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RESEARCH ARTICLE

AYURVEDA AND ONE HEALTH APPROACH

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Abstract

Ayurveda is a holistic science that emphasizes preserving and promoting the fitness of healthy individuals, besides providing a method for the treatment of diseases. In addition, sufficient infrastructure, human resources, and unique modalities for disease prevention, wellness, and management are available. In present scenario Ayush System is growing day by day with support of government with increase in fundings from INR 691 crore to INR 3050 crore over the last seven years. The Ayush systems can contribute significantly to the One Health approach, which addresses the interconnectedness of human, animal, and environmental health. For this purpose it is need of hour to integrate the Ayush system and other related system to provide the integration of particular areas which can be helpful to fulfil the approach of one health and future perspectives on the role of Ayush in One Health. Ayush system have the he unique principals related to preventive measures, such as daily and seasonal regimens and the use of rejuvenating herbs and Achar rasayan as well as effective therapeutic interventions for the number of health issues for the contribution in one health. Ayurveda also addresses environmental, animal, and plant health issues and promotes the creation of a healthy ecosystem between humans, animals, and the environment. In addition, Ayush can play a role in addressing zoonotic diseases, noncommunicable diseases, antimicrobial resistance, food safety and health of the elderly, children, and environment. To fully utilize the potential of Ayush in the One Health approach, these systems should be integrated into the healthcare infrastructure and network. Furthermore, initiation of collaborative projects, focused research, training and sensitization of Ayush human resources, and promotion of Ayush-based lifestyles and practices are some of the critical steps required to be taken.

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Introduction:-

Ayurveda is an art and science of healing. Ancient Indian system of medicine, which is in practice for 5000 years. More than medicine it is a science of life or a way of life. It is defined as “one which look after the welfare of all human beings in particular” and in general “with regard to their physical, mental, socio, cultural and spiritual wellbeing” The Ayurveda- Traditional medicine is also known as folk medicine, indigenous medicine, Indian system of medicine. The Ayurveda medical care, such as daily regime, life style are being practiced since ancient time. The WHO mentioned that these are helpful in prevention, improvement or treatment of physical and mental illness. In present scenario, human being is affected with number of contagious diseases, allergic diseases, auto-immune diseases, chronic diseases. There is no definitive treatment are available for such diseases. Further, the result of available treatment is not very encouraging. Hence, there is a search for alternative and traditional modalities for the prevention by enhancing the immunity which is safe and cost effective. The One Health approach recognizes that the health of humans, animals, and the environment is interconnected and that addressing issues in one area can impact others. Due to the factors such as population growth, climate change, globalization, urbanization, industrialization, and the movement of humans and animals has focused the attention to the relationships between humans, animals, and the environmentⁱ. Recently the world are witness to the emergence and re-emergence of pandemics like COVID-19 have contributed toward the increased the need on One Health and Contribution of Ayurveda principals for the prevention and wellness for the complex health issues of the present day. It is only possibly by the coordination of the multiple disciplines and sectors, such as public health, veterinary science, and environment.

Aims & Objectives:-

To explore the potential of Ayurveda in promoting the well-being of not only humans, but also the environment, plants, and animals.

Material and Methods:-

To fulfil the aims and objectives relevant Ayurveda and Modern literature, available information on internet etc. were searched. The results on search are described hereafter.

Discussions:-

India has also recognized the importance of the One Health approach and has taken various initiatives to address threats related to zoonotic diseases, neglected tropical diseases, and antimicrobial resistance. According to the Global Research on Anti-microbial Resistance study's findings, almost five million people died from drug-resistant bacterial infections in 2019, making AMR the world's leading cause of mortality.ⁱⁱ The misuse and overuse of antimicrobials in veterinary, human, and agriculture have accelerated AMR. Holistic efforts are required to address such issues related to One Health. National Health Policy 2017 (NHP 2017) supports these holistic efforts through its emphasize on “Pluralism,” which enables patient to have access to Ayush care providers and also ensure Government support in research and supervision to develop and enrich their contribution to meeting the national health goals and objectives through integrative practices.

The Ayush systems, which encompass traditional Indian medicine and practices, can contribute significantly to the One Health approach. Ayurveda believes that all that exists in the universe also exist in an individual, for instance, “Loka Purusha Samayata Siddhanta,ⁱⁱⁱ” given by Acharya Charaka. It recognizes the interconnectedness of all living things and their environments and the importance of maintaining balance and harmony. This philosophy may help prevent environmental harm in the current scenario and it is covers the broad domains includes environmental health, veterinary science, and plant science. It can be possible to manage creating an ecosystem between humans, animals, and environment through Ayurveda, Pashuayurveda (Ayurvedic Veterinary Science), and Vrikshayurveda (Ayurveda science of Plant life). This demonstrates that the One Health approach has conceptual similarities to the approaches used in Ayurveda and the Ayush systems, and these systems can contribute significantly to the One Health approach. The widespread availability of Ayush infrastructure and human resources adds to its potential impact. It is at most prior to think about the areas of work related to the One Health approach and current threats, the potential role of the Ayush system in addressing these issues.

Defining the areas related to the one health approach

The areas of work in which the “One Health approach” is particularly relevant as per the WHO include food safety, control of zoonotic diseases, laboratory services, neglected tropical diseases, environmental health, and

antimicrobial resistance. Furthermore, noncommunicable diseases (NCDs) are also one area that must be considered under the One Health umbrella. NITI Aayog has rightly emphasized the significance of including NCDs in the One Health approach in the document “Vision 2035 Public Health Surveillance in India.”^{iv} It is important to discuss existing threats in the context of One Health.

Potential role of Ayush in one health approach

Ayush systems can play an essential role in the One Health approach in several ways. Ayush systems, such as Ayurveda and Yoga, strongly emphasize prevention and wellness by lifestyle practices such as diet, exercise, code of conduct, and stress management to maintain this balance. By promoting preventive care and a holistic approach to health, Ayush systems can help reduce the burden of chronic diseases, which significantly contribute to the global disease burden. Ayush systems often use natural remedies, such as herbs and minerals, which can have fewer side effects and are more accessible and affordable for people in underserved or resource-poor communities. This can be especially important in addressing the health needs of rural or remote populations, where access to modern health care may be limited. Ayush systems have a long tradition of using plants and other natural substances to treat many conditions including infections. This can particularly be useful in addressing the growing problem of antimicrobial resistance by reducing the overuse of antibiotics. Finally, Ayush systems can also play a role in addressing issues related to environmental and animal health. There are unique and relevant areas under Ayush that can contribute significantly to the One Health approach.

Ayush systems and priority areas related to one health

Role of Ayush in Zoonotic and tropical diseases

Ayush systems offer to promote of Health and prevention of diseases By adopting preventive life style from childhood, which include daily regimen, seasonal regimen, food habits, body purificatory procedures. Also focused on cure of diseases by taking medicines, diet and other activities influencing restoration of health) without any side effects in the body.it's basic approach is holistic and not merely physical. In addition, Ayurveda also addresses environmental, animal, and plant health, making it a holistic approach.

The Ayush systems headed by Ministry of Ayush at the central level have already demonstrated the potential of Ayush systems in managing and mitigating the COVID-19 pandemic through their widespread infrastructure and human resources, as well as through the issuance of health preventive, promotive, therapeutic guidelines, and initiation of research studies. The success of these efforts highlights the potential for collaboration and resource-sharing in addressing One Health issues.

Most of the diseases are able to affect the human due to their low diseased resistance power (immune compromised person). The term VyadhiKshamatva in Ayurveda has unique importance in regards immunity enhance by preventing the disease. The Ayurveda aims to protect the body first^v. In the Ayurveda classics so many common social practice, selection of Satmya Ahara (Suitable diet), knowledge of Viruddhahara Ahara(diet combination-intoxication), Nindra (Proper Sleep), Hasta Pada Prakshalana (hand and foot hygiene): Regular cleanliness of hands and feet in routine activities are supportive to prevent infection. Also some traditional practices includes Lepan (painting inner wall of home with cow dung (Gomay Lepan), Yagya Samskar (offerings made to the Deity Fire) Hawana, Hom, at many sacred occasions that impact to clean the mind, body and atmosphere^{vi}, mediation, Pranayama, for mental health, rejuvenation drugs described in Ayurveda classics that can helps to enhance the immunity of individuals. The immunity is self disease resistance power that play a key role in disease hindrance . The concept of Oja or Bala mentioned in Ayurveda is indicative of innate immunity. Many methods and herbal drugs are indicated for the enhancement of innate immunity. **In Ayurveda Rasayana^{vii} (Rejuvenation and Immune enhancer)** is most suitable for the enhancement of the immunity. Also, many herbs like Guduchi (*Tinospora cordifolia*(Thunb.) Miers), Bala (*Sida cordifolia*), Amalaki (*Emblica Officinalis*.Gaerten), Yastimadhu(*Glycyrrhiza glabra* Linn), Ashwagandha (*Withania somnifera*(Linn.) Dunal), Goksura (*Tribulus terrestris*), Pipali (*Piper longum* L), as well as medicinal formulations like Chyavanaprasa, Brahmrasyana, Vardhmana Pippali Rasayana etcetera potentially boost the Bala (immunity) of the persons.The primary aim of Ayurveda is Swasthasya Swasthya Rakshanam (disease preventive and health promotive aspect) through Dinacharya (daily routine regime) Ritucharya (seasonal regime), Ahara-Vihara (diet and life style- daily regimen, seasonal regimen), Pathya-apathya (do's and dont's), Sadavritta, (social norms) Rasayana (rejuvenation therapy- immune enhancer therapies) ,Panchkarma (body purification) etc . It helps to prevent contagious diseases, allergic diseases, auto-immune diseases, chronic diseases, and maintain health of individuals as well as community.

Ayurveda can play a profound role in the field of preventive and social medicine through its concepts of Swasthavritta and Rasayana.

Importance to understand Ritusandhi- to build the natural immunity

The changes in those seasons also affect human health, it is very important to have knowledge of the changes in the seasons. If we have the necessary knowledge the seasonal variation, we can prevent the health hazards caused by such seasonal changes. As example, the festival of Vasant Panchmi in February which indicates arrival of season Vasant. This means that winter is coming to an end and spring is coming. The current period is the time between the two seasons is known as Ritusandhi. In Ayurveda classics the description of Ritusandhi (inter Seasonal period) is well described. It defined as the junction of two Ritus or the seven days at the end and commencement of the Ritus (seasons) is known as Ritusandhi^{viii}. This is the time in which unhealthy changes take place in the body and best time to use the recipes to adapt gradually of coming season. The detailed description of Ritucharya (seasonal regime) found in Ayurveda. When one season is about to end and the other is about to start, these changes can further harm human health, and can cause diseases. In addition, this is a peak time when the body is affected by various diseases due to seasonal changes. That's why In Ayurveda texts, this period is called Yamdrashta^{ix}. Hence it is necessary to take preventive measures to maintain health of individuals. During the period of Ritusandhi, it is advised to strict precaution for the prevention of seasonal disorders. Also, it is advised to the regimen of the proceeding season should be discontinued gradually and that of the succeeding season regimen adopt gradually^x. For example, In Shishir Ritu people have strong digestive fire, so use of heavy food made of freshy harvested corn, Jeggary, sweet, sour substances should have habit to decrease gradually^{xi}. While in Vasant Ritu digestive fire is diminished, so food which are easily digestible should habit to increase gradually in the period between the junction of Shishira and Vasant Ritu.

Role of Ayush in NCDs

Ayush systems have the potential to contribute significantly to the prevention and management of noncommunicable diseases (NCDs) such as diabetes, cardiovascular disease, cancer, and stroke. The 12th five-year plan on health in India recommends mainstreaming Ayush systems, especially in their areas of strength, including preventive and promotive health care, diseases, and health conditions relating to women and children, the elderly, NCDs, mental diseases, palliative care, and rehabilitation. The Indian Government's National Programme for Prevention and Control of Cancers, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS) has integrated Ayush interventions to address the growing burden of NCDs and common risk factors at some pilot sites and set an example. Early screening, identification, and referral through these integrated programs and propagation/adoption of Ayush-based lifestyle practices can be beneficial in preventing and managing NCDs.

Role in Antimicrobial Resistance (AMR)

One of the objectives is to reduce the incidence of infection through adequate sanitation, hygiene, and infection prevention measures. The action plan underscores the need for an effective "One Health" approach involving multiple stakeholders. With this interest, the Ayush system of medicine has a significant role. The Ayush systems can potentially provide alternative solutions to antibiotics in humans and animals. Ayurveda has remedies called Rasaushadhi that may contribute in addressing issues related to AMR. Unique Ayurvedic procedures like medicated fumigation and sprinkling of medicine powder/water can also be used for environmental decontamination. Widespread Ayush infrastructure and human resources can also be utilized to create awareness and provide alternative solutions to antimicrobial drugs. Pashuayurveda can play a pivotal role in reducing AMR through alternative solutions and improved care for the common diseases.

Many communities in India still use medicinal plants for ailments of cattle. For instance, a case study highlights that the community selected under the survey in Tamil Nadu reports the use of a wide range of herbal plants (38) for cattle ailments. Research evidence suggests the effectiveness of herbal formulations in preventing and managing diseases such as bovine mastitis, foot and mouth disease (FMD), diarrhea, udder pox, repeat breeding, bloat, indigestion, and maggot wound, and reduction in the use of antibiotics.^{xii, xiii} It also helps in the reduction of antibiotic residues in the milk contributing to food safety. National Diary Development Board (NDDDB) Annual Report 2020-21 documents an average savings of 30 percent in drug costs and reduction in medicine purchases, especially antibiotics, to the tune of 1 million per month as a result of EVM use in Mastitis Control Popularization Project (MCP) areas across nine states.

Food safety and environmental health

Food safety and environmental health directly affect the health of human beings. Environmental risks take a more significant impact on children under five and adults aged 50 to 75 years. Food safety, nutrition, and food security are inseparably interlinked. Adoption of traditional methods for the preparation of foods and food intake, traditional water purification methods can play an essential role in food safety. Ayurveda advocates avoiding antagonistic food and food containing preservatives, frozen foods, and the use of wholesome food for better health. Special provisions like dietary regimen and lifestyle advocacy per the consumer's constitution, seasonal variation, and habitat are essential in this context. Paediatric and geriatric care are well-established branches of Ayurveda and can address the issues related to these areas. Rasayana is an evidence-based therapy for maintaining health.

The health effects of air pollution are both immediate and delayed.^{xiv} Major air pollutants and adverse effect Pollutant Adverse effect are Respiratory tract irritation, bronchial hyperactivity, impaired lung , Lung cancer . discomfort Cough, respiratory tract irritation, asthma and COPD. In Ayurveda classics there are drugs^{xv} mentioned for Air purification i.e. Laksha (Shellac) 2. Haridra (Curcuma longa L.) 3. Ativisha (Aconitum heterophyllum L) 4. Abhaya (Terminalia chebula Retz.) 5. Musta (Cyperus rotundus L.) , 6. Harenuka (Vitex negundo L.) 7. Ella (Elettaria cardamomum (L.)) 8. Tamalapatra (Cinnamomum Tamala (Buch.- Ham.)T.Nees 9. Vakra (Valeriana officinalis L(Saussurea lappa C.B. Clarke.) 11. Priyangu (Callicarpus macrophylla Vahl.). IN classics it has mentioned that fuming process that detoxifies the environment.^{xvi} Powder of Yellow Mustard (Brassica campestris L.) and Chandana (Santalum album L.) + Ghrita (Clarified butter) also helpful to clean the air.

The hydrosphere is more than 75% of the earth's surface. There can be no state of positive health and wellbeing without safe water. The contaminated water can health impacts like Anaemia, vomiting, loss of appetite, damage to liver and kidney, hepatitis A & E, diarrhoea, GIT diseases, fever (typhoid), diseases of CNS, Carcinogenicity, skin problems, lead poisoning. Ayurvedic classics give the importance water as 'Praninam prana' (Water is the life of all living beings).^{xvii} Water will be contaminated by decomposed dead bodies of aquatic animals (like an insect, snake, etc.), decomposed aquatic plant, unexposed to the sun, moon, air, micro-organism, mixed with rainwater.^{xviii} To purify the poisoned water, drugs 1. Dhava (dhaya) Anogeissus latifolia Wall. EX. 2. Ashwakarna Dipterocarpus alatus Roxb. 3. Asana Pterocarpus marsupium Roxb. 4. Paribhadra Erythrina variegata L. 5. Patala Stereospermum suaveolens DC. 6. Siddhaka (Nigundi) Vitex negundo L. 7. Mokshaka (Makha) Schrebera swietenoides Roxb. 8. Amalatas Casia fistula L. 9. Somavalka Acacia leucorrhoea Roxb should be collected and burnt^{xix}. The cold ashes should be then cast into the poisoned water, it will make the water pure (nonpoisonous) or a handful (1 Anjali = 160 gm) of this ash should be put into the pot containing drinking water to be used when needed.^{xx} Water should be drunk perfumed in a golden, silver, copper, or an earthen goblet, or in a bowl made of bell metal or precious stones. Water stored in copper containers overnight and consumed the next day is believed to impart 'health benefits'. According to the Ayurveda classics, copper produces a scrapping effect (Lekhana), heals and nourishes when administered in a small dose. F) Chandrakanta mani (moonstone) – When exudates in water it removes harmful bacteria, insects, worms, and poison. G) Hanshodaka^{xxi} In Sharada ritu (autumn season) water which is exposed to sun rays during the day time and to the moon's rays at night is the 'best' quality water. It is Rasayana (rejuvenating), Balya (strength promoting), Medhya (intellect promoting), alleviates three doshas, anabhishtandi (which does not obstruct channels of circulation).The poisoned surface should be purified by sprinkling it over with a solution of drugs 1. Ananta (Sariva) Hemidesmus indicus (L.) R.Br. 2. Sarva-gandha Group of scented drugs (Eladi gana) along with wine (Suraa) or with (an adequate quantity of) black clay dissolved in the water Or sprinkling with a decoction of 1. Vidanga Embelia ribes Burm.f. 2. Pathaa Cissampelos pareira L. 3. Katabhi Albizzia procera Benth.

Several steps can be taken further to optimize the use of Ayush in the One Health approach. Ayush interventions especially those from Ayurveda have the potential to be valuable tools in addressing various health issues, including NCDs, AMR, and zoonotic diseases. Integration of Ayush interventions into healthcare systems and national programs at a large scale, such as the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS), can augment the outcomes of these programs. It is need to ensure the safe and appropriate use of Ayush interventions, it will be essential to effectively implement policies and guidelines. This can include strict compliance with standards for producing, labeling, and distributing Ayush products and creating training and certification programs for practitioners of Ayush systems. To promote the integration of Ayush systems into mainstream health care, it is necessary to incorporate Ayush practices and remedies into clinical guidelines and include Ayush practitioners in healthcare teams. Additionally, referral systems and other mechanisms should be developed to facilitate collaboration between Ayush practitioners and modern healthcare providers. Promoting the use of Ayush-based dietary regimens and lifestyles and traditional water

purification and diet preparation methods. It will also be essential to establish linkages and integrate health services and programs under the health infrastructure and institutional network affiliated with the Ministry of Ayush.

Conclusion:-

To fully integrate Ayush systems into the One Health approach, it will be necessary to conduct high impact research to document the effectiveness and safety of Ayush interventions, establish policies and guidelines for the safe and appropriate use of these interventions, integrate Ayush practices into mainstream health care, Engagement with a wide range of stakeholders, including healthcare providers, policymakers, researchers, and community members, is also need of hours. Overall, integrating evidence-based Ayush interventions in national programs and promoting Ayush-based lifestyles and dietary practices can contribute to better health outcomes in India.

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