HEALTH IN THE DIGITAL ERA: A NEAR FUTURE NOT A DISTANT DREAM

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ABSTRACT- This paper will dive into explaining the need of digitization in the medical field. It is important to shift the mindset of the rural population from only focusing on diseases to actually understanding the need of overall health . In a pandemic stuck world, this need of digital health takes the front wheel and telemedicine and internet of things will pave a way to minimising human contact. Although great initiatives have been incorporated by the government, the scope for a lot of improvement still remains. Challenges such as privacy concerns, infrastructure deficit and unawareness among the masses need to be addressed and effectively overcome.

KEYWORDS- Rural-urban divide, pandemic, electronic health records, telemedicine, mhealth, privacy, the personal data protection bill 2019, unawareness, internet connectivity, NGOs.

INTRODUCTION

Technology is our present as well as our future and we cannot possibly fathom our lives without a complete understanding of what possibilities it beholds for us. Untapped technology is a waste of possible prospects for a better world. Technology governs every aspect of our life today and to no astonishment it has pervaded the medical field as well.

"We need to bring the exam room to where the patients are."

- Dr. Jay Sanders, telemedicine pioneer

The National digital health blueprint (NDHB) provided by the Union minister of health and family welfare, Dr. Harsh Vardhan, focuses on creating an ecosystem which contains health records from various systems and acts as a source of providing accessible healthcare to citizens at their doorstep. It is in line with Prime Minister Narendra Modi's vision to reach each individual under the Digital India program implemented in 2015. With the introduction of schemes like Modicare and Ayushman Bharat Yojna healthcare is expecting more numbers of initiatives and development in the upcoming year. Healthcare technology not only provides an opportunity for hospitals for better patient care but has also shown remarkable growth as an Information Technology industry. [1]

NEED OF DIGITAL HEALTH

● RURAL AREAS

In this digital age it is imperative to make basic primary health care facilities accessible at the palm of your hands. This goal becomes a matter of pressing significance for the rural population in India as this would help them to avoid the hardships such as travelling cost and lack of healthcare facilities in their area. With a sharp increase in the use of smartphones in rural areas and rapid internet penetration across the country the goal of making our villages advanced in digital healthcare seems to be a near future rather than a distant dream. In fact, estimates suggest that India's digital connectivity will tremendously increase from 15%(2014) to

80% by 2034, with a 58% increase in the number of rural internet users by 2034.[2]

The existing rural-urban divide in India makes it a bigger challenge for people living in remote areas to have access to quality healthcare. Thus, it is essential to bridge this gap urgently in order to bring welfare to the large percentage of the population that resides in rural areas and loses their lives due to lack of such facilities. In such a scenario, telemedicine connectivity can help the rural populace to get in touch with the top-tier doctors and surgeons in the country and also make treatments more cost-effective. Therefore, it is a viable option to introduce and educate the rural populace about the existence of such applications, which in turn would help them in getting their grievances addressed quickly and efficiently.

- **DIGITAL HEALTH: The new normal**

With the onset of the SARS-CoV 2 pandemic our lifestyles have had a major impact. Society is incorporating the new social norms of distancing, digital health in these times becomes a dire need of the hour. It is now more than ever that we need mhealth apps that can precisely detect the health of citizens and a mechanism that stores this data to be accessible by the medical professionals to keep a track on the medical records of these citizens at all times from anywhere. Hospitals are considered to harbour diseases which are communicable, providing primary medical facilities to patients in the confines of their home will serve as a way to minimise the contact of these citizens with such diseases.

The post-COVID world is likely to be remembered as the time when primary health care or the management of non-communicable diseases shifted to digital means as the default rather than the exception. [3] For the fulfillment of above mentioned purpose, Electronic Health Records (EHRs) of citizens are envisaged to be created for ensuring continuity of care and other associated benefits. In May this year, India had tabled a resolution at WHO for mHealth, which was supported by over 30 nations. This clearly signals India's intent to be a global leader in Digital Health.

- **TELEMEDICINE**

The World Health Organization defines Telemedicine as, "The delivery of healthcare services, where distance is a critical factor, by all healthcare professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of healthcare providers, all in the interests of advancing the health of individuals and their communities".

Telemedicine uses technology for remote diagnosis, health monitoring, and consultation. It assists healthcare providers to efficiently evaluate, diagnose, and treat their patients without having them pay hospital or home visits. In addition to this, telemedicine has significantly helped bring down providers as well as patient costs. Various mhealth applications allow users to keep a track on their symptoms at home only. This in turn also marks a way to determine and pre-plan for any future casualties and possibly prevent a chronic outbreak. For instance, **The India Fights Dengue** mobile application provides a mechanism to identify symptoms of Dengue and links users to nearest hospitals and blood banks. **The**

Swasth Bharat (Health India) mobile application provides detailed information on healthy lifestyle, disease conditions and their symptoms, treatment options, first aid and public health alerts. Through **Kilkari mobile app** initiative, audio messages about pregnancy, childbirth and child care are being sent directly to families and parents.

Digital healthcare includes telemonitoring and IoT (internet of things) connected wearables.

These biosensing wearables can track and monitor real-time changes in the health of patients and store the data to the health records of the patients. This data can be used for early diagnosis and to provide real-time health support to patients. Research suggests that almost 70% of patients between the age group of 18-65 prefer digital health monitoring over traditional ways of measuring health anomalies.

One segment of the healthcare industry that has already started to tap the power of digital technologies is the hair transplant sector. Today, a large number of hair clinics across India rely on advanced technologies and robotics to enhance the efficacy and precision of hair transplant procedures. Unlike earlier times, hair transplant and hair fall treatment procedures are no longer painful. The same applies to laser hair removal technique that uses smart and advanced tools to target the hair from the roots and inhibits the hair growth. If digital technologies could help transform the entire hair transplant industry, then one can only begin to imagine the potential it holds for the healthcare sector as a whole. [4]

CHALLENGES

● **UNAWARENESS**

About half (49%) of Indians say they know nothing at all about the benefits of digital health technology or mobile health apps in healthcare. Providing education and information around the benefits of these technologies will be key in taking Indians along this technological healthcare journey. [5] Telemedicine connectivity is a lucrative way to help the rural populace to get in touch with the top-tier doctors and surgeons in the country. But this is only possible when the people living in these remote areas have knowledge of the applications that are to be downloaded and the manner in which they are to be used to avail such benefits.

mHealth has made a huge difference in countries similar to India. Also, a number of existing mHealth apps have the potential to make a difference. The Government of India has launched a few mHealth initiatives. However, lack of awareness is a huge deterrent. The need of the hour is to make the population, including patients and providers, aware of this new channel and its benefits. [6]

● **PRIVACY**
"Privacy is not something that I'm merely entitled to, it's an absolute prerequisite."
-Marlon Brando

The NDHB does not contain any mention of the procedure to be followed in case of a data breach. This can prove to be a fatal flaw in providing digital healthcare as health records contain sensitive personal data about an individual and if this data is acquired falsely, it can be inappropriately utilised for various malicious purposes. In Kharak Singh vs. State of U.P. [7] The first decision on right to privacy was made by the Supreme Court of

India. One facet of this right is informational privacy, which requires that everyone should have complete control over their health information.

The personal data protection bill, 2019 do outlines a way to protect sensitive data but it has come under direct heat from many legal experts for it contains a lot of loopholes and thus paves a way in which consent takes a backseat in having access to data. **Clause 91** of this bill, seeks to empower the Central Government to frame policies for digital economy. Under this clause, the government can demand various data fiduciaries to provide the personal data in a non personal or anonymised format. But, there is a downside to this as well, by not having a proper set of guidelines for anonymising or non personalising of data, the data collected from such applications and websites faces the risk of getting de-anonymised and thus putting the privacy of the users in jeopardy, as this data contains the name, address and financial details of the users.

Cyber-attacks in the healthcare industry are on the rise as medical information contains everything from a patient's medical history to medical prescriptions, and hackers are able to access this data via network-connected medical devices as a result of the Internet of Medical Things (IoMT). Internet of Medical Things (IoMT) is a collection of medical devices and applications that connect to healthcare IT systems through online computer networks. [8]

- **INFRASTRUCTURE**

Even though rural areas harbour a majority of the Indian population, most of rural India lacks even the amenities and infrastructural facilities that are a prerequisite of a good healthcare system. The rural population is now equipped with an increasing number of smartphones yet the problem lies in the basic network connectivity. What good will the launching of various mhealth applications do , if most of the people don't have internet connectivity to access the same.

THE ROAD AHEAD
While there are huge opportunities for mHealth in theory, in practice a lot of gaps need to be filled in order to smoothly sail in this boat. From incorporating new features in these applications to meet various needs of its users to fixing major loopholes like that of privacy, it seems to be a long arduous route that needs to be covered to reach a fruitful outcome.

1. Patients need guidance from their providers to decide which mHealth apps to use. In the near future there will be a boom of such apps, it is important that these providers guide the patients in their journey of choosing and operating the application which suits their needs the best .
2. The Ministry of Health and Family Welfare has notified electronic health records (EHRs) standards for India. The government will look at providing tax benefits or financial incentives to providers who adopt and then demonstrate the benefits of mHealth.
3. Apart from the government and health care providers it will be better to collaborate with various NGOs as well. They are the sources of first hand information and have better means to reach the masses.

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