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Digital Disruption in Health Insurance: Toward Global Sustainability and Universal Coverage

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Abstract: *In the context of a global imperative toward sustainable healthcare solutions by 2030, the health insurance sector stands at a critical juncture, undergoing a profound transformation driven by the convergence of eco-health and digital health. The COVID-19 pandemic has underscored the importance of affordable and comprehensive health insurance in safeguarding both health and financial security, particularly during unforeseen crises. Across the globe, disruptive digital health technologies are reshaping the modus operandi of health insurance providers, revolutionizing processes from policy underwriting to claims management. These technologies encompass digital health platforms, telemedicine, wearable health devices, remote monitoring systems, and predictive artificial intelligence models enabling highly personalized health insurance solutions tailored to individual needs and preferences.This research explores the transformative potential of disruptive technologies within the global health insurance landscape, examining their alignment with national and international healthcare initiatives. The study concludes that emerging technologies are fundamentally redefining how health insurance operates worldwide, influencing healthcare accessibility and outcomes on a global scale. To harness these advancements effectively, nations must collaborate, establish robust regulatory frameworks, and foster innovation paving the way toward equitable, efficient, and sustainable healthcare for all.*

Keywords: Eco-Health System, Digital Health, Atmanirbhar Bharat, National Digital Health Mission (NDHM), Health Insurance Sector

I. INTRODUCTION

The health insurance sector has a vital role in safeguarding individuals and families financially when they face healthcare expenses. In recent times, digital health tools have been transforming this sector significantly. These tools, including telemedicine, remote patient monitoring, and health tracking apps, hold the potential to enhance the quality of care and reduce costs. They enable patients to access healthcare from home, minimize the need for in-person visits, and detect health issues early. One of the key issues that arise in the context of digital health tools is their potential to address healthcare challenges through early detection and prevention. These tools have the ability to identify health issues at their inception, enabling timely interventions and preventive measures (Labrique et al.,2018). This early intervention not only improves health outcomes but also reduces the necessity for expensive treatments and hospitalizations down the road. Another significant aspect is the capability of digital health tools for remote monitoring of patients. By allowing healthcare providers to keep tabs on patients from a distance, these tools minimize the need for physical visits and hospital stays. This remote monitoring not only enhances patient convenience but also holds the promise of substantial cost savings by reducing the frequency of costly medical procedures and treatments.

Digital health tools also excel in providing personalized care. They cater to the specific health needs and risk factors of each individual, tailoring healthcare solutions accordingly. This personalized approach not only fosters better health outcomes but can also prove to be more cost-effective by delivering care that is precisely targeted and efficient (Conroy et al.,2022). Furthermore, these tools foster increased engagement between patients and healthcare providers. By offering convenient access to healthcare information and services, they promote active participation in one's healthcare

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journey. This heightened engagement translates into better health outcomes and can contribute to reducing overall healthcare costs.

Digital health tools also facilitate health tracking, allowing patients to monitor their health metrics and progress towards achieving their health goals (Lupton, 2017). This functionality empowers individuals to take charge of their well-being and make informed decisions. Early identification of areas of health issues can help to prevent costly health issues. However, it's crucial to acknowledge that the impact of digital health tools on healthcare costs can vary significantly. Several factors come into play, including the specific tools being utilized, the prevailing healthcare system's characteristics, and the unique needs of individual patients. Recognizing this variability is essential when considering the potential cost savings and benefits of integrating digital health tools into healthcare practices.

II. RESEARCH METHODOLOGY

The research aims to provide a comprehensive understanding of the current landscape of digital health (Telemedicine, Smart Gadgets), digitalisation of services in insurance and related technological advancements. The review aims to analyse the advancements which may be informative to stakeholders about the potential implications and opportunities arising from these trends, with a focus on improving healthcare access and delivery on a global scale (Ganapathy, 2023).

The research is guided by a conceptual framework that explores the interplay between health insurance, telemedicine, and technological advancements. It seeks to understand how these elements converge and influence healthcare access, quality, and affordability. In the following sections, the first coverage includes recent advancements in digital health in India and later detailed discussion on advancements in insurance sectors worldwide.

Global Recent Advancements in Digital Health

Telehealth is the use of telecommunications technology, like video chats, phone calls, or secure message, to provide healthcare services for patients remotely. It affords patients to consult with healthcare professionals, receive medical advice, and, in some cases, undergo examinations or treatments without having to travel in person to a healthcare facility (AI for All, 2023). Recently, telehealth has been at the forefront of increasing access to healthcare, decreasing geographic barriers, and providing patients with the option of a more convenient means to receive healthcare services (WHO/Europe, 2020). Its use in public health emergencies, like the COVID-19 public health emergency, provided increased value, during which, in-person visits would have been risk laden (AI for All, 2023).

Telehealth advancements vary from country to country based on a combination of factors, including technological infrastructure, healthcare policies, regulatory frameworks, and cultural acceptance. Table1 listed a brief overview of telehealth advancements in a few countries:

Table1: Advancement in Digital Health

Country	Advancement
United States	The United States has seen significant growth in telehealth, especially during the COVID-19 pandemic. Regulatory changes and expanded reimbursement policies facilitated greater telehealth adoption. Telehealth platforms and apps have become widely accessible. Companies like BioIntelliSense(Biointellisense2023), Medtronic CareLink, and Livongo offer RPM solutions that allow healthcare professionals to remotely monitor patients' vital signs and chronic conditions in real-time(Cronin,2023).
Canada	Canada has made advancements in telehealth as well, particularly in rural and remote areas where patients have less access to healthcare services. Provincial and territorial governments have been funding telehealth infrastructure and expanding telehealth services to allow patients to access health-related outcomes with their healthcare providers remotely to meet their needs. Digital therapeutic platforms, such as MindShift CBT and Kaia Health, have provided patients with software-based interventions to help manage mental health disorders and chronic diseases (Nagle, 2020).

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United Kingdom	The National Health Service (NHS) in the UK has been gradually incorporating telehealth into its services. The pandemic accelerated this process, with increased use of video consultations and remote monitoring for chronic conditions. The NHS has been working on a long-term plan to further integrate telehealth into its healthcare delivery system(WHO Europe, 2022).
Australia	Telehealth adoption in Australia has been steadily growing. The Australian government introduced measures to support telehealth during the COVID-19 pandemic, including expanded Medicare funding for telehealth consultations. Telehealth services have become more mainstream, especially for rural and remote populations(Mathew,2023).
China	China has been at the forefront of telehealth innovation. The country has a robust ecosystem of telehealth providers and apps, and virtual consultations with doctors have become commonplace. The Chinese government has supported the growth of telehealth as part of its broader healthcare reform efforts(Cui. 2020).
India	India has seen increased adoption of telehealth, especially in urban areas. Various telemedicine platforms and startups have emerged to connect patients with healthcare providers online. The government has also issued guidelines to regulate telemedicine services. In case of According to data published by IBEF, there were 1,17,771 Ayushman Bharat-Health and Wellness Centers (AB-HWCs) operational in India as of April 5, 2022. Considering the total population of India (136 crore) and the vastness of India's geography, providing access to healthcare to all Indian citizens is a challenge. TeleHealth holds the promise of reaching out to this enormous population across India's expansive territory in a considerably short time(WHO guideline, 2023).
South Korea	South Korea has a highly developed digital infrastructure, which has facilitated the growth of telehealth services. Telemedicine is well-regulated, and patients can access a wide range of healthcare services remotely, including video consultations, prescription refills, and medical advice (Telemedicine,2023).
Brazil	Telemedicine has gained traction in Brazil, especially in remote and underserved regions. The Brazilian government has implemented regulations to support telehealth services, and many private healthcare providers offer telemedicine options to their patients(WHO guideline, 2023).

Source: adapted from Haleem (2021)

As shown in table1, these advancements in telehealth reflect a global trend toward leveraging technology to increase access to healthcare services, improve patient outcomes, and reduce healthcare costs. However, the pace and extent of telehealth adoption can vary widely depending on each country's unique healthcare landscape and regulatory environment.

Digital health applications in Health insurance

There are numerous digital health applications available today that leverage digital technologies to improve health and healthcare delivery. Some of the most common digital health applications include:

In recent years, India has witnessed a surge in the popularity of digital health applications, driven by the country's expanding digital infrastructure and the growing adoption of mobile devices. Here is an overview of some of the most prominent digital health applications in India:

Practo: Practo is an online platform that enables users to discover and schedule appointments with healthcare providers. Additionally, it offers teleconsultation services and grants users access to their medical records (Practo,2023).

Apollo 24/7: Apollo 24/7 is a mobile app that offers a range of healthcare services, including online consultations, medication delivery, and diagnostic services (Apollo, 2023).

1mg: 1mg is an online platform that allows users to browse and purchase medicines over the internet. It also provides comprehensive information about medications and their potential side effects(1mg,2023).

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Medlife: Medlife is an online pharmacy that offers an extensive selection of medicines and healthcare products. In addition to this, the platform provides diagnostic services and teleconsultation options (Medlife,2022).

MyGov Corona Helpdesk: MyGov Corona Helpdesk is a WhatsApp chatbot that provides users with information related to COVID-19, including details about symptoms, preventive measures, and treatment options.

These digital health applications have the potential to enhance healthcare accessibility and affordability across India, particularly in underserved rural areas with limited healthcare infrastructure. As technology continues to advance, we will likely witness the emergence of even more innovative digital health solutions in India, further transforming the healthcare landscape.

Technological advancement in the Insurance sector

Several insurance companies in India have embraced the use of digital devices to promote healthy habits and wellness monitoring among their policyholders. Here are a few illustrations:

Max Bupa Health Insurance offers the Max Bupa GoActive plan, a comprehensive health insurance policy designed to promote healthy lifestyles among policyholders. One standout feature of this plan is the complimentary fitness tracker provided to policyholders, allowing them to monitor their fitness and activity levels. This fitness tracker seamlessly syncs with a mobile app, offering personalized health insights and coaching to support policyholders in reaching their fitness objectives. Alongside the fitness tracker, the GoActive plan encompasses a range of additional benefits, including (Nivabupa,2023):

Inclusion of inpatient hospitalization costs, encompassing room charges, physician fees, and diagnostic examinations.

- Comprehensive coverage for pre and post-hospitalization expenses, including medical consultations, prescription medications, and diagnostic tests.
- Coverage for daycare procedures and treatments that do not necessitate overnight hospitalization.
- Provision for ambulance expenses in the event of emergency hospitalization.
- Support for organ donor-related costs.
- Embrace alternative treatments, such as Ayurveda, Unani, Siddha, and Homeopathy.
- Accumulation of a no-claim bonus, boosting the insured sum by 10% for each claim-free year.
- Streamlined and hassle-free cashless claims settlement at affiliated hospitals.

The Max Bupa GoActive plan is meticulously crafted to inspire and reward policyholders for adopting healthier lifestyles. Through personalized health coaching and incentives aimed at accomplishing fitness objectives, Max Bupa aims to not only enhance the well-being of its policyholders but also to mitigate healthcare expenses.

ICICI Lombard presents the Health Booster plan, complemented by a complimentary fitness band that empowers policyholders to monitor their fitness and activity levels. This health insurance offering aims to foster healthier lifestyles, empowering policyholders to remain committed to their fitness objectives.

The Health Booster plan encompasses a diverse array of benefits, including (Health-insurance, 2023):

- Comprehensive coverage for inpatient hospitalization expenses, encompassing room charges, physician fees, and diagnostic examinations.
- Comprehensive coverage for pre and post-hospitalization expenses, encompassing medical consultations, prescription medications, and diagnostic tests.
- Inclusive coverage for daycare procedures and treatments that necessitate no overnight hospitalization.
- Support for ambulance expenses in cases of emergency hospitalization.
- Provision for organ donor-related costs.
- Accumulation of a generous no-claim bonus, augmenting the insured sum by 50% for every claim-free year.
- Streamlined and trouble-free cashless claims settlement at affiliated hospitals.

The ICICI Lombard-provided fitness band is a versatile wearable, tracking steps, calorie expenditure, distance covered, and sleep patterns. It synchronizes seamlessly with a mobile app, offering personalized health guidance and progress tracking, empowering policyholders to reach and surpass their fitness milestones. This initiative reflects ICICI

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Lombard's commitment to promote healthy habits among policyholders, ultimately aiming to lower healthcare expenditures and enhance the overall health and well-being of its beneficiaries.

Apollo Munich Health: Apollo Munich Health Insurance provides the Optima Restore plan, which includes a complimentary fitness tracker enabling policyholders to monitor their fitness and activity levels. Below are some key features of the fitness tracker offered by Apollo Munich (Apollo Munich,2023):

Step Tracking: Apollo Munich's fitness tracker records the policyholder's daily step count.

- Distance Monitoring: It also keeps tabs on the distance travelled during exercise or daily routines.
- Calorie Management: The tracker aids in calorie expenditure tracking during various activities.
- Sleep Analysis: It offers insights into sleep quality, including the duration of deep and light sleep.
- Heart Rate Monitoring: The fitness tracker keeps a constant check on the policyholder's heart rate during activities.
- Mobile App Integration: Synced with a mobile app, it enables progress tracking, goal setting, and access to personalized health guidance.
- Water-Resistant Design: With water-resistant capabilities, it's suitable for use during swimming and water-based activities.

Apollo Munich's fitness tracker is thoughtfully designed to inspire healthier lifestyles among policyholders, empowering them to attain their fitness objectives. Through the promotion of these healthier habits, Apollo Munich aspires to curtail healthcare expenses and enhance the well-being of its policyholders. Additionally, the fitness tracker serves as a valuable tool for gathering health and wellness data from policyholders, contributing to refined risk assessment and the development of tailor-made insurance offerings.

Aditya Birla Health Insurance tools: Aditya Birla Health Insurance's Active-Health policy includes a complimentary fitness tracker to track fitness levels. The tracker encourages healthy habits and offers features like step, calorie, distance tracking, sleep and heart rate monitoring. It syncs with a mobile app providing personalized health coaching and is water-resistant for swimming. This initiative aims to promote healthier behaviours among policyholders, ultimately reducing healthcare costs, improving health outcomes, and enhancing risk assessment for tailored insurance products(Aditya Birla Health Insurance, 2023).

HDFC Ergo Health Insurance: Health Suraksha policy, which includes a complimentary fitness tracker. This tracker, designed to promote healthy habits, boasts features such as step, calorie, and distance tracking, along with sleep and heart rate monitoring. It syncs seamlessly with a mobile app for personalized health coaching, and its water-resistant design allows use during swimming and water-based activities (Ghosh, 2020).

Insurance companies are increasingly offering digital health tracking and fitness monitoring devices to promote healthier lifestyles among policyholders. This endeavour holds the potential to result in reduced healthcare costs and improved health outcomes. Simultaneously, these technological gadgets empower insurers to amass valuable insights into the health and wellness of their policyholders, thereby enhancing risk assessment capabilities and facilitating the creation of personalized insurance solutions

III. CONCLUSION

The global health insurance sector is on the brink of a transformative era, driven by the imperative of achieving sustainable healthcare solutions by 2030. The coming together of nature-friendly health ideas and digital health technology is changing things. It shows how important health insurance is for keeping people and their money safe, especially when big changes like the COVID-19 pandemic happen. Disruptive digital health technologies, ranging from digital health platforms to telemedicine, wearable health tech, remote monitoring systems, and predictive artificial intelligence models, are revolutionizing how health insurance is conceptualized and delivered. These innovations empower insurance providers to offer highly personalized solutions that cater to individual preferences and needs, thereby enhancing the overall quality of healthcare services. The research has underscored the alignment of these disruptive technologies with national and international healthcare initiatives, highlighting their potential to drive positive change on a global scale.

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