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Research Paper

Implication of Artificial Intelligence in Public Health Dentistry: Future Prospective and Challenges

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ABSTRACT: *From the time immemorial , machines are so designed by instilling all the high technical component making it technologically advance and proficient thereby simplifying the work of man .In today's era machines are used in almost every field . Life is considered difficult without machines in the form of gadgets , electronic medias etc , Advent of artificial intelligence is one such innovation towards this. This technology is used in every field and medical and dental is not an exception too, Public Health dentistry deals with epidemiological aspect of diseases at community level . The aim of the review study is to describe the role of Artificial intelligence in public health dentistry highlighting its future prospective and challenges that may arise while dealing with it.*

KEYWORDS*: Artificial intelligence , Public Health . medical , dental , epidemiological*

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I. INTRODUCTION

"A field of science and engineering concerned with the computational understanding of what is commonly called intelligent behavior, and with the creation of artifacts that exhibit such behavior" is the definition of artificial intelligence (AI).[1]

John McCarthy originally used the term "artificial intelligence" in 1956. Artificial intelligence technology has expanded to include a wide range of applications in domains such as robotics, natural language processing, expert systems, game play, theorem-proving, image reputation, and telephony.In the last ten years, technology has also completely transformed the fields of medicine and dentistry. [1] Examples include online appointment scheduling, online check-ins at medical facilities, digitization of medical records, calls to remind patients of follow-up appointments and immunization dates for children and pregnant women, drug dosage algorithms, and adverse effect . [1]

WHAT IS ARTIFICIAL INTELLIGENCE ?

Artificial Intelligence (AI) has been a popular topic in computer science for decades. It is defined as any technology that exhibits some aspects of human intelligence. Artificial intelligence tasks range from item recognition in a visual situation to phrase construction and even stock market prediction. [2] Since the beginning of the computing era, scientists have been attempting to develop AI. For the majority of the 20th century, the dominant methodology comprised building enormous databases of information and regulations, which were then used by computer programs with a logic foundation to inform their choices. However, a change has occurred in this century with new methods that use data analysis to teach computers to learn facts and regulations on their own. [2]

CLASSIFICATION OF ARTIFICIAL INTELLIGENCE

Artificial intelligence is classified in various types depending upon two important feature which can be described as : [3]

A. Based on capability:
1. Artificial Narrow AI
2. General AI
3. Super AI

B. Based on Functionality :
1. Reactive Machine AI
2. Limited memory AI
3. Theory of mind AI
4. Self aware AI

IMPLICATION OF ARTIFICIAL INTELLIGENCE IN PUBLIC HEALTH DENTISTRY

With an emphasis on diagnostic records that include IOPAs/RVGs, 3-D, and computed tomography with cone beams, artificial intelligence is progressively infiltrating the field of radiography in dentistry. [2]

Since its inception in the 1980s,the field of automated tutoring has made major advancements. AI is commonly used in the discipline of dental education to create scenarios that mimic performing clinical procedures on patients as well as reduce all the risks associated with training on an actual patient. As a result, the preclinical virtual patient input from the students has significantly increased. Because the interactive inter-phase enables students to assess their work and contrast it with the ideal, it creates high-quality learning settings. Numerous assessments of these systems' effectiveness have shown that they enable students to reach competency-based abilities more quickly than traditional simulator units. [4]

Virtual dental assistants driven by artificial intelligence can perform a variety of activities in the dental office more accurately and with fewer mistakes while employing less personnel. Numerous duties, such as clinical evaluation, therapy planning, appointment scheduling, insurance and paperwork management, and many more, can benefit from its assistance. It is crucial for the dentist to be aware of the patient's health, history, and any habits, such as smoking and drinking.In dental emergencies, especially when the doctor isn't there, the patient can opt for emergency teleassistance. [5]

FUTURE PROSPECTIVE OF ARTIFICIAL INTELLIGENCE IN PUBLIC HEALTH DENTISTRY

Artificial intelligence holds a great future in the era of technology and when concerning public health needs it is the best way to manage dental needs. Advanced imaging analysis: AI systems will get increasingly better at identifying intricate dental issues, such as tiny anomalies and early-stage malignancies. Better patient outcomes and earlier intervention will be made possible by this advanced AI-powered teledentistry platforms will enable remote consultations, treatment planning, and follow-ups. This will make dental treatment more accessible, particularly in underprivileged communities.

II. CONCLUSION

Artificial Intelligence is a innovative way of approaching health problems , it not only consumes less time but even reduces the manpower used while approaching different public health problems . Further studies need to be done for better assessing its feasibility and implicability in dealing public health issues.

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