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Trends and Possibilities of Information Technology in Unani System of Medicine

	
<p>Mohammed Sheeraz*¹, Tabassum Fatima²</p> <p>1. <i>*Research Officer Unani, Scientist L-1, Regional Research Institute of Unani Medicine, Srinagar, Jammu & Kashmir, India.</i></p> <p>2. <i>PG Scholar Department of Moalajat, Regional Research Institute of Unani Medicine, Srinagar, Jammu & Kashmir, India.</i></p> <p>Submitted: 10 December 2020 Revised: 30 December 2020 Accepted: 20 January 2021</p>	



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ABSTRACT

With the increasing popularity of Unani Medicine, it is need of the hour to fill the gap between IT and Unani Medicine. Information technology is the most volatile sphere of today's world. It has today revolutionalized our perspective of the world. Telemedicine is a prime part of information technology and is the need of the hour. EHR (Electronic Health Record), EMR (Electronic Medical Record), PHR (Personal Health Record), HTML (Hypertext Mark-Up language). XML (Extensible Mark Up Language), AI (Artificial, Intelligence), NLP (National Language processing), E-Books, SNOMED CT, (Systematized Nomenclature of Medicine- Clinical Terms) are all components of IT that can be of extreme help in the field of Unani Medicine. The Globalization patent intellectual property rights issues and biopiracy are becoming major challenges in Unani Medicine. To globalize, Unani Medicine there is an urgent need to modernize our traditional medicine with the development of science and technology. IT is widely used in modern medicine and implementation of IT in the Unani System also is the prime need of the hour. Keeping this view, in this paper, an attempt is made to review about trends and possibilities of information technology in the Unani system of Medicine.

INTRODUCTION

Information technology is the use of a computer to store, retrieve, transmit and manipulate data or information often and the context of a business or other enterprise. When IT is used in the health care system it is called Health Informatics. Telemedicine is the use of telecommunication and information technology to provide health care from a distance. It has been used to overcome distance barriers and improve access to medical services that would often not be consistently available in distant rural communities.^{1,2}

It is also used to save lives in critical care and emergency. Earlier telemedicine was used only in some developed countries but now it is used worldwide. Telemedicine, telecommunication and IT are essentially products of the 20th century. These technologies permit communication between patient and medical staff with both convenience as well as the transmission of medical imaging and health information data from one site to another e.g. Telesurgery or remote surgery is the ability for the doctors to perform the surgery on a patient even though they are not present in the same location with the help of robots and high-speed data connection.³

Now the question is where this modern technology can be used in the Unani System of medicine or not? How can Unani practitioners and Institutions use this technology? The answer to this question is EHR, which helps to keep all records of the patients. Similarly, HTML and XML can be used to make websites on which Unani literature and treatment can be updated on regular basis. This technique will help retrieve the data at any time.⁴

Keeping the importance of application of information technology in Unani System of Medicine and to bridge over these two respective fields, a literature survey was done and Trends and possibilities of information technology in the Unani system of medicine are explored in this paper.

METHODOLOGY

Recently the ministry of AYUSH sent the author on a training program at CDAC (Centre for Development of Advanced Computing, Pune) for three months of IT training. The objective of this training was to develop the software-based principals for AYUSH systems by using a computer program. This training helped in understanding the practice of MS Office which helps to make projects, softwares, six months and yearly morbidity code reports, which are made in Microsoft Excel. In this training, NPL was also taught which is twenty-eight

languages programme and uses stand for software. The Arabic language is also included in this. Due to this software, translation can be done to different languages. Materials for above said objective is collected from library C-DAC, Pune. ⁵

Artificial Intelligence

Artificial Intelligence is used extensively in the modern system of medicine. Robots are used for surgeries and nursing facilities. Eye instruments used in modern medicine are also features of AI. If this is used in Unani Medicine for procedures such as Hijamah it can be highly beneficial. ⁶

Lib Science

If Lib Science is used for USM, it will be much helpful. Due to this technology, the Unani literature and books which are present in different libraries of the world which we don't have access, can be accessed with the help of this technology. The literature of Unani Medicine present in libraries of the world like Ayasofya library in Turkey, Alexandria library in Egypt, World of congress library in America, William's library in England, KhudaBakhsh library in Patna, Maulana Azad Library in Aligarh. Every individual will be able to access this literature with the help of lib Sciences. This training program summarized that if IT will be applied in Unani Medicine, the results would be fruitful.

E-Books

Unani literature and E-Books are present in different libraries, if this literature will be uploaded on the websites of the Ministry of AYUSH, it will become more authentic. The field of E-Books is an important department of IT, work on which is still to be done on a large scale. Presently work is going on the compilation of an eBook of Canon of Medicine by Avicenna. Classical books available on Unani literature should be converted into E-books so that they can be accessed online by everyone.

EHR, MHR, PHR

EHR, MHR, PHR can be used for uniformity of statistical data of institutions e.g. morbidity codes, ICD-10 is used by the ministry for this purpose only. In the same way, the use of NABH in Unani hospitals is also possible with the help of these technologies. The books and literature on Unani medicine can also digitalize with this technology which is very important

for the development of USM. Similarly like SNOMED CT Unani medical terminologies can be made into the database. Presently 4,48,261 terminologies are present in SNOMED –CT .²

Research Gate

Similarly, the research gate is a platform where Unani researchers can upload their research papers so that the Unani system can get worldwide acceptance and discussion on these topics can be made by scientists and researchers worldwide which will be beneficial for USM.

UMLS

UMLS (Unified Medicine Language System) can be used for the standard classification of terminology. The standard terminology is already given by CCRUM but it still needs further corrections, for example, its soft copy which is present on the NAMSTP website. If used in combination with Html instead of pdf, it will be beneficial and also an option of “Search” should be incorporated into it. Other languages should be incorporated into this website so that searching can become easy like other medical fields. Other medical fields are using these technologies very effectively. If Unani drugs (cruds and formulation) will also be incorporated along with terminologies it will be very beneficial for the USM.⁷

Genomics

It is a branch of molecular biology with which fetal abnormalities can be detected, moreover with the help of micro-array technology, chromosomal anomalies can be detected and corrected using modern techniques. Nowadays, ovulators can help in the detection of ovulation time. If appropriate drugs are used at the time of ovulation, fertilization may occur. The researchers who are working in this field, this instrument is very important and helpful for them.

Drone technology

Drone technology is a technology in which an unmanned aerial vehicle carrying emergency or situational drugs can be sent to remote areas in a short period.

HL-7

HL-7 is standard software through which information can be transferred to different departments of the hospitals e.g. if a patient is admitted at the registration counter the information can immediately be transferred to the IPD with the help of this program.

DICOM

Medical imaging like MRI, USG, X-ray help in the diagnosis of the disease. These technologies are used nowadays in all hospitals including Unani hospitals. DICOM is used for handling, storing, printing, and transmitting information in medical imaging. If will be used for USM, it will be easier in diagnostics.

Attention to all IT experts

After making software, it should be properly tested. In 1994, a bug in the software caused damage to the USG machine due to which harmful rays were emitted which caused the death of a patient. Similarly, there was an air crash, because the software was not tested and debugged which took the lives of 264 people. That is why software developers should properly test and debug the software before use. In different fields, especially medical fields this software should be properly tested. Negligence in the field of medical electronics could be very harmful to patients and could have deleterious consequences.

Possibilities

The training program was beneficial and the Unani team started thinking positively about information technology and the development of E-Advia, E-books, Unisoft and much more software which are in the initial stages of development and the idea of the above are placed before the ministry of AYUSH. This software will help the people related to Unani Medicine to search compound drugs and single drugs and the temperaments and many important details about Unani medicine easily.

Mizaj Software

The points to be incorporated in the MizajSoftwares are Concept of Mizaj, Need of the Project Solution, Benefits, Beneficiary, Methodology, Duration of Project, Structure Of Software, Questionnaire, Budget.

E- Advia

The point which is supposed to be incorporated in the project of Development of Standardized encyclopedia of single Unani Drugs is Need of the Project, Solution, Benefits, Beneficiary, Methodology, Duration of Project, Structure of Software, Questionnaire, Budget, E-Advia, Points for development of E-Advia, Development of a web application for

Mufradat (Single Unani Drugs), Teaching tool, Duration of Project -2 years, in EMR – Format.

Unisoft

Points to be incorporated in Unisoft, Concept of Unani System of Medicine, Need of the Project, Solutions, Benefits, Beneficiary, Methodology, Duration of Project, Structure of software, Questionnaire, Budget.

Big Data

Extremely large data sets can be analyzed. Billions and trillions of records of patients like X-rays, Medical videos, etc can be analyzed and processed with the help of Big data technology (HADOOP) which is helpful in getting knowledge about Genetics, Oncology and population health rehabilitation.

GIS Cholera

It is the technology used extensively in epidemiology for disease surveillance and intervention monitoring of cholera.

Mobile application

Android Studio projects, which help in making mobile apps which can help in making apps for Unani System of Medicine, Application can be made in Urdu language.

Reminder for drug dosage and diet dosage.

Taking medicine on time and in appropriate dosage is a problem for both doctors and patients; IT can be used to solve this problem. In Unani System Diet and Medicine plays important role in treatment, mobile apps can be made which give a reminder on diet therapy in many diseases like in TB anemia pregnancy and Lactation to take Medicine on time and regularly.

IVRS (Interactive Voice Response)

It is a technology through which treatment plans and drug dosage can be remembered by the patients. MDots + is a mobile app that is used to guide TB patients for diet and medicinal therapy. I- mosquito is a mobile app that is used to keep surveillance of patients with Malaria. The data is collected from all parts of the country and is kept for future reference. The advent

of this type of technology in Unani System is the need of the hour. It is particularly beneficial for those who work in the area of PSM. Through a national program for the elimination of TB, a direct observation of treatment is ensured for TB patients. GIS helps us to find the various causes that goes into making any disease an epidemic.

Abbreviations: ^{8,9}

S. No.	Abbreviations	Full form
1	IT	Information Technology
2	HER	Electronic Health Record
3	EMR	Electronic Medical Record
4	HTML	Hyper Extensive Markup Language
5	XML	Extensive Markup Language
6	AI	Artificial Intelligence
7	NLP	National Language Processing
8	SNOMED CT	Systematized Nomenclature of Medicine – Clinical Terms
9	C-DAC	Centre for Development of Advanced Computing
10	MS Office	Microsoft Office
11	App	Application
12	MS Excel	Microsoft Excel
13	E- Instruments	Electronic Instruments
14	NABH	National Accreditation Board for Hospitals
15	RG	Research Gate
16	UMLS	Unified Medical Language System
17	NAMSTP	National AYUSH Morbidity Standard Terminology Portal
18	HL -7	Health Level -7
19	DICOM	Digital Imaging and Communication in Medicine
20	IVRS	Interactive Voice Response System
21	E-Advia	Electronic Advia
22	TBNE	Tuberculosis National Eradication
23	GIS	Geographical Information System
24	EMR	Extramural Research

CONCLUSION

A bird's view makes us to realize that in comparison to various contemporary medical sciences, Unani Medicine is lagging miles behind. Other medical systems with their software and applications have made it possible to create educational databases and e-Libraries e.g. The Ayurvedic softwares under the name AYUSOFT which was launched in 2004 provides an ocean of knowledge, also, they have created e-Books by the name of E-Susrat and E-Charak. Siddha has also created health software. The Unani fraternity is in deep slumber when it comes to using technology particularly IT. It is the need of the hour that Unani physician and Hakims should take this matter sincerely as their work has been done by other parties and have ensured that their system slides on the rails of progress.

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Conflict of Interest

No any

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