



Thought Leadership Article

Broadening perspectives of global health – Prospects for AYUSH and integrative medicine



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Over the last two decades, there is a growing understanding, globally, on the interrelatedness of human health and wellbeing with that of animal health as well as healthy environment. This has resulted in diverse policy perspectives and communities of practice in global health such as ‘Environment and health’, ‘One Health’, ‘Planetary Health’, ‘Biodiversity and Health’, ‘Eco-social Health’, ‘Climate Change and Health’, ‘Conservation Health’ and so on. The recently concluded 71st World Health Assembly from 20 to 26th May deliberated on these broad environmental and social drivers and emerging perspectives of health [1,2].

Much has been written and discussed about this wider health landscape recently. A latest study suggests that 22 percent of the global burden of diseases in economically poor countries is related to environmental factors [3]. The State of Knowledge Review on Biodiversity and Health published in 2015 by the Secretariat of the Convention on Biological Diversity (SCBD) and the World Health Organization (WHO) assesses multiple linkages and highlights the nexus between *Biodiversity and Health* through various thematic areas including traditional medicine and natural products of health and nutrition [4].

Interlinkages between human, animal and environmental health is better appreciated with the emergence of ‘One Health’. In 2010, the WHO entered into a tripartite agreement with Food and Agricultural Organization (FAO) and the World Organization for Animal Health (OIE). The ‘One Health’ approach largely focuses on the risks associated with animal and environmental factors based on the narratives of newly emerging infectious diseases (EIDs) as well as the associated global economic burden; yet it gives a huge opportunity for holistic intersectoral collaboration across human, animal and environmental health. The recent outbreak of deadly Nipah virus in Kerala is a typical

case in point. Estimates suggest that over 60 percent of infectious organisms affecting humans are of zoonotic origin [5]. This perspective which emerged from approaches such as Comparative Medicine and One Medicine later transformed into One Health, mainly driven by the veterinary sciences and public health communities and has remained primarily an academic endeavour. The scope includes agriculture, food safety and security, nutrition, livestock farming and veterinary sciences, anti-microbial resistance, newly emerging and re-emerging infectious diseases (EID), zoonotics, pollutants, environmental health, conservation medicine, entomology, water systems, global trade, climate change, biodiversity and ecosystems, land degradation, integrative medicine, public health, wildlife conservation [6], as well as to more subtler dimensions such as mental health, spiritual and cognitive development, recreation and aesthetic experiences, therapeutic values of landscapes and ecosystems among others. According to Zinsstag [7], “While One Health is growing in disciplinary diversity, veterinarians and public health practitioners currently form the majority of the field, and it tends to focus on communicable disease, food safety, nutrition and anti-microbial resistance, issues squarely at the nexus of human and animal health.” This has also close parallels with the ‘Eco-Health’ approach; where One Health focuses on diseases at the human–animal interface or food borne disease, Eco-health also focuses on broader issues like climate change, and ecosystem links.

Planetary Health is yet another perspective, emerging from the ‘planetary boundaries or limits’ outlook of development and sustainability, which is gaining good momentum after the Rockefeller Foundation–Lancet Commission report [8]. This has even led to a Lancet Planetary Health Journal.

These new perspectives go beyond traditional notions of access to health and reasserts the WHO definition of health as ‘State of complete physical, mental, and social wellbeing, and not merely the absence of disease or infirmity.’ They have resulted in better understanding of determinants and drivers of sustainable good health and wellbeing and their critical linkages opening new spaces for education, research and development and international co-operation. They have also flagged methodological opportunities of systems thinking, transdisciplinarity, problem based social learning among others. Yet one of the criticisms has been each of these perspectives perceive reality from a specific angle and are often siloed in their practical efforts.

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1. Health, wellbeing & interconnectedness – Ayurveda perspectives

How should AYUSH assimilate this diversifying and widening landscape of global health and public health? From the early periods of codified literature (or even from Vedic period) in the Indian subcontinent, this holistic perspective of co-existence and health is well described in the classical literature. Ayurveda has always taken a comprehensive conceptual approach to *Svasthya* (well-being). This stems from the premises of the interrelatedness of outer (*loka*) and inner worlds (*purusha*) of existence as evinced in the way Ayurveda and Indian local health traditions approach *svasthya* in the context of ecosystems, geography, culture, seasons, dietary diversity among several other factors [9]. The references on epidemics (*Janapadodhvamsa*) or social aspects of governance in the classical literature of Ayurveda also portrays how destruction of environmental and social ecosystems can lead to morbidities of scale. Similarly, for different individual pathologies, Ayurveda identifies broader environmental as well as socio-cultural determinants. In synchrony with the One Health perspective, Ayurveda historically has expanded its scope into *mrigayurveda* (animal health) and *vrikshayurveda* (plant health) through vast literature over a span of nearly three millennia. While there are no exact parallels there are conceptual similarities in the approaches to these emerging perspectives.

2. Relevance for Ayurveda and Integrative Medicine

There is a major push for Health in All Policies (HIAP) from multilateral organizations like WHO to enhance intersectoral coordination at multiple levels of governance in health [10]. Policy developments in India in this area have remained fragmented and elementary. The National Health Policy 2017, while making references to nutrition, hygiene and good environment as requisites of optimal health and wellness, remains silent on these emerging perspectives. It is time to reflect on the areas where Ayurveda and Integrative Medicine could play its role in this futuristic scenario.

2.1. Reduction of antibiotic and other chemicals use

Microbial resistance to antibiotics is a growing problem that threatens humans and animals across the globe and that has led to efforts for antibiotic stewardship. A 2015 study titled “Global trends in antimicrobial use in food animals,” published in the journal *Proceedings of the National Academy of Sciences* [11], suggests that there will be an increase of 67% antibiotic use in veterinary care by 2030. The study says that there will be 99% increase in antibiotic consumption in BRICS countries (Brazil, India, China, South Africa) during the same period due to intensification of production. It warns that this could lead to issues like resistance and poses serious threats to preservation of effectiveness of antibiotics [12].

A core potential area of engagement for integrative medicine and AYUSH systems would be to explore and advance appropriate research for application of traditional formulations for preventive, curative and promotive health management for reduction of antibiotic and other chemicals in human health, livestock farming as well as agriculture. While there are efforts to find alternatives or minimizing the use of antibiotics [13], AYUSH community's contribution has been insignificant. It is noteworthy that some preliminary efforts have been made by the Transdisciplinary University in applying traditional herbal formulations in mastitis thus showing potential of such practices in reducing antibiotic use and chemical contamination resulting in milk quality improvement through the Natural Livestock Farming approach [14].

2.2. Critical reflections on new research and integrative medicine areas

Apart from the issues like microbial resistance, there are several other issues like pollution, pesticides and other chemicals which lead to accumulation of toxins in the food chain, chemical exposures, changes in microbial composition, changes in immune pathways as potential cause for chronic respiratory and allergic diseases, malignancies, renal conditions and several other NCDs [15]. As Ayurveda can contribute significantly in the management of NCDs, it is important to develop public health approaches for prevention and management based on AYUSH principles. Ayurveda's concepts like *dushi visha* and *gara visha* which could make contributions of slow ingestion of toxins through food, water, or air remain unexplored. *Annasvaroopa vijaneeya* and *annaraksha viddhi* addresses dietary diversity and food safety in relation to wellness. Ayurveda urgently needs to recover and revitalize several of its central public health messages by moving beyond the clinical and product-oriented development that dominates the profession today.

2.3. Studies in fields like mrigayurveda and vrikshayurveda

There is a vast unexplored literature on *mrigayurveda* and *vrikshayurveda* dating from 1800 BC to 1725 AD. While the *mrigayurveda* literature largely focuses on domesticated animals, they clearly outline the principles and practices of interrelatedness of animal and human life through shared principles of Ayurveda. They cover diverse aspects like animal diseases and their management; plant pharmacology; animal management, including feeding; breeding and breeds among others. Similarly, *vrikshayurveda* literature with its main focuses on agriculture has references to wild ecosystems and their links with human health. It also discusses safety protocols for the production system from seeds and planting materials to methods of water sourcing, use of safe fertilizers and pesticides, leading to safe and quality production. Whereas, institutionalized Ayurveda today has largely remained in the domain of human health other fields could be a potential source for advancing the One Health approach from the perspective of Ayurveda. Technological advances in fields such as genetic modifications and living modified organisms also throw new challenges/opportunities in relation to these fields.

2.4. Wellness health centres and community health through AYUSH

The country is gearing toward implementation of Wellness Health Centres as outlined in the National Health Policy 2017 which could possibly conduct micro-level planning of the direct and indirect environmental, social, lifestyle determinants, and their intersectoral linkages and appropriately plan intervention through interdepartmental co-ordination. Though the role of AYUSH in implementation of Wellness Centres is not yet well-defined, it is time to reflect what institutional and individual capacities are required to create a network of Community One Health Centres through an AYUSH approach. This could also document community traditional health practices in the form of local pharmacopoeias, create community gardens and learning resource centres for health, food and nutrition towards building evidence-based health promotion activities based on a ‘people centred, self-reliant model’ of health. Various medicinal plant conservation, community health, and rural livelihood efforts undertaken across India over the last two decades could well synergize with this approach.

3. Conclusion

Ayurveda's view on interrelatedness of health and wellbeing is based on a holistic perspective of co-evolution and interconnectedness in microcosm and macrocosm. This is different from the

fundamental risk perception of One Health or of the interlinked pathology. There are number of areas that could potentially emerge for education, research and development and new forms of international collaboration from this broadened canvas of health and well-being. Deep reflections of traditional knowledge perspectives and the ongoing projects can help create a strategy and an institutional framework rooted in AYUSH and integrative medicine.

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