Application of Computer in Traditional System of Medicine - Review Article

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Abstract:

Currently, in Medical system, lots of advance computer based technologies have been used successfully. Software and hardware technologies comprise about 70% of the modern medical system, which may be one of the reasons for fastest and advanced development of the modern medical science.[1] Traditional system of Medicine are an integral component of alternative health care systems.

TM has been defined as skills and a practice based on the theories, believes and experiences indigenous to different cultures and maintenance of healthcare as well as in the prevention, diagnosis and treatment of physical and mental illnesses [2]. India is one of the rich wealth of TMs and the potential to accept the challenge to meet the global demand for them. Ayurveda, Yoga, Unani, Siddha and Homeopathy (AYUSH) medicine are the major healthcare systems in Indian TM, and there is lack of awareness of use of computers among traditional system of medicine practitioners and education.

According to WHO reports the populations used traditional medicine in developing countries like India 70%, Rwanda, 70%, and Ethiopia 90%, use traditional and alternative medicine for healthcare, In developed countries like Belgium 31%, USA 42%, Canada 70% of population has used traditional medicine for healthcare [3]

With the increasing popularity of Traditional Medicine, it is need of the hour to fill the gap between IT and Traditional Medicine so that it can easily be validated by the use of computers. Information technology is the most volatile sphere of today's world. It has today revolutionized our perspective of the world.

Keywords: Computer, Traditional System of Medicine, Ayush, Unani

Background:

The Ayush system is one of the alternative healing systems that have acquired a lot of attention and popularity as the globe struggles with the complexity of contemporary healthcare. Growing threats to the traditional medical system are biopiracy and globalization-related patent and intellectual property rights difficulties. It is imperative that we modernize traditional medicine in line with scientific and technological advancements in order to achieve globalization[4].

There is reluctance in the AYUSH medical system, particularly in the Unani system, to incorporate IT-related procedures. A few Unani doctors and scholars have come forward and attempted to introduce technology into the system. The Ministry of AYUSH has launched numerous initiatives to advance the system, and the integration of IT techniques and support has become a top priority for the advancement and verification of the AYUSH system. In order to demonstrate the security and effectiveness of the traditional system, it is imperative that certain IT approaches be implemented for the purpose of storing, analyzing, and validating the data. In order to do this, on November 13, 2020, the Fifth Ayurveda Day, WHO established a global center for traditional medicine in India, with approval from the Cabinet[5].

Objective:

The objective of this article is to promote "The application of computers in the development of Traditional System of Medicine".

Introduction:

The Word compute, which meaning to calculate, is the root of the term computer. An electronic device that is intended to automatically receive, store, process, and then produce results is called a computer. Computers are used to store, process, and display vast amounts of data, as well as to quickly and precisely carry out numerous calculations. They aid in bridging the knowledge gap between conventional wisdom and cutting-edge scientific techniques. The modern computer is credited to Charles Babbage[6].

Traditional system of medicine:

Traditional Medicine has been an important source of health preservation, promotion and treatment of various ill health conditions since time immemorial[7]

The history of traditional medicine is extensive. It is the entirety of the knowledge, abilities, and practices whether explicable or not that are derived from the theories, convictions, and firsthand experiences that are inherent to various cultures and are applied to the preservation of health as well as the avoidance, identification, enhancement, or management of physical and mental illness.[8]

Traditional medicine is defined by the WHO as a variety of health practices, approaches, and benefits that include manual techniques, exercise, spiritual therapies, and medicines derived from plants, animals, and minerals that can be used to treat, diagnose, or prevent illness.[9]

In India, traditional medicinal system are-

Ayurveda is the oldest (6000BC) and organized traditional health care system still practiced "Charak Samhita and Sushrut Samhita (100-500BC) are the two oldest known Hindu text which describe the detailed classification, pharmacological and therapeutics characteristics of about 700 plants. Ayurveda means" science of life coupled with the art of living" It lays great emphasis on the theory of tridoshas-Vata(wind) Pitta (bile) and Kapha (phlegm) which is some of similar to the humoral theory of Canon. It has large collection of drugs which on investigation may prove to be useful.

Hippocrates laid the basics of **Unani** system and was introduced in India by Arabs and Persian in eleventh century. Unani is comprehensive and original source of both modern allopathy and homeopathy. It is poor in factual data but has some ideas which could be profitably investigated by modern science. Enriched by further observations and suitably modified. It is only the objective methods of science and science alone which could add to our knowledge and help us to harness the laws of nature for the relief of suffering and the the cure of disease.[10]

Yoga is a physical mental and spiritual practice that originated in India. The word 'Yoga' derives from Sanskrit and means to join or to unite, symbolizing the union of body and consciousness.[11] One of the fundamental principle of Yoga and Naturopathy is the recognition of the interconnectedness between the mind, body and spirit, while conventional medicine tends to focus on the treatment of specific symptoms or disease.

Homeopathy is the system of treatment of disease by drugs usually in minute dose that is a healthy person would produce symptoms like those of the disease. It has no room for surgery. Hahnemann is consider as the father of homeopathy.[12]

In southern part of India **Siddha** system of medicine was originated which dates back to approx., 3000BC-2000BC.[13]

Application of computers in Traditional system of Medicine:

Computers play a crucial role in the traditional medical system by streamlining processes like data collection, data analysis, and management. They also allow researchers to perform large-scale clinical trials, analyze intricate datasets, model treatment outcomes, and simulate biological processes. Computer-aided methods such as computational chemistry and bioinformatics can also be used to identify active components in conventional treatments and comprehend their mode of action.

Some important Application of computers in Traditional system of Medicine:

➢ Computers are used to collect information from different sources available on websites.

➢ Computers are used to literature review through searching related sites.

➢ Computers are used to analyze the components of drugs.

➢ The Standardization of drugs are now automated process and performed with the help of computer.

➢ Digitalized version of prescription are kept in the computer.

➢ Artificial intelligence like IBM Watson is being used to diagnose and treat patient.

➢ Digital database of the patients are kept in computers.

IT Tools For Clinicians And Academics:

A few databases, including Triskanda Kosha[14] Trisutra, NAMASTE Portal, and AYUSH Research Portal[15], have been built by government agencies and private institutions in India. Ayurvedic core ideas like Prakruti Praikshana[16] and others have also been digitalized through software development. Massive online open courses, or MOOCs[17],

are just one of the many resources for teaching and training that are available, along with webinars, video conferences, and teaching methodologies. The National Institute of Open Schooling (NIOS) creates and administers a few MOOCs. These IT methods have the potential to improve the current medical system[18].

Use of Computer in Research in Traditional system of Medicine:

Research Problem purpose and Hypothesis:

The internet and electronic research database provide shape your research purpose and investigate your selected problem in the depth and help to formulate hypothesis regarding traditional medicine.

Literature Review:

Computer provide access to a large portion of the existing quantitative and qualitative literature, It help to find research paper and article related to our research area it can easily be searched on the site, Ex. PubMed, Google Scholar. Research Gate.

Conceptual framework:

Visual display software can be used to create a visual representation in the form of concept map, flowchart, Models of research.

Data Analysis:

Data Analysis is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data.

Mainly used software in Research: Minipress XL, SPSS, Minitab.

Limitations:

Computers are not as sensitive as the human brain, and while they can store and retrieve vast amounts of data and execute complex analyses quickly, their primary limitation is that they cannot make decisions. One of the biggest obstacles to medical professionals using computers is data entry.

Computer virus is a generic term used to describe, Any of a group of intentionally damaging computer programs are collectively referred to as computer viruses. When a program is used repeatedly, viruses can grow. Program files, data files, and the entirety of the hard drive's contents can all be destroyed. In our nation, viruses like Joshi,

Michael Angelo, India, etc. are frequently detected. It is hard to get rid of viruses entirely because they are becoming more prevalent.

Some of antivirus programs are Scan, CPAV (Central Point Anti-Virus), and Norton anti-virus.[19]

Discussion:

In conclusion, the integration of computers in the validation of traditional system of medicine holds great promise for enhancing its efficacy.

This interdisciplinary approach not only bridges the gap between traditional and modern medicine but also facilitates the discovery of novel treatment

There is urgent need to create computer awareness and its use in Traditional Medicine among medical professionals. They need to familiarize themselves with application of computer in medicine and make best use of it.

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