



Traditional medicine system

India is known for its traditional medicinal systems—Ayurveda, Siddha, and Unani. Medical systems are found mentioned even in the ancient Vedas and other scriptures. The Ayurveda concept appeared and developed between 2500 and 500 BC in India. The literal meaning of Ayurveda is —science of life, because ancient Indian system of health care focused on views of man and his illness. It has been pointed out that the positive health means metabolically well-balanced human beings. Ayurveda is also called the —science of longevity because it offers a complete system to live a long healthy life. It offers programs to rejuvenate the body through diet and nutrition. It offers treatment methods to cure many common diseases such as food allergies, which have few modern treatments. However, one should be aware that Ayurvedic nutrition is not a —magic bullet system but requires the full participation of the patient to succeed. It is an interactive system that is user-friendly and educational. It teaches the patient to become responsible and self-empowered. Ayurveda is not a nutritional system for those seeking an escape or excuse to further abuse their body or mind. It is a system for empowerment, a system of freedom, and long life.

Food is the major source for serving the nutritional needs, but with growing modernization some traditional methods are being given up. Hence, the modern food habits are affecting the balanced nutrition. There is an ever widening gap in nutrient intake due to which normal life is no longer normal. However, affluence of working population with changing lifestyles and reducing affordability of sick care, in terms of time and money involved, are some of the forces that are presently driving people towards thinking about their wellness.

Medicinal Plants Used in Alternative/Traditional Medicines

Alternative medicines are being used by about 60 percent of the world's population. These medicines are not only used by the rural masses for their primary health care in developing countries but are also used in developed countries where modern medicines dominate. The Indian subcontinent is a vast repository of medicinal



plants that are used in traditional medical treatments. The alternative medicines in the traditional systems are derived from herbs, minerals, and organic matter, while for the preparation of herbal drugs only medicinal plants are used. Use of plants as a source of medicine has been an ancient practice and is an important component of the health care system in India. In India, about 70 percent of rural population depends on the traditional Ayurvedic system of medicine. Most healers/practitioners of the traditional systems of medicine prepare formulations by their own recipes and dispense to the patients. In the Western countries, approximately 40 per cent of people are using the herbal medicine for the treatment of various diseases. This interest in traditional medicines is growing rapidly due to the attention being given to it by the governmental agencies and different NGO's comprising of general public and researchers as well as the increased side effects, adverse drug reactions, and cost factor of the modern medicines.

India is the largest producer of medicinal plants. There are currently about 250,000 registered medical practitioners of the Ayurvedic system, as compared to about 700,000 of the modern medicine. In India, around 20,000 medicinal plants have been recorded; however, traditional practitioners use only 7,000– 7,500 plants for curing different diseases. The proportion of use of plants in the different Indian systems of medicine is Ayurveda 2000, Siddha 1300, Unani 1000, Homeopathy 800, Tibetan 500, Modern 200, and folk 4500. In India, around 25,000 effective plant-based formulations are used in traditional and folk medicine. More than 1.5 million practitioners are using the traditional medicinal system for health care in India. It is estimated that more than 7800 manufacturing units are involved in the production of natural health products and traditional plant-based formulations in India, which requires more than 2000 tons of medicinal plant raw material annually. More than 1500 herbals are sold as dietary supplements or ethnic traditional medicines.

Alternative medicines are being used by those people who do not use or cannot be helped by conventional medicinal system.



Expanding Complementary and Alternative (CAM) Approaches

More than 80 percent of people in developing countries cannot afford the most basic medical procedures, drugs, and vaccines. Among wealthier populations in both developed and developing countries, complementary and alternative practices are popular although proof of their safety and effectiveness is modest. Evidence-based research in Ayurveda is receiving larger acceptance in India and abroad. The National Center for Complementary and Alternative Medicine has been inaugurated as the United States Federal Government's lead agency for scientific research in this arena of medicine. Its mission is to explore complementary and alternative healing practices in the context of rigorous science, support sophisticated research, train researchers, disseminate information to the public on the modalities that work, and explain the scientific rationale underlying discoveries. The center is committed to explore and fund all such therapies for which there is sufficient preliminary data, compelling public health need and ethical justifications.

Complementary and alternative practices are adjuncts or alternatives to Western medical approaches. Economic factors influence user behavior. Although social, cultural, and medical reasons account for most of the appeal of traditional approaches, economic factors also play a role. It is assumed that users of these approaches choose them because they are cheaper than conventional therapies or systems. However, several studies have found that CAM approaches cost the same or more than conventional treatments for the same conditions; thus, people seek them out for reasons other than cost. At least one study showed that financial factors ranked behind such reasons as confidence in the treatment, ease of access, and convenience, in the choice of a traditional healer. Another common misconception is that the poor are more likely to use traditional medicine, but this is not always true. Nowadays people seek CAM techniques because they believe the side effects will be lower. In both developed and developing countries, users of complementary methods also commonly seek conventional care.

Nutraceutical an Evolving Alternative Approach



Nutrition is a fundamental need. Various risk factors related to health result from an imbalance in nutrition. These imbalances in India are widely prevalent leading to adverse outcomes. A certain section of the population consumes diet which does not provide sufficient calories, let alone sufficient nutrients. In India, nearly 20% of the total population and 44% of young children (below 5 years of age) are undernourished and underweight. On the other hand, there is a huge population that is nourished in calorie intake but not in terms of nutrient intake. This segment would typically include lower middle to upper class population with sufficient purchasing capacity but probably less awareness about their nutrient requirements, leading to imbalanced nutritional uptake. In fact, in our population about 30% in urban and 34% in rural areas consume more than the recommended number of calories with higher than recommended levels of dietary fats and could be the largest contributor in making India the future cardiovascular and diabetes capital of the world. The third population segment, which is about 80 million, consumes nutrients and calories more than those recommended for the lifestyle they have opted for. The main risk factors in developing countries like India are related to nutrition and contribute to nearly 40% of total death and 39% of total disease burden. The main leading risk factors in developing countries are shown in Figure 1.

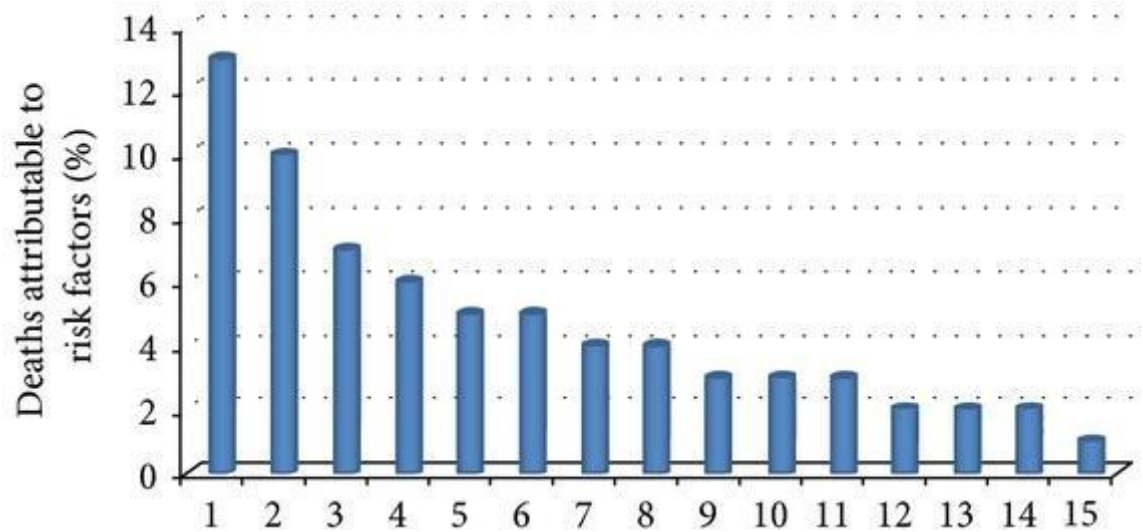


Figure 1

Risk factors related to nutrition— 1: underweight, 2: unsafe sex, 3: blood pressure, 4: unsafe water, sanitation and hygiene, 5: cholesterol, 6: tobacco, 7: indoor smoke from solid fuels, 8: low fruit and vegetable intake, 9: zinc deficiency, 10: iron deficiency, 11: vitamin A deficiency, 12: physical inactivity, 13: alcohol, 14: overweight, and 15: unsafe healthcare injections.

According to WHO report, India has the largest burden of cardiovascular diseases and largest number of diabetes patients in the world. The number of cardiovascular diseases patients in Brazil, Russia, China, and India are 4.1, 11.8, 24.5, and 28.9 million, respectively. Likewise the numbers of diabetes patients in same countries are 4.6, 4.6, 20.8, and 31.7 million, respectively. An estimate of the cost of productivity lost on account of mortality due to nutrition-related disorders was estimated to be 0.85% of the GDP in 2004 and is expected to increase up to 1.2% for India's GDP by 2015. Nearly 340 million people, 30% of the population in urban areas and 34% of the population in rural areas, consume calories more than the norms. Even in the population that shows sufficient calorie intake, the micronutrient consumption is not at desired levels. While the intake of calorie-rich foods may be high, micronutrient-rich foods are being consumed in low proportions. As a result, significant micronutrient deficiencies exist in urban as well as rural areas.



Hence, the requirement of external intervention, that can supplement diet to help prevent nutrition-related disorders and promote wellness over treatment of various diseases, has become a necessity, and such products are known as nutraceuticals. A nutraceutical is a food or food component that claims to have health benefits, including treatment and prevention of disease. Nutraceuticals, an emerging concept, can be broadly categorized as products which are extracted from natural sources (nature-like) or manufactured synthetically (man-made), which supplement the diet to provide nutrition over and above regular food and help prevent nutrition-related disorders. Nutraceuticals, foods or food components that help in prevention or treatment of disease, are made from herbal/botanical raw materials. They do more than just supplement the diet. They, as was pointed out, help with disease prevention and treatment. Theoretically, the appeal of nutraceuticals is to accomplish treatment goals without side effects.

The nutraceutical industry is rapidly growing (7%–12% per year). With extensive anecdotal data on exciting health results, nutraceuticals promise significant contributions to disease prevention. The global nutraceuticals market is estimated at 117 billion US dollar of which India's share is a meager 0.9%. United States and Japan are key markets for nutraceutical consumption. Indian nutraceuticals market is about 1 billion USD which is increasing day by day. Globally, this market is expected to reach 177 billion USD in 2013. The dietary supplements category is expected to be the fastest growing product category globally.

Herbal Medicines in Dietary Supplements

Dietary supplements and herbal remedies are popular complementary or alternative products for people. These are the supplements that are intended to supplement the diet and contain one or more dietary



ingredients (including vitamins, minerals, herbs or other botanicals, amino acids, and other substances) or their constituents. These are intended to be taken by mouth as a pill, capsule, tablet, or liquid and are labeled on the front panel as being a dietary supplement. Such products may range from isolated nutrients, dietary supplements, and diets to genetically engineered —designer foods, herbal products, and processed foods such as cereals, soups, and beverages. These botanicals are sold in many forms as fresh or dried products, liquid or solid extracts, tablets, capsules, powders, tea bags, and so forth. For example, fresh ginger root is often used in various food stores; dried ginger root is sold packaged in tea bags, capsules, or tablets, and liquid preparations made from ginger root are also sold in the market. A particular group of chemicals or a single chemical may be isolated from a botanical and sold as a dietary supplement, usually in tablet or capsule form. An example is phytoestrogens from soy products.

Nutraceutical Concept with Varying Definition

The nomenclature for nutraceuticals is based on the segments it constitutes. In Canada, this term is natural health products; in USA, it is called dietary supplements, and in Japan it is called foods for special health use. There are distinct definitions and regulations for dietary supplements and functional foods in USA, Canada, and Europe. In Japan, dietary supplements and functional foods are governed under the same set of regulations. USA and Canada actually list the constituents that a product must have to be called a nutraceutical, whereas Europe and Japan just provide general guidelines on the properties that a product should have to be called a nutraceutical. Traditional and herbal medicines are included in the definition of dietary or nutritional supplements in Canada. Japan does not mention traditional herbal medicines under functional foods for special health use. USA includes herbal and botanical in its definition. The Indian definition lists down the ingredients that a product should have, and it also specifies general properties of nutraceutical. Traditional medicines though have been excluded from the definition. There are three categories which have been considered under the nutraceuticals.

Functional Foods, Foods that have specific physiological benefits and/or reduce the risk of chronic disease, that is, nutrition fortified



Dietary Supplements, Supplements provide nutrients that are missing or are not consumed in sufficient quantity in a person's diet, that is, vitamin supplements, mineral supplements, macronutrients, antioxidants, tonics, herbal formulations like Chyawanprash, Musli pak, Ashwagandhadi leh, and nonherbal products like cod liver oil.

A product category can be classified into a specific need-segment based on its predominant use. The product segments catering to foundation and condition specific need are the largest and growing the fastest. Nutraceutical products aim to fulfill specific needs of the persons based on which they may be classified as follows.

- Specific condition segments: antioxidants, vitamin supplements, and mineral supplements.
- Foundation segments: macronutrient supplements, nutrition fortified foods (fortified flour, soups, biscuits, etc.), probiotic foods (yogurt), and herbal formulations (chyawanprash, Ashwagandhadi leh).

Although some uncertainty exists about the safety, effectiveness, and cost-effectiveness of CAM methods, expanding their use, where reasonable evidence of their effectiveness and good evidence of their safety exists, might yield health, social, and economic benefits. For example, improving the information and services provided in local pharmacies, that are the primary source of treatment for many ailments in rural areas, might serve as an effective substitute for allowing unregulated use of conventional medical treatment. Thus, expanding CAM would require significant investment of time and resources if it is to be done appropriately and have an impact on population health. An important role exists for CAM. However,



Also, numerous nutraceutical combinations have entered the international market through exploration of ethno pharmacological claims made by different traditional practices. To truly consume a healthy diet, the vast majority of the diet must be composed of health-promoting foods and nutraceuticals but disease-promoting foods or junk food must be avoided. Ninety percent of the daily diet should be made up of nutrient rich plant foods, whose calories are accompanied by health-promoting phytochemicals, vegetables, fresh fruits, beans and legumes, raw nuts, seeds, and avocados, starchy vegetables, and whole grains. These foods or nutraceuticals construct a health-promoting, disease-preventing diet with protective substances. The rich nutrient food intake will provide maximum protection against not only infections, asthma, and allergies but also against heart disease and cancer in adulthood.