVID19vaccinesvaccinationprogramWebsiteupload.pdf

13. <https://www.india.gov.in/spotlight/fight-against-covid-19>

14. <https://pib.gov.in/PressReleasePage.aspx?PRID=1740756>

15. <https://www.investindia.gov.in/team-india-blogs/ministry-health-and-niti-aayog-release-telemedicine-guidelines-amidst-covid-19>

16. Chao Li, Qifang He, Hebu Qian, and Jun Liu: Overview of the pathogenesis of COVID-19 (Review), Exp Ther Med. 2021 Sep; 22(3): 1011. Published online 2021 Jul 15

Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8311250/

17. https://www.bmj.com/content/371/bmj.m3862

18.CharakaSamhita, Vimanasthana– Chapter3, Shloka No. 6

19.CharakaSamhita, Chikitsasthana – Chapter3, Shloka No. 114-118

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24.CharakaSamhita, Vimanasthana – Chapter3, Shloka No.7

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26. SushrutaSamhita, sutra sthana– 35/19

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29. SushrutaSamhita, nidana sthana– 5/33-34.

30. Astanga sangraha- 9/73

31. SushrutaSamhita, sutra sthana– 24/19

32.<https://www.who.int/classifications/icd/covid19/en/-> dated31-03-2020

33.Cascella M, Rajnik M, Cuomo A, etal: Features, Evaluation and Treatment Coronavirus (COVID-19)

[Updated 2020 Mar 20]. In: StatPearls [Internet]. TreasureIsland(FL):StatPearlsPublishing;2020Jan-

Available from: https://pubmed.ncbi.nlm.nih.gov/32150360/

34. Huang C et al, Clinical features of patients infected with 2019 novel coronavirus

in Wuhan, China.Lancet.2020Feb 15;395(10223):497-506. [PubMed]

35.Sushrutasamhitha sutrasthana-6th chapter,19th verse

36. Charaka Samhita. Chikitsa sthana - 3/-

37. Charaka Samhita. Chikitsa sthana - 3/-

38. Charaka Samhita. Chikitsa sthana - 3/-

39.SushrutaSamhita, Sutrasthana– Chapter21, Shloka No. 36

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43.CharakaSamhita, Chikitsa sthana– Chapter3, Shloka No. 75

44.CharakaSamhita, Nidanasthana– Chapter4, Shloka No. 4

45.WuZ, McGooganJ M: Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID19) Outbreak in China: Summary of a Report of72 314 Cases From the Chinese Center for Disease

Control and Prevention. JAMA.2020Feb 24. [Medline].

46.Severe Outcomes Among Patients with Coronavirus Disease 2019 (COVID-19) —United States,

February 12–March 16, 2020. MMWR Morb Mortal Wkly Rep. 2020Mar18.69:[Full Text].

47.CharakaSamhita, Sutrasthana – Chapter28, Shloka No.7

48.MarkPuleoAccu weather,March 2020

49.CharakaSamhita, Chikitsasthana–Chapter3, Shloka No. 75

50.CharakaSamhita, Sutrasthana – Chapter25, Shloka No.40

51.CharakaSamhita, Vimanasthana– Chapter3, Shloka No. 28-35 chakrapani

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79.WorldJournalofPharamaceuticalResearch Volume4issue 11843-858

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156. Charaka Samhita, Vimana sthana-Chapter 3, Shloka No. 15

157. Charaka Samhita, Vimana sthana- 3/12-18

158. <https://www.vikaspedia.in/health/ayush/guidelines-for-ayush-practitioners-for-covid-19/guidelines-forzunani-practitioners-for-covid19>

159. http://ndl.ethernet.edu.et/bitstream/123456789/69491/1/62.pdf.pdf

160. Rasa rathna sammucchaya 5/13

161. Rasa rathna sammucchaya /116

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167. Anwar et al Journal of Drug Delivery & Therapeutics. 2021; 11(4):141-148 ISSN: 2250-1177 [143] CODEN (USA): JDDTAO

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1. **ANNEXURE**

**Annexure 1: Consent form**

**GOVERNMNET AYURVEDA RESEARCH CENTRE, MYSURU**

**Title of the project:**

AN OBSERVATIONAL STUDY TO EVALUATE THE EFFICACY OF IMMUNOBOOSTER AYUSH THERAPY AS PREVENTIVE MEASURE FOR COVID 19

**CERTIFICATE BY INVESTIGATOR**

Date:

Serial No:

This is to certify that I have disclosed full details about this observational study to the participant Mr/Mrs/Ms.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the words that is clearly understood by the participant.

Signature………………………

**CONSENT BY SUBJECT**

Date:

| Mr/Mrs/Ms. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have been informed to my satisfaction by the attending physician, the purpose of the observational trial and the nature of treatment and follow up.

I am also aware of my right to opt out of the trial at any time during the course of the trial without having to give reasons for doing so.

I, exercising my free power of choice, hereby give my consent to be included as a subject in the trial on " AN OBSERVATIONAL STUDY TO EVALUATE THE EFFICACY OF

IMMUNOBOOSTER AYUSH THERAPY AS PREVENTIVE MEASURE FOR

COVID 19".

**Annexure 2: Questionnaire on Immunobooster**

1. Did you take immunobooster ( Shamshamanavati) (Arqe Ajeeb)?

Yes No

1. If no, why did you stop taking it?
2. If yes how many days did you take?
3. How many days did you take per day?

1 2 3

1. Did you test positive for covid?

Before After No

1. Did you find any health issues post immunobooster?

Yes No

If yes, elaborate.

1. Changes in weight?

Gain Loss Normal

1. Appetite

More Less Normal

1. Digestion

Normal Constipation Diarrhoea

1. Sleeep

Normal Disturbed

1. Do you like to take immunobooster in the future?

Yes No

1. Do you like to recommend to your kith and kin?

Yes No

1. Do you need immunobooster given in the future?

Yes No

1. If yes, in what way?

Churna Syrup Tablet

1. How would you like the medicine to be delivered?

Drug house Hospital NGOs Other (elaborate)

Anything Company

1. What do you think of drug course?

Appropriate More Less

1. Do you prefer any other method rather than consuming medicine?

Yoga Pranayama Diet No