Relevance and Challenges of Traditional Medicine in Healthcare System

Dr. Surendra Chaudhary,[1]* Dr. Manglakant Jha[2]
[*1]Executive Editor, [2]Editor in Chief
Bheshaja: The Journal of Central Ayurveda Campus, Beljhundi, Dang Nepal
E-mail: csurendra065@gmail.com

***Corresponding Author**
Dr. Surendra Chaudhary
E-mail: csurendra065@gmail.com

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Editorial

Background

Non-communicable diseases (NCDs) such as diabetes, cancer, cardiovascular disease, and chronic respiratory diseases are the leading causes of avoidable illness, disability, and death. NCDs place a significant burden on health systems, presenting a challenge to universal health coverage and other development aims. These are becoming a big public health issue worldwide, leading cause of of mortality, accounting for more than 60% of the total deaths. The total economic and social cost of NCDs far outweighs their direct medical cost, hurting the economy, health systems, households, and individuals through a variety of factors such as reduced work productivity, increased medical treatment expenses, and lost of savings. The problem is more serious in developing countries than in developed ones. Every year, 36 million people die, with low and middle-income countries accounting for 80% of total deaths.[1]

There is no precise data of the prevalence of NCDs in Nepal. A research conducted in a hospital in Nepal revealed that 36.5% of all admitted patients had NCDs; 10% had diabetes, 33% had COPD, and 34% had hypertension among them.[2] Another study showed that 34%

of the general population in eastern Nepal had hypertension, 6.3% had diabetes, 28% were overweight, and 32% were obese.[3] The risk of the majority of NCDs is increased by tobacco use, physical inactivity, poor diet, and excessive alcohol use. Increased blood pressure, overweight/obesity, hyperglycemia, and hyperlipidemia are the four

main physiological alterations brought on by these behaviors which raise the risk of NCDs.[4]

Antibiotic resistance is another most serious global threat to the effective treatment of bacterial infections in the 21st century.. Treating infections presents a number of challenges such as the resistance of microorganisms to react to the treatment drugs, affecting both clinical and therapeutic outcomes, with consequences of treatment failures, increased number of chronic infections, complications, longer hospitalization, and high-healthcare costs.[5] The World Health Organization (WHO) has now warned that the world is "running out of antibiotics," raising concerns that antibiotic resistance may reach unprecedented levels worldwide. The treatment of clinical infectious diseases has recently been severely compromised by the introduction of drug-resistant bacteria, which has led to a progressive rise in the incidence of nosocomial infections.[6]

Penicillin, a "wonder drug" with amazing properties for treating bacterial infections, especially those caused by the Staphylococcus and Streptococcus species, was discovered in 1929 by Sir Alexander Fleming.[7] Antibiotic resistance emerged shortly after penicillin began widely used in 1940, and as a result, almost 95% of Staphylococcus aureus isolates globally are now penicillin-resistant.[8]

World Health Organization has listed antibiotic resistance as one of the top ten worldwide public health threats to humanity.[9] By 2050, it is predicted that antibiotic-resistant illnesses will kill up to 10 million people annually and cost the world economy over $100 trillion. The number of resistant bacteria and new ones that are becoming resistant to all known antibiotics is increasing, and few new agents are on the horizon, necessitating the urgent development of new antibiotic classes to prevent severe global health crises.[10]

A multidisciplinary approach and collaboration are required to develop more powerful, efficient, and adaptable treatments so that old and newly emerging diseases including NCDs can be prevented and treated. Traditional Knowledge has long been a vital resource for community and household health and still plays a big role in healthcare in many regions, particularly in remote and rural areas. Traditional medicine is not a replacement for mainstream healthcare, but rather an important complementary approach. It incorporates the benefits of natural products such as plants, animals, and minerals.

The use of traditional medicine for primary healthcare is widespread in both developing and developed nations. Approximately 60% of the global population and 80% of people in developing nations depend on traditional medicine, mostly herbal remedies, to meet their primary healthcare needs. The majority of currently utilized pharmacological compounds can be traced back to natural ingredients in some manner, shape, or form. The entire potential of natural products has yet to be discovered, as many natural resources have not been explored and examined. Healthcare systems can take advantage of traditional medicine by implementing evidence-based policies, establishing regulatory frameworks, and encouraging collaboration between traditional practitioners and conventional practitioners. This integration has the potential to improve health outcomes, increase satisfaction among patients, and promote a more inclusive and holistic approach to global health. The

WHO summit on Traditional Complementary Integrative Medicine (TCIM) has accelerated efforts to systematically integrate evidence informed TCIM into global healthcare systems, recognizing its cultural relevance and its cost-effective contribution to health outcomes, particularly in underserved areas.[11,12]

The purpose of this editorial paper is to investigate the growing global interest in traditional medicine and its relevance in existing healthcare systems, as well as to highlight the need of understanding how Traditional Medicine can be integrated into existing healthcare systems to deliver more comprehensive and effective health care.

MAJOR TRADITIONAL MEDICINE SYSTEMS

Ayurveda: Ayurveda is the oldest medical science of the world, with a history that can be traced back 4000-1500 BC(Pre-Vedic Period). It originated and flourished on the Indian subcontinent as a Hindu medical system. It is a holistic science of natural health that focuses on prevention. The name "Ayur" means "life" and "Veda" means "science," resulting in "the science of life." Ayurveda fulfills its purpose by treating ailments and preventing illness. It can be considered as intellectual coherence, which deals with the equilibrium or the harmony of both mind and the physical body as a pre-requisite for a healthy and purposeful life, and for the realization of human goals-dharma, artha, kama and moksha. It promotes human health by coordinating the body, mind, and spirit connections through diet, physical and mental activities, medicinal products, and meditation. Drug therapy is well-developed in Ayurveda. There are at least 70 books containing up to 8000 recipes for the preparation of drug combinations. The drugs used are derived from a wide range of plant materials, animals, and minerals. The governments of Nepal and India have established official organizations to ensure that people receive health care through Ayurveda, as well as to provide Ayurvedic education and research. Ayurvedic healing is becoming popular over the world, including the United States, Canada, Europe, and Japan.[13]

Traditional Chinese Medicine(TCM): The foundation of TCM is 5000 years of medical practice and expertise, as well as a wealth of information from "clinical experiments" that guarantee its success. It has produced approaches in areas like proper dose, material preparation and processing processes, and when to gather the different therapeutic sections of plants. The growing convergence between TCM and contemporary medicine is noteworthy. The Chinese public health system now cannot function without TCM. It has gradually gained considerable approval as a complementary or alternative medicine in Western countries. Chinese herbal medicine, which is the most important component of TCM, is currently used in the health care of an estimated 1.5 billion people worldwide.[14]

Unani Medicine: Unani is an ancient Greek holistic medical system with a history that can be traced back 2500 years. The Unani medicine system was introduced to India about a thousand years ago by the Muslims and became indigenous to the country. It is now practiced in the Indo-Pakistan subcontinent. The Unani physicians who settled in India have added new drugs to the system and therefore the Unani system practiced in India is somewhat different from the original Greek form. Since the mid 1970s, when the WHO began to place a greater focus on TM, Unani Medicine has attracted considerable

attention all over the world, especially in India, where it has been integrated into the national health care system. Unani has been acknowledged by the WHO as an alternative health-care system.[15]

Siddha Medicine: Siddha is another traditional Indian medical system originating in Tamil Nadu India, that has undergone transformation in several ways. Siddha therapies were based on palm leaf manuscripts passed down through centuries. Siddhars were medical yogis who possessed extraordinary skills. The palm leaf manuscripts were fundamental to the guru-student relationship, and knowledge was only available to individuals who were part of that relationship and line of manuscript transmission. Despite having many similarities to Ayurveda, Siddha has its own advantages because it developed in a different setting. There are numerous potent treatments and illnesses not covered in the Ayurvedic literature. In modern times, most of these manuscripts that survive have been put down in archives and libraries, and they are now accessible in ways that they were not in the past.[16]

Kampo: Kampo is the TM of Japan. Between the fifth and sixth centuries, TCM was introduced to Japan from China via the Korean peninsula; since then, TCM has been significantly altered and adapted by Japanese practitioners to meet their particular circumstances and gradually evolved into Kampo. It has been incorporated into the health-care system in Japan. Together with radiotherapy or chemotherapy, some Japanese physicians frequently utilize Kampo medicines in treating cancer patients. This indicates how modern Western medicine can be well integrated with TM.[17]

Traditional Korean medicine (TKM), Sasang constitutional medicine (SCM): SCM is a division of Korean traditional medicine. which was first introduced in the mid-19th century. Although the conventional health-care organization is quite good in Korea, 86% of people still employ SCM. Both national medical insurance and private insurance cover Korean SCM services. The Lee Jema project to supply scientific proof of SCM began in 2006 and is supported by the Korean government. It has gained many significant achievements involving constitution-diagnostic means, constitution-specific disease vulnerabilities, and genetic research.[18]

Traditional medicine in Africa: The accessibility of traditional medicine is one of the most important reasons for its popularity across Africa. Over 80% African people use traditional medicine either by itself or with conventional medicine. Up to 80% of Ghanaians and Ethiopians depend on traditional medicine for their main health-care demands. Ghana's traditional medical system has been integrated into the national health-care system and, therefore, it is comparatively well organized.[18]

Amchi System: Also referred to as the Tibetan System, the Amchi medical system is used mostly by Buddhists in Tibet, northern India and certain other Himalayan regions. Herbs, minerals, animal organs, spring and mineral waters, vein punctures, mysticism, and spiritual abilities are all used in this system, which has its roots in the Ayurvedic system.[18]

Naturopathy: Naturopathy, or "natural cure," is a way of life as well as a medical approach. It is frequently referred to as "drugless disease treatment." The foundation of naturopathy is the age-old application of basic natural laws.

In terms of the underlying ideas, this approach is closely related to Ayurveda. The medical system is widely used in India.[18]

Tribal medicine: Over 53 million tribal people, representing 550 clans under 227 linguistic groups, live on the Indian subcontinent. They coexist peacefully with the ecosystem and inhabit a variety of geographical locations and climatic zones. Their lifestyle is dominated by magico-religious ideas. Through direct observation and reasoning, the indigenous people have gained unique knowledge about the flora and animals. They have developed simple and efficient treatments for common illnesses as well as strategies to increase health and vitality. Plants are the primary source of their traditional treatments. To a certain degree, minerals and animals are also useful.[18]

HOLISTIC HEALTH APPROACH

Traditional medicine often employs a holistic approach to health, incorporating physical, emotional, and spiritual well-being. Such an approach can improve modern medical practices by encouraging holistic approaches to treatment that address patients' overall well-being rather than focusing on only specific symptoms. These techniques prioritize disease prevention and the application of natural therapies. Integrating ancient techniques into modern medicine can improve preventive care and provide complementary treatments that benefit patients. Traditional medicine, for example, might provide food suggestions that supplement modern nutritional guidance.[19]

CULTURAL RELEVANCE AND ACCESSIBILITY

Community Acceptance: Cultural relevance in the context of ethnomedicinal drugs refers to the alignment of these practices with the beliefs, practices, and cultural identity of a community. This includes the use of these drugs in ways that align with local customs, spiritual beliefs, and traditional practices. Additionally, the ritualistic significance of ethnomedicinal practices should be acknowledged and respected, as they hold cultural importance. Community trust and engagement are crucial to the acceptance and effectiveness of ethnomedicinal drugs. Trusted traditional healers, who have a deep understanding of local practices and serve as community health leaders, play a significant role in this process. Engaging the community in the cultivation, preparation, and administration of these drugs ensures that the practices are respected and maintained.[20]

Affordable Healthcare Solutions: The availability of ethnomedicinal medicines is another major factor in cultural significance. These medications are frequently less expensive than conventional pharmaceuticals, making them more accessible to low-income areas. Using locally accessible plants and minerals minimizes shipping and purchasing expenses for medications. Encouraging the cultivation of medicinal plants within communities and protecting biodiversity ensures a sustainable supply of these drugs for future generations. It can also improve accessibility, and health centers that offer both conventional and traditional treatments that can provide more comprehensive care.[21]

Sustainable Harvesting Practices: Sustainable methods for collecting medicinal plants are often included into ethnomedical practices, offering important information for current conservation efforts. By putting sustainable practices into practice, medicinal

plants are protected for future use by avoiding overharvesting.[22]

Traditional Medicine in Everyday Practice:

The therapeutic practice of Traditional Medicine is frequently carried out on daily basis within homes, schools, workplaces, and various environments beyond clinics, consulting rooms, and hospitals. Home in particular is the major setting to the traditional practitioners for clinical intervention for applying therapy techniques and modify them to organize their own beliefs, concepts, customs, and interactions with others. Traditional medical treatments and dietary practices may overlap at home. People may be taught to employ everyday products for medicinal purposes, such as turmeric and cumin (Jeera), so that they are practicing traditional medical procedures before they are aware of therapeutic distinctions. Examples include meal preparation with a variety of spices, flavors, and plant extracts. Their usage in cooking is typically motivated by the flavor they impart to the food, but many of these have also been found as having therapeutic properties. These same ingredients are also used to make basic yet effective medications for common illnesses.[16]

DISCOVERY OF NEW DRUGS

The historical use of the natural medicines shows that they contain pharmacologically active chemicals, which provides a starting point for drug discovery. Plants and other natural sources utilized in traditional medicine provide a diverse range of chemical compounds, such as alkaloids, flavonoids, terpenoids, and glycosides. These various chemical structures provide guidance for the development of novel drugs, which may not be identified through synthetic chemistry alone. These products are now among the most crucial resources in developing novel and lead pharmaceutical compounds.[13]

A study had been conducted to find out if TM had actually inspired modern drug discoveries and whether there was any correlation between the current use of various compounds and their application in TM, with a focus on different compounds used in drugs derived from plants in various countries. The results showed that TM had indeed played a significant role in the development of effective new drugs. Eighty percent of the 122 compounds that were the subject of that investigation were identified as having medicinal effects in traditional medicine, and it was discovered that these compounds were from 94 different plant species.[23]

The traditional Chinese herb Schisandra chinensis was discovered to have clear hepatoprotective and enzyme-reducing properties effectively used in therapeutic treatment of Hepatitis B. Artemisinin procured from Artemisia annua is effective in treating various forms of malaria, such as falciparum and cerebral malaria, which are resistant to chloroquine, and its mechanism of action is different from traditional antimalarial drugs.[13]

Taxol was isolated as a new compound from Taxus brevifolia. Taxol has an unusual chemical structure and radically distinctive mechanism of action and was developed as a novel anticancer drug in subsequent decades. Aspirin from Filipendula ulmaria, Codein from Papaver somniferum, Ephedrin from Ephedra sinica, Quinin from Sinchona pubescens, and Digoxin from Digitalis

purpurea are just a few of the numerous lifesaving drugs that have been identified from Ayurvedic medicinal plants.[23]

CHALLENGES

1. Lack of scientific evidence for some practices: In the era of evidence-based medicine, the main difficulty for TM is assessing clinical evidence appropriately. There is no doubt that a large volume of research exists on the clinical outcomes of TM, but it is unclear what level of evidence it represents and how it may be appropriately evaluated. As a result, it is critical to design trustworthy and practical protocols to ensure the quality of clinical research on TM, allowing efficacy to be proved satisfactorily.

2. Issues with quality control: The quality of TM items on the market varies. Problems include inconsistent composition, batch-to-batch fluctuation, false labels, contamination, adulteration, and the use of concealing medicinal substances. It is due to lack of appropriate regulations and policies. A well-planned regulatory body is expected to address many of these issues.

3. Lack of research works: TM, developed through experience for years, faces problems in proving its safety, modes of action, and herbal product quality. Vigorous research is needed to establish evidence-based efficacy, understand mechanisms of action, explain pharmacological and toxicological profiles, evaluate safety, and ensure quality of pharmaceutical products. Synergistic effects of various bioactive compounds within a medicinal product need to be evaluated.

4. Lack of appropriate methodology: Contemporary health science has formulated international guidelines for standard clinical research. Public health research methodologies are inadequate to evaluate formulations of Traditional medicines. New methodologies need to be developed for evaluating such formulations. Special consideration should be given for cultural, theoretical and biological aspects of the system. Designing clinical trial strategies for traditional systems should also have adequate consideration

5. Potential for harmful interactions with conventional drugs: Combining traditional treatments with conventional drug therapies is common. Such practice sometimes may lead to adverse effects or reduced efficacy of either the herbal or pharmaceutical treatment due to potential harmful interaction between two different kinds of drugs. These interactions can occur through various mechanisms, affecting how the body absorbs, distributes, metabolizes, or eliminates drugs. There is need of vigorous research in this area.

6. Lack of Preservation of Ethnomedical knowledge: Another challenge is that urbanization, deforestation, environmental degradation, and alterations in land use are causing limited access to medicinal plants and animal products, which are crucial for traditional practices. Many common medicinal plant species and animals have been disappearing from their local habitats and nearby forests. Proper documentation of ethnomedical practice is essential.

CONCLUSION

Traditional medicine is proving its relevance in fulfilling the health-care needs of millions of people globally, particularly in communities with limited access to contemporary medical services. Healthcare

systems can use traditional medicine to manage NCDs, geriatric issues, and the development of new drugs by implementing evidence-based policies, establishing regulatory frameworks, and encouraging collaboration between traditional and conventional practitioners. This integration has the potential to improve health outcomes, increase satisfaction among patients, and promote a more inclusive and holistic approach to global health. A multidisciplinary approach and collaboration are required to develop more powerful, efficient, cost effective, culturally acceptable and adaptable treatments so that old and newly emerging diseases including NCDs can be prevented and treated. All that is required is proper research, standardization, and regulation of Traditional Medicine to enhance safety, efficacy, and acceptance.

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