

## An Integrated Framework Related to Contributions of Traditional Medicines Towards a Public Health

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### Abstract

In light of the growing popularity of traditional medicines, it is important to investigate the many avenues that may lead to the effective incorporation of these treatments into a public health system. This article will highlight some of the connections that exist between traditional medicine and biodiversity, as well as address the consequences such connections have for public health. This investigates the significance of biodiversity and the services provided by ecosystems to both global and individual health, as well as the dangers that the effects of humans on ecosystems and biodiversity pose to human health and wellbeing. The term traditional medicine is a catch-all phrase that is used to refer to a variety of indigenous medical practices as well as established medical systems from other cultures, such as traditional Chinese medicine, Indian ayurveda, and Arabic unani medicine.

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### 1. Introduction

The traditional medicine (Jaskulska, Janecka and Gach-Janczak 2020, Xiong, Gao et al. 2021, Beasley, Wallace et al. 2022, Sansores-España, Pech-Aguilar et al. 2022, Xu, Wu et al. 2022) is frequently referred to as "complementary (Park and Canaway 2019)," "alternative (James, Wardle et al. 2018, Paknejad, Motaharifard et al. 2019)," or "non-conventional (Al-Hashel, Ahmed et al. 2018, Demain, Gómez-Ortiz et al. 2019) " medicine in nations where allopathic medicine predominates in the health care system or where TM has not been incorporated into the national health care system. This is because TM is not part of the allopathic medical model. A long tradition of healing powers associated with the earth's natural systems serves as an example of the connections between TM and biodiversity. These healing powers can be associated with medicinal plants and animal species, the ambient salubrious air, spring water, or the natural scenery. All of these factors can contribute to the body's ability to heal itself. The pharmacopoeia of folk series as well as professional medical systems such as Chinese, Ayurvedic, Unani, and biomedicine contain thousands of medicines that are made from natural ingredients such as leaves, herbs, roots, bark, animal and mineral substances, and other materials found in nature (Arya, Yadav et al. 2020, Radwan, Hasan et al. 2020, Yang, Zhang et al. 2021). The interconnections between TM and the biotic environments can be seen in the health benefits that are derived from the existence of a complete complement of species, intact water-sheds, climate regulation, and genetic diversity, as well as through our fundamental needs for food, water, clean air, shelter, and relatively constant climatic conditions. The importance of traditional medicine as a source of primary health care for 80 percent of the

world's population makes it imperative that discussions of the links between TM and biodiversity be held. This is especially true when taking into consideration the importance of traditional medicine as a source of primary health care (Li, Krumholz et al. 2020).

The connections between environmental and human health have been mentined that a) the sustained good health of people needs wise management of our social resources, economic linkages, and of the natural world, and b) that many of today's public-health challenges have their origins in the same socioeconomic inequities and imprudent consumption habits that imperil the future sustainability of health care. In the same context, it is noted that the biological approach to health is focused on ways of detecting and treating individual pathologies: one pathogen = one illness. This is a method that does not take into consideration the linkages between illness and socioeconomic issues such as poverty and hunger, and much less of the connections between illness and the surroundings in which sick people are living (Li, Krumholz et al. 2020).

This article highlights the relevance of biodiversity and ecosystem services to global and human health, the hazards which human effects on ecosystems and biodiversity bring to human health and welfare, and the need to promote greater awareness among policy makers and the broader public. There are numerous pathways that need to be investigated on the linkages between TM and biodiversity.

This paper is organized in the following format: Section 2 discusses the degradation of the environment and its effects on human health. Section 3 focuses on traditional medicine and biodiversity. Section 4 will be dedicated for discussing the topic of concerns regarding sanitation. Section 5 represents conclusion which includes important concluded remarks for research directions.

## **2. Degradation of the Environment and Its Effects on Human Health**

It has only been relatively recently that the interconnections between human society and the natural world, as well as the significance of environment and health to human health, have received widespread recognition. This has brought to light the fact that the loss of biodiversity can have knock-on effects on the well-being of humans as well. Loss of biodiversity causes a disruption in the functioning of ecosystems, which results in ecosystems that are less robust, more susceptible to shocks and disturbances, and less able to provide people with the essential services they need. Following the conversion of wetland habitats, for example, the risk of damage to coastal communities from natural disasters like floods and storms dramatically increases. This is due to the fact that the natural protection offered by these ecosystems, including the regulation of water run-off, is diminished. Recent natural catastrophes in Asia and US help to highlight the severity of this fact (Husain and Wahidah 2019).

In order for individuals to be healthy, they need healthy settings in which to live. Human health is not something that can be viewed in a vacuum since it is heavily dependent on the quality of the environment in which people live. 185 nations approved Agenda 21 at this meeting in Brasilia, which explicitly stated the relationship between human and environmental health, as well as the link between poverty, underdevelopment, and environmental preservation and management of natural resources (Pratesi, AL Santos Almeida et al. 2021). The consequences

of the loss of biodiversity for the ecosystem as a whole have received a great deal of attention in recent years, but only lately has attention been devoted to the direct and significant impact that this phenomenon has on human health. Nowadays, localized exposures to "conventional" kinds of pollution are not the exclusive source of health concerns, despite the fact that they are still very much a factor in the environment. They are also the outcome of larger pressures that are placed on ecosystems, such as the depletion and degradation of freshwater supplies and the effects of global climate change on natural catastrophes and agricultural productivity. Both of these factors contribute to the deterioration of ecosystems. As is the case with other types of hazards, the negative impacts of the deterioration of ecosystem services are being carried by the underprivileged at a disproportionately higher rate. On the other hand, in contrast to these more conventional dangers, the possibility of unpleasant surprises, such as the appearance and spread of novel infectious illnesses, is much higher (Al-Ubaidi). Loss of biodiversity reduces the supply of raw materials available for use in drug development and biotechnology, results in the loss of medical models, contributes to the spread of human illnesses, and poses a danger to both the production of food and the quality of water. Its lessening has obvious repercussions for the search for possible treatments and therapies.

It is important to highlight the recent discovery of two different types of medications, one derived from a plant and one from an animal. The tale of taxol and the Pacific yew highlights how we may be losing novel medications before species have been studied for their chemical makeup. Taxol was discovered in the Pacific yew. The economically worthless Pacific yew was commonly thrown as a trash tree during logging of old growth forests in the Pacific northwest area of the United States until it was discovered to contain the chemical taxol, a substance that kills cancer cells through a mechanism unlike that of other known chemotherapeutic agents: it stops cell division by blocking the disintegration of the mitotic spindle. When taxol was discovered, scientists were able to synthesize many taxol-like compounds that were even more potent than the natural chemical. This shows how a tip from nature may lead to the discovery of a new class of medications that would have been incredibly difficult to find in the laboratory. In instances of advanced ovarian cancer that were refractory to other therapies, early clinical studies demonstrated that taxol was able to induce remission using its anticancer properties (Pratesi, AL Santos Almeida et al. 2021).

### **3. TM and Biodiversity**

One of the factors contributing to the depletion of wild populations of a great number of species all over the world is the demand brought on by conventional medical practices in the form of increased consumption. In this context, research possibilities should concentrate not only on the documenting of the traditional uses of animals and plants in TM, but also on the cultural and ecological factors that are related with such activities.

It should come as no surprise that the practice of TM is not exempt from the present environmental catastrophe that our world is experiencing. The acquisition and manufacture of plant medicine, in addition to its price, have been significantly influenced as a result of significant changes in the woods, savannas, and other forms of vegetational types. The desecration of spiritual areas, hallowed spaces, and grooves has a tendency to lower the dignity of such 'landscapes' and to promote the misuse of them. The deforestation that has occurred in

the Amazon region of Brazil over the last three decades has reduced the availability of some plant species that are often utilized in medicinal preparations. The degradation of Amazonian forests may not only mean the loss of prospective pharmaceutical medications for the developed world but also the erosion of the only national healthcare option for many of rural and urban poor. This is because the losing of potential prescription medications for the developed world is not the only consequence of the degradation of Amazonian forests (Al-Ubaidi , Barnes, Williamson et al. 2019).

As a result of the influence of industrialization and urbanization, western medicine has replaced indigenous medical systems in many locations. As a result of this displacement, many people no longer have access to any kind of health care. The traditional medical knowledge that has been passed down through generations is being lost at an alarming rate as a result of cultural shifts and a diminishing availability of natural medicine sources in both urban and rural locations. The natural environment that formerly acted as a medicine cabinet no longer surrounds the majority of the world's settlements, and the bodies of folk knowledge that have been amassed and perfected over the course of thousands of years are vanishing at an alarming pace. In some instances, this loss may actually impart net health benefits; nonetheless, contemporary civilization will never know what beneficial therapeutic therapies are being lost. Traditional knowledge, particularly that which is derived from traditional medicine such as indigenous knowledge, is also disappearing. This is the case in Latin America, for example, despite the numerous individual efforts that governments are making to preserve biodiversity for future generations. The transformation of local ecosystems brought about by human economic activities has been exerting severe constraints on the availability and accessibility of particular kinds of plant and animal species that are used for medicinal purposes. In many places of the Third World, forests are being converted into savannas, savannas are being converted into scrublands and shrubs, and scrublands are being converted into desert characteristics. As a result, several species of plants are going extinct completely. There are a few exceptions to this rule, but with very few exceptions, all medications are derived from mixtures that are manufactured using plants, plant organs, or their secreted products. A scenario like this presents challenges for the practice of indigenous medicine in the future.

Travel across large distances is presently required in order for indigenous medicinal practitioners to get the plant and animal species they need for their practice. Not only does this have an effect on the overhead expenses associated with delivering conventional medical services, especially in metropolitan areas, but it also has an impact on the preparation methods used for herbal medicine. For instance, freshly prepared herbal medicines are increasingly being replaced, even in rural areas, by a variety of concoctions, tinctures, and powdered forms so that they can be stored for longer periods of time without losing their efficacy or becoming spoiled. This is because these other forms can be stored for longer periods of time.

Practitioners of ethnomedicine, particularly herbalists and cult healers, appear to be at a greater risk of extinction than even forests and other biomes, despite the fact that traditional medicine is extremely important for public health in many parts of the world. This is the case despite the fact that there has been a recent surge in the number of plant and animal species going extinct. The knowledge of how plants may be used is vanishing at a rate that is even quicker than the

plants themselves. In many parts of the tropical region, the destruction of tropical forests has resulted in the increasing disappearance of native peoples who have been living in these areas for a long time and who have compiled a body of traditional knowledge regarding the usefulness of plants for curing a variety of diseases. These native peoples have also amassed a wealth of folk knowledge regarding the usefulness of plants for curing various ailments.

#### **4. Concerns Regarding Sanitation**

In terms of their therapeutic potential or their clinical assessment, traditional medicines and traditional medicines in general represent a topic of study that is still not very well researched. This topic is now receiving a lot of attention since it is common knowledge that the many herbal, animal, and mineral treatments that are administered in conventional settings have the potential to result in life-threatening side effects. However, it is very necessary for conventional medication treatments to be subjected to the right kind of profit / hazard assessment.

The fact that humans have been using plants for a very long time gives them an edge in this sphere (often hundreds or thousands of years). It is reasonable to anticipate that any bioactive chemicals derived from such plants would have a minimal level of toxicity to human beings. It seems to reason that some of these plants may be harmful within a particular endemic culture, even if there is no reporting structure in place to record the impacts of their presence. However, it is very improbable that acute harmful effects after the usage of a plant in these cultures would not be observed. As a result, the plant would either be handled with extreme caution or not at all. The presence of chronic harmful effects is not always indicative of the fact that the plant should not be utilized. In addition, the chemical variety of secondary plant metabolites that has resulted through evolution of plants may be comparable to or even greater than that which can be found in synthetic sequential chemical libraries.

Traditional Chinese medicine (TCM) has been linked to heavy metal toxicity in a number of published case studies as well as case series. These include both individual case studies as well as case series. The World Health Organization (WHO) has placed a strong emphasis on the significance of scientific investigations into native herbal medicines, and many countries that supply the WHO view their native medicinal plants as potential additions to the list of "essential drugs" once the value of these plants has been validated through clinical research.

On the other hand, it is well knowledge that a variety of infectious illnesses may be passed from people to animals and vice versa. In this scenario, the danger of animal preparations passing on illnesses or diseases to the human patient is something that has to be given careful consideration. Salmonella infections may originate in a number of organs and tissues, including bones and bile. These infections can lead to persistent diarrhea as well as endotoxic shock. Whenever animal tissues from unknown origins are handled and used as medicines, the danger of transmission of additional deadly and widespread zoonoses such as TB or rabies should be addressed. It is important to keep in mind the likelihood of experiencing harmful or allergic responses while consuming animal products.

Nevertheless, research that was carried out in the north-eastern part of Brazil, the majority of people who use animal products as medicines believe that nearly none of the cures have negative side effects, unless the dose and administration are done incorrectly. This example

makes it abundantly evident how important it is to do more research into the many options that may lead to the effective incorporation of TM into a public health framework. Educational initiatives for TM's many stakeholders might help optimize the technology's advantages while lowering its hazards to users.

## 5. Conclusion

The link between the sustainability of the environment and the survival of the human species requires full acknowledgement and the creation of new public health practices, which may progressively translate into policies and actions the awareness that the sustainable use of scarce natural resources is a key predictor of health. It is generally known that traditional medicine (TM) plays an essential element in the provision of medical treatment for the vast majority of people who reside in countries that are still economically developing. In point of fact, for many years, Traditional Medicine was the only method of health care accessible to many cultures for the purpose of illness prevention and treatment. The intersections between public health, TM, and biodiversity conservation involve a variety of pertinent and current challenges that are becoming more visible. This is highlighted by the World Health Organization's (WHO) mission in medicines, which is "to help save lives and promote health by assuring the quality, effectiveness, safety, and rational use of medicines, including traditional medicines, and by encouraging equitable and sustainable access to vital medicines, especially for the poor and disadvantaged."

International relevance of research and development in the area of traditional pharmaceuticals is based on the official attention and appreciation that major traditional system of medicine systems throughout the globe are obtaining, along with the widespread practice of traditional medicine and the rapidly expanding need for alternative and basic therapeutic methods (including within industrialized nations). In addition, there is a growing acknowledgment that understanding of TM is significant not only because to the possibility that it may lead to the discovery of novel medicines, but also due to the social, ecological, and cultural aspects that it entails. Academics in the field of public health need to take the lead in developing a research agenda that takes into account the social, cultural, political, and economic settings in order to maximize the potential contribution that TM might make to healthcare systems throughout the world. The effects that changes to ecosystems have on human well-being and health are significantly more varied, and the majority of these implications have not been researched. Because of this, it is difficult to calculate the consequences that the loss of biodiversity and other changes to ecosystems will have, both now and in the future. However, it is gaining a new knowledge of how the processes of clearing forests, agricultural practices, animal husbandry, river dams, and irrigation systems impact the onset of infectious illnesses in humans as well as the geographic and seasonal spread of these diseases. In light of the growing prevalence of TM, it is important to investigate the many avenues that may lead to the productive incorporation of TM into a public health framework. Better illustration is needed of the potential benefits, limits, and, ultimately, roles that TM and biomedical treatments may adopt within an integrated system of care. TM and biomedical techniques have the potential to provide bilateral benefits. It is necessary to work on developing a comprehensive plan for public health. This agenda has to develop with a conscious understanding of the social, cultural, and political components, and it ought to address values (equity and ethics), sustainability

(regulation, finance, knowledge creation, knowledge management, and capacity development), and the research environment.

It will become more necessary to include stakeholders in the process of developing regulatory measures. Stakeholders need to be made aware of the need of protecting the natural resource in order to ensure that it may be used in a sustainable manner. Such involvement, in addition to contributing to the construction of direct conservation measures and of the proposition of feasible management options, may possibly contribute to changing the perception held by some that the demands for regulation to protect endangered species represent a form of cultural imperialism. This perception is held despite the fact that such involvement contributes to the construction of direct conservation measures and of the proposition of feasible management options.

In the same vein, informed participation of traditional medical knowledge holders in consultation and decision-making processes may further foster much-needed cooperation to ensure the equitable distribution of benefits resulting from the utilization of traditional knowledge, innovations, and practices (Barnes, Williamson et al. 2019). This would be consistent with the aforementioned goal.

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