A Survey on Applications of AI in Homeopathy

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Abstract: *In this paper, we have discussed various ways in which Artificial Intelligence has been used in the field of Homeopathy and Medicine. In this age of technology, Artificial intelligence is being used for various purposes in the medical industry. The various advantages that artificial intelligence provides are very useful in treatment of the patients. We discuss methods where we can use Artificial Intelligence like Fuzzy Expert System and decision tree for selection of remedies, expert systems for Treatment of Glaucoma, diagnosing diseases, and ways in which we can use artificial intelligence in Homeopathy and medicine. We all know that technology has great potential in reducing overloads from human shoulders. By adopting and adapting this technology in the field of Homeopathy we can create a revolutionary change.*

Keywords: Homeopathy, Artificial Intelligence, Medicine, Expert System.

I. INTRODUCTION

The development of the world of health is now increasingly rapid, both in terms of technology and treatment techniques. Health is the most critical thing in life. It is invaluable for every individual because health is a state of well-being of the soul, body, and social that enables everyone to live a good and productive life [1].

Homeopathy is an alternative medicine based on the idea of 'let like be cured by like'. It was founded by Samuel Hahnemann in the late 18th century [2]. A basic belief behind homeopathy is "like cures like." In other words, something that brings on symptoms in a healthy person can -- in a very small dose -- treat an illness with similar symptoms. This is meant to trigger the body's natural defences.

Homeopathy is used for an extremely wide range of health conditions. Many practitioners believe it can help with any condition. Most common conditions that people seek homeopathic treatment are asthma, hay fever, mental health conditions such as depression, stress and anxiety, allergies, arthritis, and high blood pressure [3].

Artificial Intelligence is a branch of computer science where Machines are trained to think like human beings. AI is a study of how human brain think, learn, decide and work, when it tries to solve problems [4].

Artificial Intelligence is being used in various fields including Healthcare, Education, Aeronautics, Research, etc. It provides a helping hand in doing the complex tasks for the human. Thus, it improves the efficiency and the speed of the people.

In this paper, we will see the use of Artificial Intelligence in Homeopathy, and how it can be used and implemented for the better results in homeopathy.

II. METHODS AND MATERIAL

This paper has been completed on the basis of the information gathered from various sources. Internet, various research papers and articles have been surveyed for the purpose of gathering and understanding information.

III. RESULTS AND DISCUSSION

3.1 Expert Systems

An expert system is one branch of artificial intelligence that uses specialized knowledge possessed by an expert to solve a particular problem [5]. Expert system functions to imitate human experts must be able to do things that can be done by an expert [6].

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3.2 Using an Expert System for Remedy Selection

Pawar, Kini and More have proposed an expert system for homeopathic remedy selection. They have used the Materia Medica. They have suggested on using the fuzzy sets to create a fuzzy expert system for gaining information through Materia Medica. The fuzzy expert systems are a good way of systemizing a very unstructured data that is received from the patient in the form of Natural Language [7].

They have investigated the use of fuzzy expert system and decision trees for remedy selection in homeopathy. The results were poor with the decision trees being used, but the fuzzy expert system was very accurate.

3.3 Expert System for Glaucoma Treatment

F. Alonso Amo, A. Gómez-Pérez, G. López Gómez and C. Montes have presented and Expert System for Homeopathic Glaucoma Treatment (SEHO) [8]. SEHO has been used for helping ophthalmologists to select the most appropriate therapy for Glaucoma patients.

SEHO compiles extensive and complete information on the patient through homeopathic questioning before suggesting any remedy and thus does not point the doctor in any particular direction that might lead him or her to overlook important data on the patient during the session.

The results of the questioning session are sent to the homeopathic techniques of the expert system, which attempts to put together the most complete profile of the patient possible and to establish his or her characteristics and symptoms so as to apply the most suitable medicines. Optionally, the system can provide information on other possible, though less suited, medicines together with the patient's symptoms that each of them covers. Like other ES, SEHO provides information on its reasoning process, explaining the intermediate conclusions and why it selects and incorporates each medicine into the working memory.

3.4 Study on Development of Expert System

Another study on Expert Systems being used in homeopathy is by A Mulyani, D Kurniadi, M Ahmad and D D S Fatimah [9]. They have discussed the Development of an expert system using Expert System Development Life Cycle (ESDLC). The decision making techniques used in this expert system are using forward chaining method.

They have given the study about the complete development system with all the phases of the ESDLC. These are Assessment, Knowledge Acquisition, Design, Test, Documentation and Maintenance.
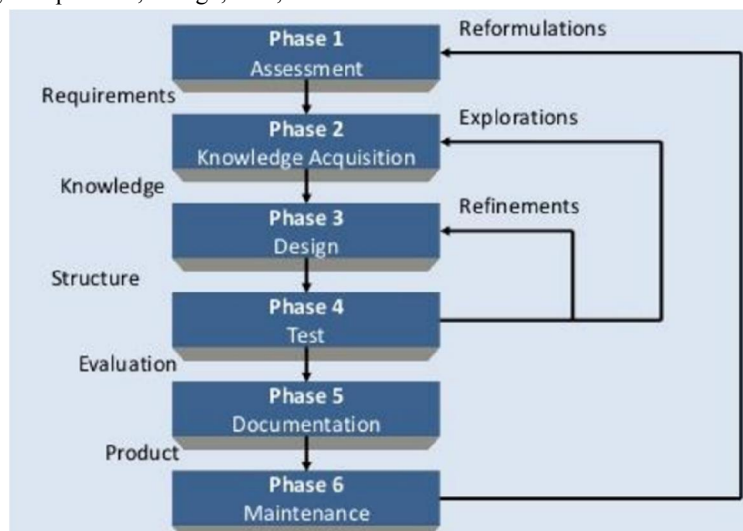

Figure: ESDLC [9]

3.5 Adopting Artificial Intelligence in Homeopathy

Dr. K. Satish Kumar has presented different ways in which Artificial Intelligence can be adopted in Homeopathy [10]. Adoption of AI in Homoeopathy is taking place in various forms:

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A. Knowledge
- Webinars
- e-CME
- e- lecturing

B. Problem solution
- Instrumentation for Homoeopathic diagnosis
- Analysis and Selection of Remedy
- Individualization of Patients

C. Research
- Drug / Diseases Analysis
- Action of medicine
- Objective and Subjective Evaluation

IV. CONCLUSION

In this paper, we have seen how Artificial Intelligence is being used and can be used further in the field of Homeopathy. Using technologies like Expert Systems can help the experts to provide better solutions to the problems of the patients. There is a lot of scope in the using technology for helping patients and saving lives.

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