



A Review on Etiology of *Janpadodhwans* (pandemic) according to Ayurveda and contemporary sciences with special reference to COVID-19

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ABSTRACT

There have been so many pandemics since human civilization. COVID-19 is currently causing a world pandemic, and the pandemic related crises have caused enormous negative impacts on both wealth and health globally. Ayurveda, an ancient medical treatise of human civilization, describes some basic principles as tenets of Pandemics in the name of its causes, the effect on human's health and its management which are same as contemporary science. There is no specific text as epidemiology in Ayurveda, but according to contemporary theories of epidemiology the principles described in it can be compiled, analyzed, and interpreted. Internet-based search engines revealed that there is very little work done in the field of Ayurveda for epidemiology. Hence, an attempt has been made to analyze basic principles of Ayurveda and epidemiology which can cause pandemics and thus interpret their contemporary significance. This article will also explore the literature for the basic concepts and history of pandemics in the light of Ayurveda and contemporary sciences.

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INTRODUCTION

A cluster of patients with symptoms of pneumonia which was linked to a wholesale market of seafood in a city named Wuhan, in China, in December 2019, which lead the discovery of a new beta corona virus that is on 7 January 2020, and was named as severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) which causes corona

virus disease- 2019 which is commonly known as COVID-19 (Rathi and Rathi, 2020). With its novelty and rapid spread mode, on the date, 30 January 2020, the World Health Organization (WHO) and International Health Regulation (IHR) emergency committee declared this disease as a Public Health Emergency of International Concern (PHEIC). It was declared as a worldwide pandemic³ on 11 March 2020 (Barry *et al.*, 2020). The most ancient medical doctrine of human civilization is Ayurveda, the science of life. The principles mentioned in Ayurveda have remained intact with the passage of time and are still same as contemporary medical science. This could be equally applicable in modern concepts of epidemiology which is a stream of contemporary medicine which deals with "the study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to control of health problems". The science of epidemiology, which deals with biology, clinical medicine, social sciences, and ecology, needs to describe, understand, and utilize these patterns to

improve health (Bhopal, 2016).

Aim

To review pandemic COVID 19 and Janpadodwans (pandemic) described in Ayurveda with special reference to its etiological factors.

Objectives

1. To Review the etiological factors of Janpadodwans (pandemic) mentioned in Ayurveda.
2. To Review the etiological factors of COVID 19 pandemic as per the contemporary sciences.

MATERIALS AND METHODS

The present work is primarily based on classical treatises of Ayurveda and theoretical research articles.

Data Source

The related data were collected from compendia of *Ayurveda* and various research article related to pandemic available online.

DISCUSSION

SARS-CoV-2, the etiological agent is a novel corona virus which is responsible for the outbreak of COVID-19. Nosocomial transmission means the transmission of the virus via respiratory has been documented in COVID-19. The incubation period of COVID-19 estimate ranges from 2-14 days. The people exposed to SARS-CoV-2 are not all infected with the virus and also not all the infected patients develop severe symptoms of COVID-19. The infection caused by the virus SARS-CoV-2 can be roughly divided into the following three stages: Stage I: This is the incubation period with or without detectable virus and generally without any symptoms in the patient. Stage II: Virus is present, but the symptoms are not. Stage III: Load of the virus is high, and respiratory symptoms are severe. The common symptoms are fever, fatigue, dry cough and difficulty in breathing. Sometimes it may be with respiratory tract symptoms like throat congestion, rhinorrhea, and sometimes gastrointestinal symptoms such as diarrhea and nausea/ vomiting (Rathi and Rathi, 2020). It was reported that the signs and symptoms of COVID-19 could be alleviated by good immunity of a person. It is said that *Ayurveda* is an ancient medical system that can manage the disease without any side effects. There are varieties of treatment modalities in Ayurveda to handle diseases. However, a major drawback is a lack of an adequate scientific basis. To overcome this problem, Indian Ministry of Alternative Medicine AYUSH

(Ayurveda, Yoga, Siddha & Homeopathy) has started encouraging research in several areas to improve the system effectively. One such valuable opinion is to increase immunity through Ayurvedic herbal drug. It was reported that a good immune system of a person could alleviate the symptoms of COVID-19.

Covid 19: Etiology as per Ayurveda and Contemporary Sciences

Etiology is a branch of contemporary medical science which deals with the cause and origin of the disease. According to the classical treatises of Ayurveda the cause and origin of communicable disease and epidemic as described in Ayurveda. *Acharya* Chakrapani, one of the critics of *Acharya* Charaka, describes the causation of disease and epidemic. He says that although people defer in their physis, dietary habits, strength, age, immunity, etc., but they get affected with the disease with vitiation of some factors which are common to all who lives in that community. The factors air, land, water and season are common to the people of a community which lead to the manifestation of disease having almost the same signs and symptoms among the people which lead to spread of disease in the community. *Acharya* Charaka has divided the etiological factors into two different categories, such as *Niyata Hetu* and *Aniyata Hetu*. The *Niyata Hetu* are the factors which are unavoidable that affect all the individuals of a community, for example, the harmful effects of sun, stars, moon and the planets in the form of floods, cyclones, landslides, earthquakes, tsunami etc. *Aniyata Hetu* is the factors which can be avoided, which include *Pragyaparadha*, e.g. terrorism, accidents, etc., *Shastraprabhavaja*, e.g. wars, nuclear weapons, missiles, etc., *Abhisyangaja* that is the effect of pathogens, unhygienic condition, etc. and *Abhishapaja*, i.e. curse. These factors not only affect an individual but also affect the entire community, which in the dispersal of the disease and this is known as *Janapadodhwansa Roga* (the pandemics) (Kalamkar et al., 2015).

Acharya Sushrut, one of the proponents of Ayurveda, has depicted different modes of communicable disease transmission in his classical treatise *Sushrut Samhita*. He says with physical contact (*Gātrasansparśāt*), exhaled air (*Niḥśvāsāt*), eating in the same plate with other people (*Sahabhōjanāta*), bed-sharing (*Sahaśayyāsanāccāpi*), using garlands, clothes and paste (*Vastamālyānulēpanāt*) infectious diseases spread from person to person. These concepts are very much relevant today. Moreover, the modern texts of communicable disease epidemiology describe similar modes of disease transmission. In addition, he has also given

examples of some diseases that spread through all these modes, such as different types of skin diseases (*Kuṣṭha*), pyrexia (*Jvara*), pulmonary tuberculosis (PTB) (*Sōṣa*), and conjunctivitis (*Nētrābhīsyanda*), etc. (Jyotirmoy and Rekha, 2016). The texts of epidemiology also reiterate these modes of transmission of these diseases such as skin diseases, conjunctivitis, acute respiratory infections, and PTB, which are caused by direct contact and respiratory routes, respectively. Here, most of the concepts depicted by *Acharya* Sushrut such as *Gātrasansparśāt*, *Sahabhōjanāta*, *Sahaśayyāsanāc-cāpi*, *Niḥśvāsāt*, and *Vastamālyānulēpanāt*, can be compared with direct modes of communicable disease transmission. At the same time, *Vastamālyānulēpanāt* and *Sahaśayyāsanāc-cāpican* attribute to some forms of vector-borne disease transmission by both the biological and the mechanical modes as well. Now, let us understand the concept of causation of disease in modern epidemiology and relate it to the concept of Ayurveda. In modern epidemiology, the concept of disease causation is understood by "Epidemiological Triad." In the epidemiological triad, the agent factor primarily relates to different types of microorganism and human pathogens that cause disease (Sharma and Sharma, 2015). There are two main factors responsible for the spread of diseases, intrinsic factors and extrinsic factors.

Intrinsic Factors

Intrinsic factors are the host factors which are peculiar to a particular host. These factors affect when someone gets exposed to it, a person's sensitivity, or a person's response to a causative agent. Factors such as sex, age, race, habits (drug abuse, lifestyle, smoking, sexual practices, contraception methods, eating habits, etc.), socioeconomic status are some of the many intrinsic factors that affect an individual's exposure possibility. Furthermore, factors like composition of genes, age, physical structure, nutrition and immunity, presence of any disease or any medications, and mental and emotional strength are few of the intrinsic factors which can affect an individual's response sensitivity to an agent (Rajput, 2020).

Extrinsic Factors

These are also known as environmental factors which can affect the agent and the opportunity to get exposed. These factors include Physical factors: e.g. geology, climate, etc. Biological factors: e.g. arthropods that transmit the agent, etc. Socioeconomic factors: e.g. income, crowd, sanitation practice, and the health services availability. Host, agent and the environmental factors interrelate in a variety of ways to produce disease in an

individual. Their balance and interactions are different for different diseases (Dicker *et al.*, 2006). Many classical treatises of Ayurveda described the intrinsic factor in the form of undisciplined human behaviour responsible for the disease. Ayurvedic classical treatises have also described similar concepts as depicted in the above paragraph where *Acharya* Charaka and his critic has described all the three components. Both of them have reported about the agent and the environment together in the form of *Niyatahetu* and *Aniyatahetu* affecting individuals and thereby affecting the entire community, causing the widespread manifestation of the disease. Again, it seemed that *Acharya* Charaka has emphasized on the environmental component and incorporated the agent factor in that. In addition, *Acharya* Sushrut has also depicted the concept of microorganism that causes disease in humans. This is invariably the most accepted theory of disease causation.

Janpadodhwans (Pandemic)

Ayurveda describes a concept called *Janapadodhwans* that can approximately be compared with pandemic and its several variants based on the degree and intensity of the event. *Janapadodhwans* occurs due to vitiation of *Vayu* (air), *Jala* (water), *Desh* (region), and *Kala* (time) (Goyal, 2019). This concept can very well be compared with environmental pollution or the individual forms of pollution like water pollution and air pollution. Environmental pollution is one of the causes of diseases which is indisputable. From the last few years, the major efforts that have been taken to clean the environment, but pollution remains still a concern and which is a threat to health. These problems are observed greater in the developing countries, where the pollution causing sources are, improper waste management, industrial wastage, poor sanitation practice, consumption of contaminated water, and exposures to air pollution from biomass fuels that affect the health of people. In developed countries, environmental pollution persists mostly among poorer sectors of society (Sexton and Adgate, 1999; White *et al.*, 2009). About 8–9% of the total disease cause due to pollution, and this is more in developing countries. Unhygienic water supply, poor sanitation, and poor health and hygiene habits are the major sources of exposure to indoor air pollution (Briggs, 2003). While Ayurveda summarizes all the relevant concepts in one word as *JanapadodhwansaRoga*, modern medicine describes several terminologies to explain the degree and intensity of such events that include Outbreak, Endemic, Epidemic and Pandemic. Endemic means the constant presence of a disease and infection-causing

agents within a particular region or population. This also means that the prevalence of any disease within such region. Similarly, hyperendemic refers to a state in which any disorder or disease is present continuously and constantly with high incidence or at high prevalence rate. While endemic and its variant hyperendemic refers to the constant presence of a health-related event or disease, the terms such as epidemic, pandemic and outbreak lead to more patients of any particular disease than expected in a specific group of people over a particular time in different magnitude. The outbreak is related to local occurrence and pandemic is related to wider occurrence such as several countries or continents (Dicker *et al.*, 2006; Muthu, 2014; Rathi *et al.*, 2020).

CONCLUSION

It's very interesting to note that the concepts described in ancient time are relevant to contemporary science, and hence their significance cannot be ignored. Etiology of disease and causes of pandemic described in Ayurveda are also significant as these facts are attested by modern epidemiological theories. Moreover, the in-depth analysis of the concepts of Ayurveda in the light of modern contemporary science is only possible with those scholars who know both Ayurveda and the relevant concepts in modern medicine. The crux of this point is that Ayurveda requires interdisciplinary research which is the need of the hour and should be performed in chorus with the scholars who can contribute to such research.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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