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Distinguishing Traditional Medicine, Complementary and Alternative Medicine and Conventional Medicine: A Review

Frank C. Okeke

Department of Botany, Faculty of Science, University of Abuja, Nigeria.

Email: drokekefc1@gmail.com

Abstract

The healing practice is as old as man. All medical systems could be placed in three categories namely- Traditional medicine (TM), Complementary and Alternative medicine (CAM) and Conventional medicine. While Traditional medicine may have been in existence from the creation of man, a few CAM systems may have been developed about a few thousand years ago. The most recent of these medical systems is the Conventional medicine which began to take shape from the 18th century. These medical systems all have same aim: to heal the sick, restore the deranged health to order, and prevent ill-health. However, the objectives, philosophies and modus operandi of these systems vary considerably. In the traditional or ethno-medicine there are as many variations as there are ethnic groupings on earth. Traditional practitioners operate in two domains- the natural domain and the supernatural domain. Probably all traditional practices affirm the supernatural basis of health disorders and consequently of the appropriate restorative procedures. TM operations in the supernatural realm are often enmeshed in mysticism, occultism, inexplicable rites and rituals. For their operation in the natural domain, traditional medicine practitioners (TMPs) procure raw materials from the environment (herbs, roots, stem-bark, water, clays, etc.). CAM systems comprise alternative medical systems and complementary medical systems and therapies. Ayurveda and Acupuncture are perhaps the oldest CAM systems. Until recently they were traditional medicines. In most CAM practices there is the underlying principle of the life force which controls the human body in health and ill-health. Conventional medicine came in to full application with the development and improved understanding of the microscope, microorganisms, antibiotics and public health. Differentiation of these systems was done using the following criteria: origin of system, objectives of treatment, concept of health and disease, nature of remedial substances, accessibility of knowledge, areas of specialization and additional inputs peculiar to each system.

Keywords: Traditional medicine, Complementary and alternative, Modern medicine.

1.0 Introduction

A disease is an unpleasant disorder in the body physiology (function) or anatomy (structure). Undoubtedly, since man's emergence on earth, he has been challenged with issues relating to health. In other words, from the beginning of man's existence, he had usually needed to restore, or be restored to normal, deranged functions and structure of the body [1]. Derangement in health could arise from any of these three sources: inherited factors, acquired factors and imposed factors. The role of hereditary factors has always been known. Like some talents and gifting, some health challenges have been observed to run in families [2]. Acquired factors arise mostly from wrong lifestyles or from intentional or unintentional errors committed. Disorders could also arise from injuries such as cuts, bruises and fractures, bites from animals since the many previous civilizations were given to farming and hunting [3]. Internal disorders may have arisen from ingestion of wrong food or water or substance. Imposed factors could be natural or supernatural, for instance, an exposure to a hazardous environment. From whatever cause or source the derangement may have arisen, a cure, where known, had always been equally effected with resources from the environment [4]. The practice of the art of healing which involves treating the sick with the sole purpose of restoring him to health is known as medicine or medical practice [2]. Herbs, raw or crudely refined, have been man's earliest source of healing products. As Kambe *et al*. [5] noted, since the beginning of human life on the earth, humans of every generation have employed plants and their by-products for various purposes such as medicine, healthcare, food, clothing, shelter, agriculture, agrochemicals, pharmaceuticals, narcotics, etc. But dwelling in a wholly clean, unpolluted environment and living on natural raw foods and water may have made our early ancestors resilient and resistant to diseases [6]. Nevertheless, natural hazards and drastic climatic changes affected the early man's health [7].

Paleontological studies have shown that humans may have appeared on earth during the Pleistocene epoch of the quaternary period of the Cenozoic era which is about one to two million years ago [8]. Anatomically modern humans (the subspecies of *Homo sapiens* which is *Homo sapiens sapiens* to which all humans alive today belong) appeared in Africa about 200,000 to 250,000 years ago [9,10,11]. Some studies however suggest they may have appeared much later about 40,000 years ago [11]. Archaeological excavations confirm that different civilizations had existed in Africa specifically in West Africa previously referred also to as Lower Ethiopia. According to Acholonu [12], *Australopithecus bahrelghazali* which lived in Chad-Nigeria basin many millennia ago had his direct descendant, *Homo erectus* live in Igbo land by 500,000 years ago [13]. They began migrating to other parts of the world about 90,000 years ago colonizing the other continents, replacing the Neanderthals in Europe and other hominines in Asia [14]. Again Acholonu and Davis [15] noted that before leaving Africa 90,000 years ago, *Homo erectus* had a language and a culture which were Igbo language and culture. Hence the traditional cum ethnomedicinal culture which existed in every traditional setting on earth originated from Africa. TM may have been practiced by the Australopithecus but certainly by *Homo erectus* [15]. All through these centuries humans were able to manage their health in all aspects: mental, pediatric, obstetric, gynecological, etc. In their different localities, languages and cultural settings, how did they survive the health, environmental and dietary challenges of different times? Each ethnic society had evolved their own healing systems to take care of themselves when confronted with ill-health. Africa was the epicenter of all human knowledge, culture and civilization. Malaria parasites and mosquitoes are known to have been in existence since over 30 million years [16]. How did humans cope with malaria and other infectious diseases over these millennia? Almost every aspect of life and culture of the pre historic era was woven around religion. Healing was an intrinsic part of human culture. Health, sickness, progress, birth and death are events traditionally viewed through the prism of beliefs in gods, deities or supernatural entities [17].

It is known that several civilizations including those possibly superior to the present may have existed in prehistory. The common notion propagated with the intent to justify evolution and racial superiority is that entire prehistory was peopled with primitive men and humans of low mental acumen and this ought to be reevaluated [18]. Studies reveal that most of the 'primitive' societies had developed sophisticated herbal treatment methods and healing procedures to take care of themselves in ill-health [19]. Very often cultural treatment regime consisted of foods, drinks, concoctions, herbal decoctions which were given to treat the sick [20]. There is no part of the present world where the natives do not have relics or remnants of knowledge of treatment formulae for different ailments handed down by previous generations [21, 22]. In many cultural settings, little or no written records of these recipes exist [17]. Most of the ethno botanical anecdotes, as the information is termed, of our 'primitive' ancestors in different nations today form the basis on which the conventional pharmacies are built. Many present-day ethno pharmacological applications were derived from native knowledge of herbs and various healing resources possessed by local health custodians [17, 22, 23].

Spitkins *et al*. [24] noted that as they evolved, individuals in communities and families displayed their endowments as they excelled in certain arts or science. The healing art was a special profession. Not everyone could be a healer. As tribal cultures evolved, those who were called or apparently gifted in the art of healing were marked out by their results. Specific castes, shamans and apothecaries took up the role of healers, gave medical counsel, performed minor surgeries, prescribed accoutrements such as charms, amulets, to ward off evil [24, 25]. In some ethno biological settings, the knowledge for the treatment of some human ailments ran in families and was transmitted from generation to generation to willing descendants [25]. Some of these healing systems have remained even until now. Most are categorized as TM while others which have been refined and stripped of noxious contents have been re-categorized as Alternative medicine. An example is Ayurveda, an ancient Indian medical system which can now be studied and practiced by anyone who so chooses to [26, 27]. Ayurveda, a Sanscrit word which means *the science of life,* is one of the oldest recorded healing sciences in the world about 6000 years old. Other examples of TM which have been refined and reclassified as CAM include acupuncture, Kampo (Japanese) [28] Unani.

Basic surgical procedures known as trepanning (or trephining) were widely carried out in ancient times. They were able to set fractured bones with clay as it is done with the modern day plaster of Paris [29]. The first known dentistry occurred about c.7000 BC in Baluchistan where Neolithic dentists used flint-tipped drills and bowstrings [25, 29]. It is possible that these and other sciences were practiced in Africa before the emigration. Humans employed earths and clay for the treatment of diseases. Related to Geophagy commonly employed by wild and domesticated animals and contemporary non-human primates this practice is common in many parts of the world- Europe, Africa, Asia and is as old as time [3, 30, 31].

More recently, one of the oldest known medical texts dating back to about 1600 BC, the Edwin Smith Surgical Papyrus contains detailed descriptions of different surgical procedures, anatomical observations and diagnostic methods. Descriptions of treatment of injuries, fractures, wounds, tumors using techniques such as suturing, bandaging, cauterization, etc. were also shown [25]. The Ebers Papyrus dating around 1550 BC provided a compendium of seven hundred magical formulas, prescriptions including remedies for various health challenges in the areas of gynecology, dermatology, ophthalmology, dentistry. Besides these, complementary therapies like massage, hydrotherapy and dietary interventions were also used by the ancient Egyptian healers [25, 32]. Hippocrates and some Greek doctors had posited that medical practice should be separate from spiritual, religious or diabolical practice. They also stressed the importance of patient examination and systematic record taking [33]. The inevitable influx of magic,

mysticism, witchcraft, voodooism, sorcery, esoterism, etc. in to the various ethno medicinal cultures especially in the medieval age may have been the worst undoing of our traditional health cultures. In many cultures there was no clear distinction between a magician and healer [25, 34]. These evil inclusions led to a usurpation of healing profession by quacks who had little or no ideas of the actual healing processes but possessed spiritual powers which were often employed to terrorize people, communities and states. These events may have contributed to the witch hunts in Europe in the early modern era which culminated in the rise of Allopathy [35]. Following the witch hunts and the rise of Allopathy, there was an unprecedented erosion of genuine knowledge and native health intelligence in many cultural settings [36].

1.1 **Categories of Medical practice**

Existing medical systems may be placed in three categories [37]:

1. Traditional Medical system;

2. Complementary and Alternative Medical systems.

3. Conventional Medical system

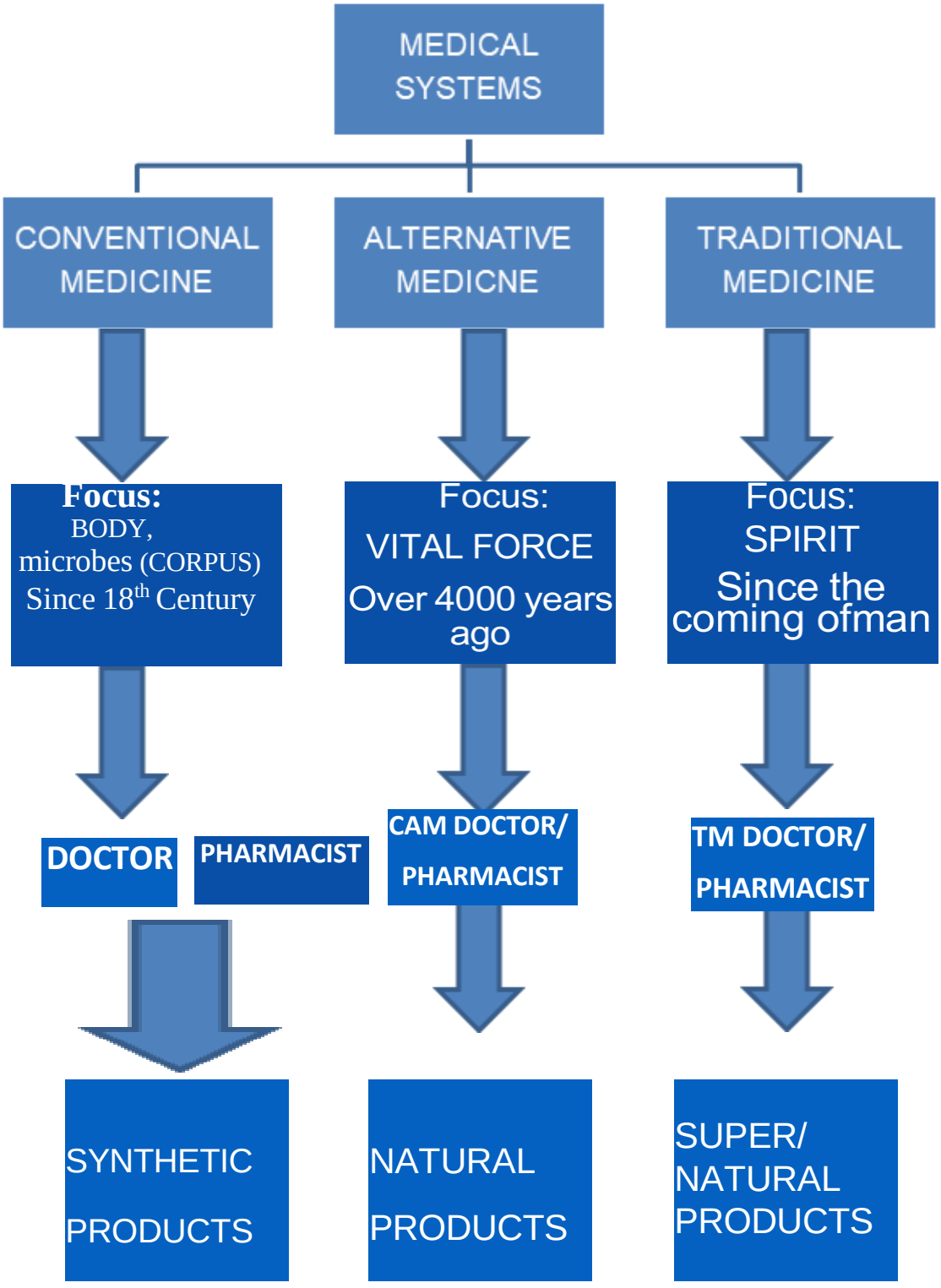

Figure 1.1 Categories of medical practice

2.0 **The Traditional (Supernatural) Medical system**

World Health Organization (WHO) defines TM as the sum total of all the knowledge and practices whether explicable or inexplicable used in diagnosis, prevention and elimination of physical, mental and social imbalance and relying exclusively on practical experience and observation handed down from generation to generation whether verbally or written [37]. Also known as indigenous medicine, folk medicine, ethnomedicine, these are probably the oldest systems of healing used by humans (*Homo sapiens)* for treatment of ailments and prevention of diseases [21, 25]. Some practices viewed as TM include European medicine [38], traditional Chinese medicine, traditional Korean medicine, traditional African medicine, Ayurveda, Siddha medicine, Traditional Iranian medicine also called Unani medicine, Arabic medicine, or Islamic medicine [39] Muti, and kampo [28].

2.1 **Origin of the TM systems**

There are as many TM systems as there are traditional groupings on the earth. Each system is based on the beliefs, myths and thoughts handed down from preceding generation [40]. Many TM systems claim to originate from 'god' or angels [3, 41]. In some regions visible and invisible entities, animate and inanimate objects have been revered as gods [41, 42]. Some treatments were learnt through dreams and visions [3]. Some treatments were learnt from observing wild and domestic animals' self-medication including the great apes and the primates–zoopharmcognosy [43, 44] and by hunters watching animals in the wild [3]. Another source of TM knowledge is the doctrine of signatures, morphological plant impression, a mnemonic, in which the medicinal activity of a given plant, animal or mineral may be suspected through symbolism (shape or colour) displayed in any of its part [45, 46]. Other TMPs claim to be guided by intuition in prescribing treatments. The last is hardly a reliable source of knowledge [3, 41].

2.2 **Role of religion in TM**

From the beginning of time, humans have always associated religion with almost every aspect of life. Thus health, disease, cure, prevention have been closely woven around religion and belief systems [47]. Hence references to gods, deities, demons, evil spirits, angels, charms, amulets, sacrifices are religion-based notions which exist till date in different cultures [3, 48]. The understanding in TM that human life consists of more than the physical body preeminently distinguishes TM from conventional medicine which holds that all there is to life is the physical body but aligns TM with CAM which accepts the existence of a spirit-like vital principle [49, 59].

2.3 **Focus of treatment**

One of the concepts of ancient medicine in every culture is the existence of a spirit-like, invisible entity responsible for maintaining life, health and disease in man [47, 48]. In TM sickness and health are essentially spiritual contents. Sickness arises when one offends the gods. Treatment and restoration of health consisted of taking steps to appease the offended gods with, say, sacrifice or some ritual often prescribed by traditional doctor [41]. Sickness may also result from an attack on the spirit of the victim. TMPs claim to commune directly with both visible matter and invisible spirits including the spirit of man [3]. The focus of TM treatment is to effect a cure in the afflicted spirit of the patient [41, 42]. In other words, determine a physical, visible and natural occurrence from a manipulation of the supernatural realm. The type of spiritual treatment to be prescribed depends on what the TMP decides and could include appeasement via sacrifice, imbibing of concoctions, wearing of charms, etc. This is more like a realm in which the occult consultant has the final say and the client, if not under some hypnosis or spell, may be able to tell whether his condition is getting better or otherwise [50]. In Siddha, the practitioner's aim is to remove the morbid state by suitably restoring the equilibrium of the five elements- earth, fire, air, water, and ether which represent ener-

gy levels [51]. In Unani system, the practitioner examines three faculties: Natural faculty of metabolism and reproduction; the Psychic faculty both perceptible through the five senses and motive (movement as a response to sensation); and the Vital principle which maintains life. Finally, the movements and functions of the various organs of the body are investigated [49]. These are the objectives of the Unani system. In different ethnic settings, the pattern of addressing the challenges of the spirit and the vital force may vary. Ayurvedic practitioners are similar to practitioners of the Unani and Siddha systems, since they use diet, herbs, minerals, colour, gems, yoga, and pranayama (scientific breathing) in treating patients; exercise, life-habits, seasons of the year, and individual temperament are also considered [49, 39].

2.4 **Nature of remedial substances**

Remedial procedures comprise acts and rituals based on religious or occult beliefs interwoven with ethnic cultures, native knowledge obtained from elders, colleagues, personal experience and from spirits or dreams [3, 52]. The prescriptions often consist of a mixture of environmental resources such as herbal and animal medicinal products- concoctions, herbal decoctions (terrestrial dwellers) or ocean or sea water with *sand*, seaweeds (riverine dwellers) or specific soil with some herbs for desert dwellers etc. which are handed to patients; magical potions, perfumes, other materials along with deep mystical incantations and enchantments [3, 49, 51]. Treatment may involve Regimental therapy, Dietotherapy, Pharmacotherapy or Surgery [51]. Incidentally in empirical science, when any issue transcends the physical realm, all arguments cease [50]. Only results can decide.

2.5 **Accessibility of knowledge**

Unlike a few decades ago when there were very few formal schools for TM, today nations are increasingly setting up institutions of learning for TM. This allows for seamless transmission of sound, refined, structured and accessible training for upcoming generations. God is claimed to be the source of all knowledge in all traditional medicine systems. Other sources of original knowledge include angels; visions and dreams, here just like Kekule said he obtained the structure of benzene in a dream of a self-eating snake [52], so also do some of TMPs claim they are taught in dreams; other sources include from watching animal reactions during health challenges; from doctrine of signatures; from contact with the spirit or occult world [3]. In many ethnic groups depths of knowledge in TM are not commonly open to everyone except the very superficial aspects of them [42]. To be allowed into the deep knowledge of these traditional rites, one must be initiated in to some cults or secret societies [3, 41]. This often is the bane of traditional medicine worldwide- excess recourse to mysticism even in simple health or nutritional matters. In India, principles of three ancient systems of Indian medicine; the Ayurveda, the Siddha medicine of South India, and the Unani or Greco-Arabic medicine are taught [49].

2.6 **Areas of specialization**

Traditional Medicine Practitioner (TMP) has been defined as "a person who is recognized by the community in which he lives as competent to provide health care by using vegetable, animal and/or mineral substances and certain other methods based on the social, cultural and religious background as well as the knowledge, attitudes and beliefs that are prevalent in the community regarding physical, mental and social wellbeing and the causation of diseases and disability" [53]. Areas of specialization in traditional medicine include general TM practitioner, herbalists, bone setters, traditional psychiatrists, traditional pediatricians, spiritual therapists, local surgeons, traditional birth attendants (TBA), occult practitioners, local traditional pharmacists, stroke and hypertension healers and herb sellers. Also witchcraft, wizardry, voodooism, necromancy, charmers, diviners and stargazers

etc. are specialties practiced in traditional medicines [3, 41]. As eccentric and unkempt as some TMPs and their surroundings may seem yet they are sought after by local and international clients.

3.0 **Complementary and Alternative Medicine (CAM) (Natural Medicine)**

3.1 **Introduction**

Complementary and Alterna-tive Medicine is a composite word describing two sets of Medical practice viz Complemen-tary Medicine and Alternative Medicine. The Complementary Medical disciplines may *com-plement* treatment in Allopathic, Alternative and Traditional medical systems. Included in this group are such disciplines as Acupuncture, Chi-ropractic, Chiropody, Osteopathy, Bach Flower remedies; therapies such as Yoga, Acupressure, Magneto therapy, Shiatsu, Meditation, Aroma-therapy, Chromo therapy, Diet therapy, Hy-dropathy, Reflexology, Massage and Reiki, etc. [54, 55]. Alternative medicine refers to whole therapeutic systems which can be employed to treat or ameliorate disease in place of the Allopathic medical system [56]. Alternative medical systems are those healing systems in which the principles of natural cure as espoused by the originator are employed in the course of treating the sick. Examples include Ayurveda, Homeopathy, Naturopathy. The Alternative medical systems are full-fledged medical systems which are employed for treatment with or without the aid of other systems [55, 57]. So CAM comprises all other healing and medical systems besides the Allopathic and Traditional medical systems. More than 100 branches of CAM are being currently practised all over the world. Several sub groupings of CAM exist. With so many therapies and systems in CAM, the representative disciplines for this work include Homeopathy, Naturopathy, Ayurveda and Acupuncture.

Hippocrates, commonly regarded as the Father of modern medicine, made some profound statements more in consonance with CAM practices and procedures. In ancient Greece, the Hippocratic movement contributed immensely to the institution of modern Naturopathy and indeed much of today's CAM [58]. The Hippocratic rule which placed much emphasis upon and equated food to medicine is one of the cardinal principles of Naturopathy. In Medical ethics, he gave the principle of minimal use of force – *primum non nocere* which on translation means *do no harm*. The employment of remedies (herbs) are aimed at enhancing the body's recuperative capability to restore itself to an equilibrium of health rather than at curing disease [57].

3.2 **Philosophy of CAM systems**

Many CAM systems are founded on principles of Natural cure. This means that the practice of each system is guided by rules in consonance with nature. Any system that is not guided by distinct and verifiable rules in disease, health and cure cannot be classified as a natural system of treatment [58]. CAM practice is not founded on nor linked to religion, metaphysics or any occult science. CAM practice does not depend on beliefs or faith for performance [57]. They are not founded on thoughts, ideas, gestures, speculations or popular opinions of experts or laity [59, 60]. They are truly scientific, reproducible processes which can be studied by anyone who so chooses. Being principles they do not change over time. The identification of what is wrong in the sick person, the selection of the right treatment procedure and the administration of treatment are guided by immutable principles of natural cure attributable to each system. The details of these principles and rules of practice constitute the philosophy of the system [61]. The Homeopathic philosophy, well enunciated in the books by JT Kent and others, is based on the Constitution of the Homeopathic system of medicine as given by its founder CFS Hahnemann in the Organon of Medicine [60]. Some core principles of Homeopathic medicine are: The law of similar: *Similia similibus currentur*; The principle of minimum (infinitesimal) dose; the principle of single remedy; individualization of treatment, Herring's Law of Direction of cure [59, 62]. According to Kessler *et al*. [61], Ayurveda, unlike other Indian systems of medicine, had a well-conceptualized philosophy that

has remained virtually the same all through the ages. Again he said that the philosophy was not founded as an outcome from practice rather the concept was first founded derived partly from Samkhya and Nyayavaisheshika streams of Indian philosophy. The fundamental philosophy of Ayurvedic system is the doctrine that whatever is in the Universe (macrocosm) should be present in the body (microcosm). The universe is composed of five basic elements- Prithvi (Earth), Jala (water), Teja (Fire), Voyu (air) and Akash (Space or ether) [49]. Successful practice of Ayurveda is based on this philosophy. With this clear conceptual framework, it not only became largely detached from the influence of religion but also emphasized the value of evidence of senses and rational reasoning [63]. Acupuncture has been a part of ancient medical therapeutics of the East. With its well defined philosophy, the state of human in health, disease as well as relevant preventive and therapeutic programs can be understood, derived and implemented. In the doctrine of the 'yin and yang', the human body operates under two opposing forces. When these forces are in balance the body is healthy. When disrupted, disease is experienced [64]. There is also the doctrine of the Five elements [47, 65]. Every genuine CAM system has sound, verifiable principles which constitute its philosophy.

3.3 **Aim and objectives of treatment in CAM**

The aim of every CAM treatment is to restore the sick to health or state of harmonious function. The objective of treatment is to instigate and sustain the internal restorative power of the human body via the administration of the right treatment. Certainly the objectives may vary according to the therapy or system being employed. The various therapies and therapeutic systems constituting CAM are directed in treatment to stimulate and enhance the self-healing powers (innate restorative capability) of the human body (*vis medicatrix naturae* or "the healing power of nature") [57]. Through the employment of procedures that aid the living system attain the original state of harmony, health is restored. Cure is the eradication of an ailment without a reoccurrence [66].

3.4 **The concept of health and disease**

Disease as expressed in symptoms of the patient is the reaction of the vital force to disharmony instigated by contrary influences. Symptoms with or without pathological manifestations are the voice (cry) of the dis-eased vital force [67]. There is the recognition that conditions of health and disease of an individual does not begin and end in the body rather emanates from and is dependent on the soundness of the vital force in the individual. In CAM, health is seen as emanating not from the body but from vital force [67]. The term, vital force, is given different appellations in the various systems yet the object of reference is the same. In Acupuncture, there is the energy called 'qi' which flows like rivers through pathways or meridians in the body. The constant flow helps keep the balance of the yin and yang. When there is a block in the pathway, the energy does not flow, a disease results [68].

3.5 **The doctrine of the Vital principle**

The human body has no life of its own. It is understood that every manifestation of the body is actually a manifestation of the vital principle. In other words, for example, the normal warm human body temperature is actually the temperature of the vital principle [69]. The warmth ceases when the vital principle is gone as in death. In CAM systems the human is recognized to consist not just of the corpus (the body) but also of a more real, superior and eternal, invisible entity, the vital principle, which is recognized as the soul which indwells and controls the body. In all natural systems health, disease as well as cure proceeds not from the body but from the vital principle. The vital force is the primary center of derangement. It is variously called Qi, life force, yin-yang, prana, universal intelligence, innate. It is the vis medicatrix naturae (the healing power of nature) which is assisted by appropriate remedies to restore health [57].

3.6 **Holistic view**

In most CAM systems, the human is viewed as a tripartite entity, a whole being made up of parts that work in unison. The human is more than just the physical body (corpus) which we can see and

touch. He has a Will and Understanding [70]. Case-taking which covers the physical states of ill-health and health, mind symptoms are appraised and diagnosed from a holistic viewpoint. In treatment and diagnosis the systems and organs are not viewed as separate component parts. In some systems like the Ayurveda, the relation of the person with the environment is also considered [56]. In his Lesser writings, Kent [71] says: the local treatment of nose, throat, vagina, ear and eye, is no doubt the most dangerous of all the work done by specialists. There are no body parts specializations in CAM.

3.7 **Totality of symptoms**

The natural medicine practitioner must, in effect, be able to perceive what is disordered in the vital force and join this with the known pathological changes to choose the right curative agent. This distinguishes him from the allopath [71]. In Homeopathy, diagnosis is targeted at eliciting and understanding the symptoms- objective and subjective- of the dis-eased vital force. In Homeopathy, symptom elicitation always goes beyond the pathological states; the mind and the mental states (the will and the understanding) are considered, the subjective and the objective symptoms as in the feelings, fear, love, hate, etc. and their modalities of the man are obtained to aid remedy selection and administration [72]. Elicitation of symptoms of the sick; the process of healing agent selection; the production of healing agent and the administration – dose, time of repetition, method of administration, etc. are based on natural principles of cure in each system. Hahnemann said that a patient well examined was half cured [71]. In Ayurveda, preliminary routine checks are made to confirm the body constitution, body compatibility, age, digestion and metabolic power, vitality, psyche, status of tissue and end-product, environment, type of food consumed [26,49]. Furthermore Ravishankar and Shukla [49] said in Ayurveda, there are beside the physical, organic and systemic symptoms, psychosomatic disorders which a physician must be able to perceive. The disturbed humors, they further explained, are restored through regulating diet, correcting lifestyles and behaviours, administration of drugs, employ preventive therapies known as Panchkarma (Fives processes) and Rasayana (rejuvenation) therapy [26,27,49].

3.8 **Individualization of treatment**

Treatment in Alternative medical systems especially in Homeopathy is individualized. Every treatment is patterned according to the presenting symptoms of the patient. There is no routinism in homeopathy [73]. Treatments are designed to enhance the natural healing capability of the vital principle. CAM practitioner requires a great deal of patience in investigation in order to obtain a comprehensive knowledge of the patient's case including personal health history, social circumstances, family health history, etc [62,71]. A great deal of care is shown by CAM practitioners when they patiently hear out a patient which process could be therapeutic as they divulge and rid themselves of suppressed emotions, fears, sorrows, frustrations, etc thus enabling a more informed remedial prescription. According to Rakel and Weil [74], about 40% per year of conventional medicine users seek CAM services and what they value most were the human factors of listening, attention, asking to understand better, caring attitude [55].

3.9 **Nature of remedial substances**

In CAM systems remedial substances prescribed and applied for treatment are usually natural products. These products are effective and have minimal or zero toxicity [71].

3.10 **Minimal or zero negative side effect**

CAM remedial substances being natural healing agents produce no toxic side effects, when they are rightly chosen and given at the right time and potency. Incidents of iatrogenesis never occur in a well administered natural treatment [62]. There are however positive effects from correctly prescribed CAM treatments.

3.11 **No Antimicrobial resistance**

In CAM, there is no incidence of Antimicrobial resistance because microorganisms are not con-

sidered the cause of disease. CAM treatments are not structured essentially to eliminate microorganisms. In Homeopathy, 'pathogenic' microorganisms are ultimates in a disease process, they are the result of a disease [73]. When the body's immune and defense system and the vital force are strengthened enough they overcome and expel all foreign intruders in the system. Besides, CAM remedies are not laboratory extracts of active or non-active ingredients which can be resisted or thwarted via antigenic variations of microorganisms [75]. Most CAM remedies are whole and natural with minimal additives. So long as men search the laboratory for the causes of diseases so long will they search in the laboratory for curative powers, which always ends in failure [59]. Materialistic concept (germ theory) of disease is not in line with the principles of CAM.

3.12 **Preventive Medicine**

Prevention of disease is of primary concern in CAM systems. Hippocrates the Father of medicine said let food be your medicine and medicine your food [76]. One of the most reliable preventive medicare is right nutrition. A Japanese idiom says *ishoku dougen* or *Yakushoku Dougen* which means medicine and food are of the same origin [77]. During the cholera epidemics in his days, Hahnemann was able to prescribe based on collated symptoms, remedies that could be given as a curative and preventive in the prevailing cases of cholera without witnessing a case of it [78]. Till date those remedies are the most commonly indicated remedies for cholera in different localities [79, 80]. During an epidemic, the most frequently indicated homeopathic remedy in a locality may be given as a prophylactic to the uninfected. This remedy is the *genus epidemicus* of the disease in that locality [80]. The great efficacy of homeoprophylaxis has been and is still being proved in epidemics.

4.0 **The Conventional Medical system (Corporeal Medicine)**

4.1 **Origin**

Conventional medical system also known as Allopathy is a system that has been in existence since about the Classical period (510 -323 BC). Hippocrates (460 – 370 BC) born in the Greek island of Cos is recognized as the Father of Conventional (modern) Medicine [81]. He separated the practice of medicine from occultism and religion emphasizing that illness arose from man's error in his environment, diet and lifestyle. He introduced professionalism and discipline as well as clinical observation, inspection and documentation of family history, lifestyle and physical examination in medical practice [82, 83]. The Hippocratic Corpus is a collection of over sixty medical writings claimed to be compiled by Hippocrates and his followers which emphasized the systematic study of symptoms (empirical observation), clinical experience (prognosis) and treatment outcomes and ethical principles [84]. Further advancing on the Hippocratic teachings, Galen (AD 129-216), a Roman physician, paved the way for the study of anatomy, physiology and pharmacology. These efforts laid the foundation for the conventional medicine of today [32, 85].

Allopathy is a system of medicine that employs for the treatment of the sick, medicinal substances which manifest effects, sensations opposite to the symptoms of the disease being treated. *Allopathy* is derived from two Greek words: *allos* which means 'different or opposite' and *pathos* which means 'disease'. The system works on the principle of contrary- *contraria contrariis currentur* [62]. This explains the treatment with drugs or procedures which produces sensations and symptoms opposite to the patient's symptoms.

4.2 **Objective of treatment**

The system focuses on the corporeal component of a human being viz: the physical, ma-

terial body. It is primarily concerned with and limited to only those features which can be felt by the senses [61, 62, 71]. Its rules are framed to ensure that the state of the man in health and disease is practically determined by the macro and micro (physiological or biochemical) variations or otherwise in the organs, systems, tissues and cells [83]. The pathological effects of a disease state are the main guide in the treatment of the subjective and objective symptoms of the sick and must be removed by the curative agents [60]. Imaging studies and laboratory tests take the lead over communication for history taking. When there is no pathological evidence, the sufferer is either declared healthy or passing through a transient psychological phase. In other words, all that exists of a disease must be felt by the senses of touch, smell, sound, taste, sight and symptoms beyond this may be classified as psychological or psychiatric or with some other appropriate nomenclature [59]. In CAM especially Homeopathic medicine the mind symptoms are the most important symptoms.

4.3 **Concept of disease (germ theory of disease)**

This theory posits that diseases are caused by harmful microorganisms (pathogens). The objective of conventional treatment is to diagnose and identify the causative agents or microorganisms and eliminate them with the necessary pharmacotherapeutic implements viz the antimicrobial agents [86]. The materialistic concept of disease in the conventional medicine led to several treatment models all of which have been discarded because of the severe outcomes resulting from their use. Such treatments like cuppings, leeching, venesections, purging, in the pursuit of the *materia pecans*, the use of mercury, lead, arsenic were criticized by Hahnemann and others [62]. After the demise of Hahnemann in 1843, Pasteur's work showed how bacteria caused fermentation [87]. Koch also demonstrated that anthrax was caused by microorganisms [88] and he came up with the Koch's postulates. These findings eventually led to the formulation of the germ theory of disease. Nevertheless the discovery of *pathogenic* microbes did not negate Hahnemann's statement on the dynamic cause and nature of diseases [71] - a typical case where truth is superior to *scientific* facts. On the contrary, the anticipation of a total eradication of the stubborn, deadly, ubiquitous microbes with potent antibiotics did not materialize [89].

4.4 **Concept of specialization (Compartmentalization of the human body)**

In the Allopathic system, the various organs and systems of the human body are seen as performing both independently and in synergy with one another. Hence diseases could be located in an organ, tissue or system. Accordingly, special areas of study are created for the general practitioner who wishes to specialize in any aspect of the human body or specific disease. The skin specialist, known as dermatologist deals with diseases emanating from or located in/on the skin. The nephrologist specializes in the diseases of the kidney. The cardiologist specializes in the heart and its affections [90]. The Ear, Nose and Throat specialist, the orthopedic surgeon with bones, the ophthalmologist with the eyes, the hematologist with the blood, the gastroenterologist with the stomach and the intestines, the psychiatrist with the brain, the hepatologist deals with the liver, the dentist focuses on the teeth and gums, etc. Other specialties include Anesthesiology, oncology, neurology, chiropody, pediatrics, pathology, etc. These are some of the areas of specialization and super specializations in the conventional system [91]. As the need arises, patients may find themselves being moved through two or more specialists to be treated of diseases which are located in their area of specialty [92]. In CAM a patient is treated holistically [71].

4.5 **Bimodal system**

The conventional medical doctor studies the anatomy, physiology, biochemistry of the human body with pathology, etc. He does not produce

his drugs. The drugs he uses are sourced, synthesized, tested and produced by the pharmacists. The pharmacist may not study in depth these medical and paramedical courses but he understands the function of his drugs on the human body probably better than the doctor [93]. When one considers these settings in the conventional system one is at a loss as to who is actually practicing medicine between the doctor and the pharmacist (Figure 1.2). In both CAM and TM the practitioner studies all aspects of medicine, healing agents and produces most of the remedies, prescribes and dispenses them.

4.6 **Allopathic drugs**

These are mostly pharmacological products obtained from either natural or synthetic sources. One of the guiding rules in drug composition is the active ingredient rule. This means that drugs are compounded from extracts consisting of active components obtained mostly from one or more natural compounds. These drugs are targeted at the causative microorganisms as per the germ theory of disease. They are developed by the pharmacologist, prescribed by the doctor and dispensed by the pharmacist [94]. Incidentally the use of these antimicrobials has resulted in the decimation of both the beneficial and pathogenic components of the natural microbial flora with significant side effects [95]. The remedies used by the CAM and TM practitioner are mostly wholly natural or synthesized from natural products.

4.7 **Surgical interventions**

By virtue of their interpretation of health and disease in human, very often, the products of disease, whether in acute or chronic, as the homeopaths say, are considered the disease in the conventional system. Efforts are directed at removing these growths usually by excision through different surgical interventions. In very many instances, these invasive interventions, which appear to relieve for a while, fail to stop the progress of the internal, invisible disease essence [67]. New tissues grow, often with more intensity, viciousness than it did before the surgical excision. The surgical interference, it appears, often triggers some underlying mechanism, to exacerbate the diseases. This is what occurs when surgical interventions are employed to excise benign and malignant growths [96]. Diabetic foot is surgically removed without eradicating the disease [97]. All these and many more are based on principles of conventional medicine. In CAM and TM there are cases that inevitably require surgical procedures. However with selection of right remedies in CAM and TM, many surgical procedures are averted.

4.8 **Antimicrobial resistance (AMR)**

The euphoria that emanated from the penicillin breakthrough was brief as infectious diseases were not only not eradicated, but new and more daring infectious agents have continued to emerge globally. The therapeutic effort led to the rise of antibiotic-resistant pathogens whereby treatment warranted a multidrug approach [95, 98].

AMR is one of the subjects that audibly distinguishes conventional medicine from CAM and TM. AMR occurs when bacteria, viruses, parasites and fungi develop resistance to medicines which were previously able to eradicate them [88]. It was considered the greatest and most urgent global public health risk requiring international attention [99, 100]. WHO [101] attributes the high levels of AMR in the world today to overuse and misuse of antibiotics and other antimicrobials in humans, animals including farmed fish and crops as well as the spread of residues of these medications in soil, crops and water. It is the result of constant mutation- a protective feature of parasites and microorganisms to shield themselves from the inhibitory and killing capabilities of synthetic chemical drugs (antibiotics, anti-malarial, antifungal agents, etc.) [99]. Globally drug-resistance is believed to presently cause not less 700,000 deaths annually. Of this figure, multidrug resistant tuberculosis which

is responsible for 230,000 deaths is expected to lead to increased mortality estimate of about 10 million annually by 2050, if unattended to. Between 2015 and 2050, 2.4 million deaths may occur annually in high-income countries from antimicrobial resistance. This may give rise to new incurable diseases if not halted in time. Many diseases such as respiratory tract infections, sexually transmitted infections and urinary tract infections are increasingly becoming untreatable [99,102]. AMR is a feature that does not happen in CAM and TM treatments since the germ theory of disease is contrary to the philosophy and objectives of treatment in CAM and TM.

4.9 **Iatrogenesis**

Iatrogenesis is defined as a condition of ill-health induced in a patient by the prescription, procedure or recommendation of a physician [103]. In conventional treatment, drug-induced consequences are to be expected. Iatrogenesis in the conventional medical system existed right from the beginning. The Allopathic system employs drugs and treatment procedures which have unintentionally brought pain and death on the users [104, 105]. The germ theory led to the introduction of antibiotic drugs whose application have brought about far reaching consequences [89]. The destruction of beneficial microbes, referred to as old friends (OF) within the human system especially in early life has led to loss of innate immunity or a compromised immune system in many that were administered these antibiotics [106]. This error has contributed to an escalation in the incidence of allergies (food allergies, asthma), chronic inflammatory diseases, a situation referred to as dysbiosis. This avoidable incident is being tacitly captured in the hygiene hypothesis [107]. Another instance is the use of quinine for cases of ague (malaria). Quinine prescription is believed to have resulted in the death and incapacitation of millions of persons worldwide. Quinine caused irreversible deafness, tinnitus and several organ damage in many who took it according to the doctor's prescription whether as injection or tablets. The most serious of the common side effects is thrombocytopenia, which is a reduction in blood platelets count and inability of blood to clot, leading to uncontrolled internal and external bleeding. Besides, a related condition often led to permanent kidney damage. These and other side effects occur to some degree in up to one in 25 patients treated with medicinal doses of quinine [108]. After extensive investigations, Starfield [109] concluded that doctors were the third most prominent cause of death in the United States. According to her, annual deaths from iatrogenesis was about 225,000 resulting from unnecessary surgeries, medication errors in hospitals, other errors in hospitals, infections in hospitals, negative effects of drugs, etc. These estimates of death due to error are less than those reported by the Institute of Medicine. Analyzing the situation; Mercola [110] summarized that evidence from several studies shows that in spite of the high cost of conventional medical interventions, as many as 20% to 30% of hospital patients may have been given an incorrect care [111]. Also it has been severally recorded that mortality rates decreased when doctors went on strike [112,113,114,115]. On the contrary, iatrogenesis is rare in CAM and TM.

4.10 **No known cure**

There are, besides the diseases which are said to be now resistant to the allopathic treatment, a number of diseases which have no cure. Some include hereditary diseases like sickle cell anemia, autoimmune disorders- multiple sclerosis, Type 1 diabetes, Crohn's disease; neurological-parkinson's disease, stroke, spinal cord injury, amyotrophic lateral sclerosis; cardiovascular, renal, liver, ophthalmologic, and skeletal (osteoarthritis) ailments, cancers, infectious diseases- chikungunya, yellow fever, West Nile virus infections, etc. [116, 117]. Most of these conditions are amenable to appropriate CAM treatment.

4.11 **Preventive medicine (vaccination)**

Three concepts in public health which shaped the entire scenario of world health include public hygiene, vaccination and antibiotics [101]. Vaccination is a medical procedure in which the human immune system is pre-strengthened

by being sensitized with an injection or oral administration of an artificial form of the potential threat. Vaccination implies the exposure of the immune system to inactivated toxin or attenuated pathogen for the purpose of eliciting antigen-specific clonal expansion (i.e. the multiplication of thymus cells (T-cells) and Bursa cells (B-cells that recognize the antigen) [118]. World-wide vaccination programs have greatly aided the prevention and eradication of such infectious diseases as polio, small pox, tetanus, measles, diphtheria, etc. Vaccination has been singularly effective in averting many infectious diseases for which there were no treatment [119]. However the principle of vaccination is homeopathic in essence. Due to the presence of many adjuvants in vaccines, vaccination has caused a lot of harm for mankind. The harm caused by the addition of harmful adjuvants in vaccine have almost outweighed the benefits. For instance, brain encephalitis, relabeled as autism, is a side effect of vaccination. As far back as AD 1000, the tradition of vaccination was already being employed in India and China [120]. It is essential to understand that, thus far, the vaccination being explained in this work is the conventional vaccines. These are distinct from the new gene therapy vaccines- mRNA vaccines which constitute the greatest threat humanity faces, actually depopulation and DNA-rebranding tools which should be discouraged [121,122,123,124].

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