Revolutionizing Health Communication and Drug Law Enforcement through Artificial Intelligence (AI)

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Abstract

The present day media revolution, which was predicted by the Canadian Communication Scholar, Marshal McLuhan, in 1962, has given rise to wide application of computer/internet for diverse purposes. At the moment, Artificial Intelligence (AI) and Mechanize Learning (ML) are trending innovation in the Information and Communication Technologies (ICTS) usage. These innovations have found amiable relationship with medicine and public health, hence their wide applications for health literacy and public health communication. The use of Artificial Intelligence (AI) for education purpose has ushered in new opportunities for public health education, health literacy learning, and Intelligence Cognition. Premised against the foregoing background, therefore, this paper assesses the influences of Artificial Intelligence in health communication and drug law enforcement. Since the incidents of drug abuse and drug law enforcement are partly attitudinal issues, risk communication mechanisms, using artificial intelligence is germane. This paper aims at finding out if AI has correlation with health communication, and if Artificial Intelligence can significantly improve risk communication and drug law enforcement. The paper is anchored on the Technology Determinism Theory; it adopts a qualitative research design approach. Some case studies in the areas of artificial intelligence, health communication, drug abuse and drug law enforcement are reviewed and critically analyzed to arrive at empirical conclusions. Results of this study reveal that AI devices have wide applications in health communication that can enhance the attainment of higher levels of health literacy. The study concludes that AI devices are effective communication strategies for a healthy society.

Keywords: revolutionizing, health, communication, drug, abuse, law, enforcement, Artificial Intelligence

Background of the Study

The Canadian communication scholar and theorist, Marshall McLuhan, in 1964, coined the expression, "global village", when he saw different media working less plausibly together to make information and experience freely available for all to share (McQuail and Deuze, 2020). McLuhan drew attention to the implications of a shift from a purely oral communication to a one based on a written language and thus proposes that as more of our senses are engaged in the process of taking messages, the more involving and participatory the experience is (West and Turner, 2020). A cursory look at the media evolution from the stone age, books and printing era, radio, motion pictures, television, to films, will constantly remind us of how international the media have become and how the flow of news and culture encompasses the globe and draws us into a simple "global village" (McLuhan 1964)

According to God's Presence (2020), the globalized media industry, which gives rise to the global village, is associated with internet technology. Okafor, Dunu, and Ekwugha (2021) corroborate the significance influence of the internet in the globalization of the media industry and posit that software technology is the driving force for digitalization. They further said that with the advent of the internet, what existed as boundaries separating countries have become practically non-existence. As a result of its potentials and capacity, the internet has brought with it a lot of opportunities and landmark developments in the communication world. For instance, digital technology, which drives the internet, pervades almost everything in our daily lives. Cell phones and other types of wireless communication, television, radio, process control, automotive electronics, consumer electronics, aircraft navigation, among others, depend heavily on digital electronics (Floyal, 2015).

With the foregoing potentials and capacities of the internet, Current (2012), cited in Oyokunyi and Udust (2018) assert that the internet would make the world a better place to live in. Adebayo, Owoaje, & Dairo (2019) posit that the role of the internet in making the world a better place may not have been met; however, the phenomenon of huge usage of the internet across countries and cultures has shown that the internet is providing more and better ways of putting to use old tricks and methods in ways that enhance social development and personal wellbeing.

Effective communication has long been recognized as a fundamental element of quality healthcare delivery. It plays a pivotal role in the education of patients, adherence to treatment plans, early detection of health issues, and overall patient satisfaction. The advent of the digital age has

presented opportunities for improved efficiency in healthcare communication approaches. At the moment, the contemporary landscape of healthcare is witnessing transformative shifts in the way information is disseminated, patient engagement is fostered, and healthcare services are delivered. Artificial intelligence (AI) is at the heart of this evolution, emerging as revolutionary agent of change in healthcare communication (Adebayo, Owoaje, & Dairo, 2019). As multifaceted tools that facilitate interactions between patients, healthcare providers, caregivers, and the broader healthcare ecosystem, AI-powered devices, equipped with advanced natural language processing capabilities and machine learning algorithms, hold significant promise in navigating the complexities of digital communication within the healthcare sector (Orji, Ogbole, & Ijeoma, 2021).

AI tools are becoming indispensable in carrying out diagnosis and treatments. For instance, Orji, Ogbole, & Ijeoma (2021) reveal that DeepMind Health, a pioneering initiative backed by Google, has introduced Streams, a mobile tool infused with AI capabilities, including chatbots. According to Orji et al., Streams represents a departure from traditional patient management systems, harnessing advanced machine learning algorithms to enable swift evaluation of patient results. This immediacy enables healthcare providers to promptly identify high-risk patients, facilitating timely interventions that can be pivotal in determining patient outcomes.

Thus, the trajectory of AI integration in healthcare unmistakably moves towards more streamlined, efficient, and patient-centric modalities, with chatbots at the forefront of this transformation. These AI-driven chatbots serve as virtual assistants to healthcare providers, offering real-time information, decision support, and facilitating seamless communication with patients. This paper explores the profound impact that AI-powered devices are exerting on healthcare communication, with particular emphasis on their capacity to catalyze transformative changes in patient behaviour and lifestyle choices. Our journey takes us through the sophisticated conversational agents driven by AI technologies. This paper also delves into AI's multifaceted applications within the healthcare sector, ranging from the dissemination of critical health information to the facilitation of remote patient monitoring and the provision of empathetic support services.

Statement of the Problem

The ultimate goal of any health communication is to elicit the expected behaviour and yield positive attitude from the target population towards the central theme of that intervention. It, therefore, becomes imperative that the right communication approach (or a mixture of approaches) would be of

importance, in determining the success of that health campaign. The word, "communication", is derived from the Latin term, "Communicare'', which means to "share" or to "establish commonness". This matches the correlating function of communication in the society, and is in line with the notion that members of the society should be sufficiently provided with full, unbiased information that would enable them respond positively to the goings-on in the society. The global response to drug law enforcement, and indeed all other public health campaigns, is largely anchored on communication. Mass media, for instance, were used extensively to sufficiently raise the necessary awareness about drug abuse and educate the populace about the health hazards associated with drug abuse. Despite the plethora of these campaign strategies, there is still prevalence of drug abuse, and indeed other public health issues. The continued evolution of the media, including its goal of effectively addressing issues of public health, among other factors, has given rise to the emergence and utilization of Artificial Intelligence. AI is imbued with the potential to enhance public health communication and drug law enforcement. However, given that AI integration into health communication is a novel practice, a significant proportion of the general public is not aware of this innovation and how effective it could be.

Objectives of the Study

The overall objective of the study is to examine the revolution in health communication and drug law enforcement through Artificial Intelligence (AI). The specific objectives of the paper are:

- To find out if AI is being used to facilitate health communication and drug law enforcement;
- To identify some of the applicable areas of AI in health communication and drug law enforcement;
- To ascertain the efficacy of AI as a technology for health communication and drug law enforcement.

Theoretical Framework

The study is hinged on the Technological Determinism Theory. The American sociologist and economist, Thorstein Veblen (1857-1929), coined the term, "Technological Determinism," as a theory subscribed to by hyperglobalists who claim that as consequences of the wide availability of technology, accelerated globalization is inevitable. Technological Determinism theory has been summarized by Merritt Roe Smith, (1994), in Heder (2021, p.119), as "the belief in technology as the key governing force

in society". Again, Bruce Bimber (2000), cited in McQuail and Dueze (2019), summarized Technological Determinism Theory as "the idea that technological developments determines social change… It changes the way people think and how they interact with others and can be described as a three-word logical position: technology determines history."

Langdon Winner (2001) provides two hypotheses for Technological Determinism Theory:

1. The technology of a given society is a fundamental influencer of the various ways in which a society exists; and
2. Changes in technology are the primary and most important source that leads to change in the society.

The technological Determinism theory is suitable for this study because the evolution of the media of communication has great impacts on the society. This is reflected in the statement by McLuhan (1964) that "the medium is the message" which means that the medium used to communicate influences the mind of the receiver. The introduction of news print, television, computer, internet and AI have all shown how technological advances impact on the society in the area of health and drug law enforcement

Conceptualizing Health Communication

It is pertinent to synoptically define communication before discussing health communication. The word "Communication", according to Nwosu (2000), cited in Nwankwo, E. (2022), originated from the Latin word, "communicare," which means "to share." Impliedly, communication means sharing of meanings, ideas, experience, thought, and feelings, among others. The concept of communication has been defined in various ways by various scholars and each definition is looking at the concept from a different perspective. Fiske (1990, p.1), in Uzuegbunam, & Duru (2016) renders a general definition of communication relevant to this study as, "social interaction through messages". This definition is identical to that of Mowlana and Wilson (1988, p.9) who see communication as, "social interaction by means of messages which are both human and technological (Briggs & Hallin (2016)". The basic idea is that something is transferred or transmitted from one person to another during the communication process. This is achieved, for example, when we communicate either through the television, radio, newspaper, etc.

Communication according to the U.S Office of Disease Prevention and Health Promotion (2004), cited in Turner, & Orange (2013), refers to the transmission or exchange of information and implies the sharing of meaning

among those who are communicating. Communication also serves the purpose of initiating actions making known needs and requirements, exchanging information, ideas, attitudes and beliefs, engendering understanding and establishing and maintaining relations. Communication, thus, plays an integral role in the delivery of healthcare and the promotion of health. This means that communication is a persuasive tool that could be used purposefully to alter the behavior of the recipient in the direction desired by the communication source.

According to Nwosu (2000), in Uzuegbunam & Duru (2016), communication might be defined as the transfer of facts, information, ideas, knowledge, from one person to another so as to impart a complete understanding of the subject matter of communication to the recipient of such communication. Kontz and O'Donnell (1946), in Uzuegbunam, & Duru (2016), define communication as a way that one organization member shares meaning and understanding with another. For Keith Davis (2000), in Briggs, & Hallin (2016), communication is the process of passing information and understanding from one person to another. Another similar definition by Louis A. Allen states that communication is the sum total of the things one person does when he wants to create understanding in the minds of another; it is a bridge of meaning; it involves a systematic and continuous process of telling, listening and understanding (Briggs, & Hallin ,2016).

On the basis of the above definitions and the surrounding knowledge, we can gather the following salient features of the concept of communication: communication is a continuous process, it is a two-way process; it is always done with a purpose. Communication is the exchange of ideas. Shannon and Weaver (1949), cited in Turner & Orange (2013), warn that communication is not the mechanical transfer of facts and figures as the mathematical model of communication would appear to indicate. It is also not talking at people. It is instead an interactive process that works in a circular, dynamic and ongoing way (Turner, B. & Orange, R., 2013). It is talking with people – a process with no permanent sender and no permanent receiver. In the process of communication, the roles of sending and receiving change hands depending on who is talking and who is listening. This implies freedom, equality, and shared interest.

Communication, defined this way, departs from what Beltran (1974; p.13), cited in Turner, B. & Orange, R. (2013), has identified as "the classical mechanistic-vertical model", which sees communication as a process of transmission of modes of thinking, feeling, and behaving from one or more persons to another person or persons. In this classical model, the paramount goal of communication is persuasion, and the element of feedback is

important chiefly as a message adjusting device to enable the communicator to secure the performance of the expected response from the receiver. This is the model which assigns an actively predominant role to the communicator, and a very passive role to the person communicate to – a sort of one-way communication in which emphasis is on the effects that communication can have on people or on ways in which messages can use people.

The new concept of communication – the humanized democratic interactive model (Turner & Orange, 2013) – places emphasis on how people use communication or messages. It stresses genuine dialogue or free and proportioned opportunity to exert mutual influence and rejects the idea that persuasion is the crucial factor; it is recognized as the chief role of communication. Because of this, audience-oriented feedback is imperative; its importance lies in the opportunity it creates for understanding the receiver's point of view, and therefore, for ensuring re-orientational influence. In the strength of the foregoing considerations, genuine dialogue, democratic, interactive, communication becomes germane. It supports the need for and the value of health literacy.

Health Literacy and Health Communication

Baggot, R. (2015) explains that the term health literacy has been used in health literature for at least 30 years, pointing out that in the United States, in particular, the term is used to describe and explain the relationship between patient literacy levels and their ability to comply with prescribed therapeutic regiments. Corroborating the foregoing, Torkkola (2016) states that this approach infers that adequate functional health literacy means being able to apply literacy skills to health related materials such as prescriptions, appointment cards, medicine labels, and directions for home health care. Parker et al. (1995), cited in Torkkola (2016), inform that research based on this definition has shown, e.g., that poor functional health literacy poses a major cost to the health care industry through inadequate or inappropriate use of medicines. Torkkola (2016), however, observes that this fundamental but somewhat narrow definition of health literacy misses much of the deeper meaning and purpose of literacy for people. The field of literacy studies is alive with debate about different types of literacy and their practical application in everyday life. One approach to classification simply identifies types of literacy not as measures of achievement in reading and writing, but more in terms of what it is that literacy enables us to do.

Such a classification indicates that the different levels of literacy progressively allow for greater autonomy and personal empowerment. Progression between levels is not only dependent upon cognitive

development, but also exposure to different information/messages (communication content and method). This, in turn, is influenced by variable personal responses to such communication – which is meditated by personal and social skills, and self-efficacy in relation to defined issues. By contrast to the definition of fundamental health literacy above, WHO, cited in Araujo, & Lopes (2016), defines health literacy more broadly, as follows:

> Health literacy means more than being able to read pamphlets and successfully make appointments. By improving people's access to health information and their capacity to use it effectively, health literacy is critical to empowerment.

This definition reflects elements of the two other types of literacy described above – interactive and critical literacy. It also significantly broadens the scope of the content of health education and communication; it indicates that health literacy may have both personal and social benefits, and has profound implications for education and communication methods.

In terms of content, efforts to improve people's knowledge, understanding and capacity to act, should not only be directed at changing personal lifestyle or the way in which people use the health services. Health education could also raise awareness of the social, economic and environmental determinants of health, and be directed towards the promotion of individual and collective actions which may lead to modification of these determinants.

In terms of health benefit such a definition implies that health literacy is not only a person resource which leads to personal benefits, e.g. healthier lifestyle choices and effective uses of available health services. It also implies that the achievement of higher levels of health literacy among a greater proportion of the population will have social benefits, contributing, e.g., by enabling effective community action for health, and contributing to the development of social capital.

In terms of method of education and communication, such a definition provides a challenge to communicate in ways that invite interaction, participation and critical analysis. This is very similar to the style of education for critical consciousness advocated and popularized by the Brazilian educator, Paulo Freire (Freire, 1970).

Health literacy is clearly dependent upon levels of fundamental literacy and associated cognitive development. Individuals with undeveloped skills in reading and writing will not only have less exposure to traditional health education, but also less developed skills to act upon the information received. For these reasons, strategies to promote health literacy will remain

inextricably tied to more general strategies to promote health literacy; much of the richness of health literacy implied by the WHO definition is missed in approaches to the promotion of functional health literacy as described above.

What is Drug Abuse?

Mandai (2024) informs that drug abuse or substance abuse refers to the use of certain chemicals for the purpose of creating pleasurable effects on the brain. Mandai (2024) adds that apart from the long term damage to the body drug abuse causes, drug addicts who use needles are also at risk of contracting HIV and hepatitis B and C infections. According to Mandai (2024), drugs mostly abused are psychoactive drugs that people use for various reasons, which may include:

- Curiosity and peer pressure, especially among school children and young adults
- The use of prescription drugs that were originally intended to target pain relief may have turned into recreational use and become addictive
- Chemicals may be used as part of religious practices or rituals
- Recreational purposes
- As a means of obtaining creative inspiration

Drugs frequently abused fall into three groups and these include:

- Depressants: These cause depression of the brain's faculties, and examples include sleeping pills (barbiturates) and heroin.
- Stimulants: These cause stimulation of the brain, giving rise to alertness and increased bursts of activity. A rapid heart rate, dilated pupils, raised blood pressure, nausea or vomiting and behavioral changes such as agitation and impaired judgment may also result. In severe cases, there may be delusional psychosis which can occur with the use of cocaine and amphetamines.
- Hallucinogens: These cause hallucinations and an "out of this world" feeling of dissociation from oneself. Hallucinogens may cause distorted sensory perception, delusion, paranoia and even depression. Examples include ecstasy, mescaline and LSD.

Examples of drugs are:

- Alcohol
- Tobacco
- Cocaine from coca
- Opium and opioids from poppy plants
- Hashish or marijuana from cannabis
- Synthetic drugs such as heroin, ecstasy and LSD

The evidence is clear from the above review that drug abuse and drug law enforcement have correlation with health communication. People who abuse drug do not know the health hazards associated with the behavior. Thus, drug abuse is both behavioural issue and attitude issue which can be addressed with communication.

Perspectives on Artificial Intelligence (AI)

Scholars like Wilson (2021) observe that the rapid development of Artificial Intelligence (AI) heralds an era, one of machines or devices that are capable of learning by themselves (machine learning), and of imitating the human thoughts, adding that the processes and concepts that relate to AI have been around since the 1950s. According to Casey (2019), the term was coined by John McCarthy in 1955 and was popularised in 1956 at a research congregation in Dartmouth College in the United States. Furthermore, Casey (2019) adds that the United States Department of Defense focused on the development of AI in the 1960s and produced computers to imitate basic human reasoning. Sraders (2019) sees AI as the science and engineering of making intelligent computerised machines that are programmed to closely imitate human thoughts and actions for the purpose of analysing data to address a variety of problems or execute tasks. It is a computer science filed that ensures the creation of intelligent computerised machines which are enabled to perform tasks, which normally requires human intelligence.

These tasks include speech recognition, translation between languages, visual perception, etc. Ali and Hassoun (2019) posit that AI means the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. According to Crespo (2018), artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Crespo (2018) adds that specific applications of AI include expert systems, natural language processing, speech recognition, and machine vision. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning,

generalize, or learn from past experience. Since the development of the digital computer in the 1940s, it has been demonstrated that computers can be programmed to carry out very complex tasks—such as discovering proofs for mathematical theorems or playing chess—with great proficiency. Adjei (2020) informs that AI is made up of a large variety of sub categories and areas in which they are applied; some of these sub categories and the advanced abilities they offer include:

1. Machine learning: machine learning mimics human learning patterns, to gain an understanding of unstructured data sets and generate intelligent decisions such as medical decision making, Healthcare analytics, Bioinformatics, Emotional detection, Fraud detection, Cyber Security, Procurement optimization, Customer interactions and Optimised gaming.

2. Natural Language Processing (NLP): this permits an accurate analysis of data sets and communication of insights that touch on Communication systems, Legal assistants, Cognitive retail, Personal assistants and Web speech.

3. Machine perception: simulate the human perception of the environment and extracts information from different data sources. For example, Medical imaging, Manufacturing, Service industry, Financial industry, Autonomous delivery, Transit safety, Geospatial analytics and Childcare.

4. Predictive analytics: analyse historical data to predict future outcomes. For examples, Marketing, Data extraction, Social Network analytics.

In general, AI systems work by ingesting large amounts of labeled training data, analyzing the data for correlations and patterns, and using these patterns to make predictions about future states. In this way, a chatbot that is fed examples of text can learn to generate lifelike exchanges with people, or an image recognition tool can learn to identify and describe objects in images by reviewing millions of examples. New, rapidly improving generative AI techniques can create realistic text, images, music and other media. AI programming focuses on cognitive skills that include the following:

- **Learning.** This aspect of AI programming focuses on acquiring data and creating rules for how to turn it into actionable information. The rules, which are called algorithms, provide computing devices with step-by-step instructions for how to complete a specific task.

- **Reasoning.** This aspect of AI programming focuses on choosing the right algorithm to reach a desired outcome.
- **Self-correction.** This aspect of AI programming is designed to continually fine-tune algorithms and ensure they provide the most accurate results possible.
- **Creativity.** This aspect of AI uses neural networks, rules-based systems, statistical methods and other AI techniques to generate new images, new text, new music and new ideas.

AI is important for its potential to change how we live, work and play. It has been effectively used in business to automate tasks done by humans, including customer service work, lead generation, fraud detection and quality control. In a number of areas, AI can perform tasks much better than humans. Particularly when it comes to repetitive, detail-oriented tasks, such as analyzing large numbers of legal documents to ensure relevant fields are filled in properly, AI tools often complete jobs quickly and with relatively few errors. Because of the massive data sets it can process, AI can also give enterprises insights into their operations they might not have been aware of. The rapidly expanding population of generative AI tools will be important in fields ranging from education and marketing to product design.

Indeed, advances in AI techniques have not only helped fuel an explosion in efficiency, but opened the door to entirely new business opportunities for some larger enterprises. Prior to the current wave of AI, it would have been hard to imagine using computer software to connect riders to taxis, but Uber has become a Fortune 500 company by doing just that. AI has become central to many of today's largest and most successful companies, including Alphabet, Apple, Microsoft and Meta, where AI technologies are used to improve operations and outpace competitors. At Alphabet, subsidiary of Google, for example, AI is central to its search engine, Waymo's self-driving cars and Google Brain, which invented the transformer neural network architecture that underpins the recent breakthroughs in natural language processing

Empirical Review

There is a substantial body of empirical and conceptual research on artificial intelligence, healthcare, digital health, and smartwatch technology. Henceforth, the existing literature on artificial intelligence, healthcare, and drug abuse are reviewed in this paper. Lim and Schmelzle (2023), in a study titled**, "***Artificial intelligence for health message generation: an empirical study using a large language model (LLM) and prompt engineering,"* examined the potential of an AI system to generate health awareness

messages, using folic acid, a vitamin that is critical during pregnancy, as a test case. Lim et al (2023) used prompt engineering to generate awareness messages about folic acid and compared them to the most re-tweeted human-generated messages via human evaluation with an university sample and another sample comprising of young adult women. Again, the duo conducted computational text analysis to examine the similarities between the AI-generated messages and human generated tweets in terms of content and semantic structure. Results obtained from this review showed that AI-generated messages ranked higher in message quality and clarity across both samples. The computational analyses revealed that the AI generated messages were on par with human-generated ones in terms of sentiment, reading ease, and semantic content. The researchers concluded that these results demonstrate the potential of large language models for message generation.

In a similar paper with the title**, "***Role of artificial intelligence in health communication: With special reference to smartwatch technology",* Pandev, Chakroborty, and Kumar (2022) explain that artificial intelligence is a transformational technology of the digital age and increasingly capturing the world. Pandev, Chakroborty, and Kumar (2022) further explain that apart from robotics, AI technology is also useful in the health sector, adding that Smartwatches are a good example of artificial intelligence and health communication. According to Pandev, Chakroborty, and Kumar (2022), Smartwatches provides you with some specific information like blood pressure, oxygen level, sleep monitoring, etc. which is very useful for a common man to track his/her health. This device communicates to you about your primary health issue and informs you to visit a doctor. So, in this study, researchers explored and examined the role and relevance of artificial intelligence in health communication, Against the foregoing background, this research evaluates the level of awareness among users and non-users of smartwatches AI technology and finds out the effectiveness of using smartwatches. For data gathering, researchers used a survey method. Thus, the result of this study shows that AI technology- based wristwatches are ascending in the consumer market particularly for communicating health information.

Sun, G. and Zhou, Yi (2024), in a study with the title, "AI in healthcare: navigating opportunities and challenges in digital communication," delved into the role of AI chatbots in digital health, providing a detailed exploration of their applications, benefits, challenges, and future prospects. Sun and Zhou (2024) focused on their versatile applications within healthcare, which encompass health information dissemination, appointment scheduling, medication management, remote patient monitoring, and emotional support

services. The paper is premised against the background that the landscape of healthcare communication is undergoing a profound transformation in the digital age, and at the heart of this evolution are AI-powered chatbots. The review underscores the compelling advantages of AI chatbots. However, it also addresses the significant challenges posed by the integration of AI tools into healthcare communication.

Mesko et al. (2018) elucidated the potential of artificial intelligence in alleviating the healthcare workforce crisis. This paper responds to the widening health inequalities by stating three reasons i.e. doctor shortages, the aging, and burnout of physicians, and higher demand for chronic care. A simultaneous rise in the above shortcoming has paved the way for an automated system that can promulgate digital health and bridge the gap between the patient and doctor. This interpretation postulates the contribution of AI to improve the quality of care, promote healthy behavior, manage chronic diseases and decrease health costs. However, it has been categorically addressed that healthcare and practicing medicine is not a linear process. There are constraints of automation as it is a challenging task to translate 'every single element and parameter into a programming language'. In the conclusion, the researcher emphasized that AI will bring a paradigm shift in the doctor-patient relationship. Notwithstanding the fact that artificial intelligence does not act as a replacing tool for clinicians and health practitioners but instead they are considered as an add-on supplement needed for better healthcare delivery. The efficacy of AI-supported systems can enhance healthcare delivery by reducing its cost and fast-tracking access, in addition to solving the workforce crisis in the healthcare sector.

Siddique and Chow (2021) highlight that the integration of machine learning, artificial intelligence with healthcare networks will assist clinicians and make their job more efficient. The advantage of machine learning, of course, is the opportunity to make informed clinical decisions by quickly and efficiently considering the complex health data and providing an appropriate conclusion. The study focuses on different fields in machine learning such as NLP and DNN which can be applied in the healthcare sector. It is rightly pointed out that the relative novelty of AI and deep learning have been capacitated by big data analytics and advancement in cloud storage modalities. Subsequently, this mechanism has also assisted in augmenting the computing power of deep learning which has thereby revolutionized modern AI. Furthermore, particularly in medicine, it has made significant impacts at three levels: by improving workflow and reducing clinical errors, imparting rapid and accurate image interpretation, and the ability to process data by the patients to promote health. The study considers chatbots as an important tool in medical communication for "fast

and easy health surveys, set-up personal health reminders, communicate with clinicians, book appointments, and retrieve and analyze health data".

Methodology

This paper adopted a qualitative content analysis, using case studies. Yin (1994) explains that a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. For McCombs (2023), a case study is a detailed study of a specific subject, such as a person, group, place, event, organization, or phenomenon. It refers to a type of research in which a case (an event, issue, population, or other item being studied) is analyzed, often through the use of multiple methods of analysis. Case studies are commonly used in social, educational, clinical, and business research. A case study is an appropriate research design when you want to gain concrete, contextual, in-depth knowledge about a specific real-world subject. It allows you to explore the key characteristics, meanings, and implications of the case. AI in healthcare case studies offers powerful examples of how real individuals and organizations have realized positive change through the power of this technology. Let's review three examples of artificial intelligence in healthcare.

Case Studies

1. AI Technology and Offer of Valuable Clinical Decision Support

Big data analytics and AI in healthcare have transformed the way clinicians work at TidalHealth Peninsula Regional, a hospital in Maryland. The facility identified issues with clinicians having to spend too much time searching for information. The hospital partnered with IBM to implement IBM Micromedex with Watson, a clinical decision support software. This AI solution combines clinical decision support and AI with patients' electronic medical records, making it easier to find relevant and valuable information. For TidalHealth, that meant cutting down on the time providers spend on clinical searches. The many steps involved in that process, and the dozens of instances in which it may have to be completed in a single shift, took significant time away from providers. With a dependable AI tool supporting more efficient information gathering, the hospital cut time per clinical search from 3-4 minutes to less than 1. That's more time for medical professionals to spend with patients each day, thanks to AI's time-optimization process.

2. **Broad Cool Leveraging Data**

The Healthcare Information and Management Systems Society (HIMSS)

details how the Mayo Clinic and Google Cloud developed an AI and ML platform to support patient care and research. By collaborating to build a strong foundation, the provider and tech company delivered a variety of benefits to practitioners. In-depth calculations, like the kind used to assess changes related to polycystic kidney disease, can be completed automatically. Another algorithm helps to assess breast cancer risk. Now, clinicians are armed with a wide variety of AI tools to support patient care and research.

3. Transforming Utilization Management

Valley Medical Center in Renton, WA, implemented the CORTEX® solution to right-size its organizational duties. With AI leading to efficiencies in case review and management, the facility's nurses could focus on clinical merit in case determinations. Instead of relying on inefficient, criteria-based solutions, they could use their skills and experience to better support patients. In addition to right-sizing its observation rates to keep them more within the Centers for Medicare and Medicaid Services (CMS) and other local facilities' averages, Valley Medical Center also reduced its extended stay observation rates (those patients who are discharged in an observation status who stay longer than two midnights), while also dramatically improving case review volume. The facility went from completing 60% of reviews to 100% — a 67% improvement.

The history of AI in healthcare is still being written, as AI, algorithms and similar tools continue to transform the healthcare industry. XSOLIS can help your organization make major and positive changes to its utilization review and management processes with purpose-built AI designed to not only meet the needs of providers, but to bridge the gap between payers and providers, accelerating collaboration for a new path forward.

Findings and Result

It has been reciprocated several times in a vast amount of research that the technology has stimulated the globalization process which made the standard evolution considerably fast. Using new technology like Artificial Intelligence (AI) in everyday social life will help in simulating one or more human behavior and capabilities. The very first stage of any AI-based technology must be interesting and effective to make sure that the people are able to make the best use of it in their respective domains. Thus, the result of this study shows that AI technology-based uses are ascending in the consumer market particularly for communicating health information. This is because the manufacturers are able to engage the consumer's interest with

the health services that are embedded in the AI devices. This study shows that mainly people belonging to the age group of 19 -30 years are using this AI technology for their health alerts. This study also shows that during the Covid-19 pandemic, graphs of users rose exponentially which means that users are increasingly laying their trust on artificial intelligence for health related communication. Hence, this study shows that AI-based gadgets help users to watch, record and maintain their health. Furthermore, the health information influence health decisions and promote healthy society. In conclusion, AI devices hold immense potential to transform healthcare by improving access, patient care, and efficiency.

Conclusion

This paper marks a notable advancement in drug research and public health policy through the application of Artificial Intelligence-powered tools. A key aspect of our research is the illustration of the impact of applying AI for health communication and drug abuse issues. We have meticulously examined the various advantages of AI for health communication and drug abuse and came to the conclusion which demonstrated outstanding performance in deciphering complex substance use patterns, underscoring their utility in diverse public health contexts. Our study not only offers empirical insights into substance use predictors but also propels methodological advancements in drug research, suggesting innovative directions for crafting targeted interventions and policies.

References

Adebayo, A. M., Owoaje, E. T., & Dairo, M. D. (2019). Health communication and public compliance with health policies: Evidence from Nigeria. *Journal of Health Communication*, 24(11), 889-895. https://doi.org/10.1080/10810730.2019.1655916

Adebayo, K., Ojo, J. A., & Akintayo, C. O. (2021). Predicting disease outbreaks using machine learning: A focus on cholera and malaria in Nigeria. *Nigerian Journal of Clinical Practice*, 24(3), 509-516.

Adeyemi, O., Olayiwola, E., & Akinkunmi, A. (2020). The application of artificial intelligence in radiology: A review of progress in Nigeria. *Journal of Medical Imaging and Radiation Sciences*, 51(2), 145-151.

Ahmad, F. B., and Anderson, R. N. (2021). The leading causes of death in the US for 2020. *Jama* 325, 1829–1830. doi: 10.1001/jama.2021.5469

Akinwunmi, B., & Akinyemi, J. (2020). Assessing health literacy among Nigerian citizens: A systematic review. *Nigerian Journal of Health*

Education, 15(3), 1-14.

Araujo, R. & Lopes, F. (2016). Health journalism in Portuguese newsrooms: an assessment of journalist perception. In Marinescu, V. and Mitu B. (Eds.). *Health and the media: Essays on the effects of mass communication*. North Carolina: McFarland and company Inc. publishers

Aruchelvan, S. (2016). Health news coverage in print media: is it healthy? In Marinescu, V. & Mitu B. (Eds.). *Health and the media: Essays on the effects of mass communication*. North Carolina: McFarland and company Inc. publishers.

Baggot, R. (2015). Understanding health policy. Great Britain: Policy press to policy and practice. New York: Routledge.

Briggs, C .L. & Hallin, D. C. (2016). *Making public health public: how news coverage is remaking media, medicine, and contemporary life*. New York: Routledge.

CDC (2022). *Folic Acid*. Available online at: https://www.cdc.gov/ncbddd/folicacid/about.html (accessed October 5, 2022)

Eze, A., Okeke, M. O., & Agunwamba, J. C. (2021). Infrastructure and healthcare transformation in Nigeria: Exploring the inadequacies and opportunities for AI adoption. *International Journal of Health Management and Information*, 6(1), 23-35.

Ibrahim, A. A., Aderibigbe, B., & Olowookere, S. A. (2022). Bridging the skills gap in healthcare AI: A systematic review of training programs in Nigerian institutions. *Health Informatics Journal*, 28(1), 146-162.

Lim S. and Schmalzle, R. (2023).Artificial intelligence for health message generation: an empirical study using a large language model (LLM) and prompt engineering, *Health Communication* ,Volume 8 - https://doi.org/10.3389/fcomm. 2023.112908

MCQuail, D. (2005). *MCQuails Mass Communication Theory (5th ed*), London: Sage.

Ndukwe, C. D., Ajuwon, A. J., & Alabi, O. (2020). Challenges and prospects of health communication in Nigeria: The role of information technology. *Journal of Communication in Healthcare*, 13(2), 65-72.

Nwachukwu, C. C., Oloyede, O. O., & Nduka, F. (2022). Addressing the AI skills gap in Nigeria's healthcare sector: Role of education and

training. *Journal of Healthcare Engineering*, 2022, Article ID 9788704.

Nwafor, C., Eze, O., & Agbo, G. (2023). Data privacy and security in AI healthcare applications: Ethical considerations in the Nigerian context. *Nigerian Journal of Health Policy and Management*, 4(1), 15-28.

Nwankwo, E. (2022). Misinformation and its effects on health decisions in Nigeria: Policy recommendations. *African Journal of Health Management*, 8(1), 25-31.

Ogunyemi, A., Igbokwe, I., & Adeyemi, M. (2021). Public health and misinformation: Lessons from the COVID-19 pandemic in Nigeria. *International Journal of Public Health*, 66, 640344. https://doi.org/10.3389/ijph.2021.640344

Okoroiwu, H., Ogujiofor, G. A., & Udeh, E. (2023). Regulatory frameworks for artificial intelligence in healthcare: Emerging trends and challenges in Nigeria. *Nigerian Journal of Legislative Studies*, 12(2), 32-45.

Oluikpe, P. I., Talabi, F. O., & Idowu, O. (2022). Leveraging local innovations in AI for healthcare:The Nigerian experience. *Global Health Action*, 15(1), 2042176.

Orji, A. K., Ogbole, O. J., & Ijeoma, E. (2021). Transforming healthcare in Nigeria through public-private partnerships: Opportunities and challenges. *Public Health*, 190, 162-169.

Pandey, B., Chakraborty, S., & Kumar, V. (2022). Role of artificial intelligence in health communication: With special reference to smartwatch technology. *International Journal of Health Sciences*, 6(S1), 11872–11892. https://doi.org/10.53730/ijhs.v6nS1.7952

Sun, G. & Zhou, Yi. (2024). AI in healthcare: navigating opportunities and challenges in digital communication 5: 1291132. Front Digit Health, Dec 19. doi: 10.3389/fdgth.2023.1291132

Torkkola, S. (2016). Multifaceted health communication. In Marinescu, V. and Mitu B. (Eds.). *Health and the media: Essays on the effects of mass communication*. North Carolinas: McFarland and company Inc. publishers.

Turner, B. & Orange, R. (2013). *Specialist journalism*. New York: Routledge.

Uzuegbunam, C. E. & Duru, H. C. (2016). Media coverage of the Ebola virus: a content analytical study of The Guardian and Daily Trust newspapers. In Marinescu, V. and Mitu B. (Eds.). *The power of the media in health communication* (pp. 45-58). Routledge.

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