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Innovating and Transforming the Healthcare Sector in Bangladesh: Challenges and Opportunities

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Abstract

In Bangladesh, the public or government sector plays a vital role in determining the overall policies, funding sources, and modes of service delivery. Even though the health system encounters many insurmountable obstacles, it requires stronger national resource allocation priority. This study looks into the fundamental aspects of digitalisation and change in Bangladesh's healthcare industry. Additionally, it explores the relationship between digital technology and emerging elements of the existing healthcare system and offers suggestions for resolving ongoing crises within the healthcare framework. The authors decided to perform explorative research using secondary data to grasp better the fundamental concepts of Bangladesh's healthcare sector's digital transformation. This study examines Bangladeshi citizens' perceptions of the current 'Digital Transformation' in existing institutions and suggests an entirely new national health server-centric model for future solicitation.

Keywords: Health Service, MDG, SDG, Digital Transformation

1. Introduction

Bangladesh, which has 160 million people and ranks eighth in terms of population, has recently been praised for its outstanding performance in terms of health. The country has long been committed to enhancing healthcare services for the general public, resulting in significant advancements in the industry and the early acquisition of the Millennium Development Goals (MDGs). By 2032, hopes of the government to have all residents and localities have access to the affordable health care they require (CRI, 2018). The response of society to the social determinants of health is the health system. Every society holds to a set of factors that influence health, with science or reason seldom intervening. The worth of each individual is the core principle of every healthcare system. The human, material, and financial resources society allows for the health system are mainly determined by society's value of human life. A well-functioning healthcare system requires that services be readily available and accessible so that people can comprehend, accept, and put to good use. The constitution of Bangladesh mandates that the government "the provision all necessary healthcare needs to all kinds of individuals in the community"

and work to enhance the "nutritional and medical status" of the country." (Islam & Biswas, 2014). "Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing, medical care, and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age, or other lack of livelihood in society," states The United Nations General Assembly approved the International Covenant of Human Rights on December 10, 1948 (Sabur, 2021).

Since achieving independence in 1971, Bangladesh has had notable health advances, becoming a prime example of "good health at low cost." The government's plan offers a first road map that acknowledges the challenges of achieving universal coverage in a primarily informal economy with a heterogeneous health system and constrained fiscal space, despite its initial scepticism over the aim of universal health care. Maternal and child mortality rates have dramatically decreased since the middle of the 1980s. This remarkable success story also includes increased life expectancy, vaccination rates, the control of tuberculosis and diarrhoea, and other factors. A pluralistic health system with abundant stakeholders that pursues women-centric, gender-equity sensitive, and highly focused health interference in the planning for a family, the health of mother and child, immunisation, and nutrition interventions by the widespread work dispersed community health workers reaching entire households may be responsible for exceptional performance. Bangladesh offers lessons on how the innovation of work can be scaled up, how gender equity can enhance health outcomes, and how direct health interventions may partially overcome socioeconomic barriers (CRI, 2018).

One of the industries in Bangladesh that has experienced astounding growth in the five decades since independence is healthcare, gaining praise from the developed world in the process (Hasan, 2021). The People's Republic of Bangladesh's constitution states in the 15th article, "It shall be a fundamental responsibility of the State to attain, through planned economic growth, a constant increase of productive forces and a steady improvement in the material and cultural standard of living of the people, to secure to its citizens the provision of the necessities of life, including food, clothing, shelter, education, and medical care" (Sabur, 2021).

Given Bangladesh's massive population, the healthcare industry has always been plagued by infrastructural issues. The industry has traditionally struggled to deliver high-quality services because it is frequently underfunded, ill-equipped, and understaffed to meet the escalating requirements of a rapidly expanding population. The healthcare industry has long needed improvements to its organisational structure and method of service delivery. To promote efficiency and uniform quality, outdated models were in critical need of digital transformation (Huq, 2018). Although our healthcare system has undergone substantial improvement over the past 50 years, SDG 2030 also calls for quality and equity in healthcare to be attained. The population living in Bangladesh faces observable distinctions in health and longevity because of socioeconomic level variances, as has been shown in our nation in various methods and multiple times (Amanullah & Khatun, 2022). This study looks into the fundamental aspects of digitalisation and change in Bangladesh's healthcare industry. Additionally, it explores the relationship between the emerging elements and digital technology of the subsisting healthcare system as we offer suggestions for resolving ongoing crises within the healthcare framework.

2. Methodology

The authors decided to perform explorative research using secondary data to grasp better the fundamental concepts of Bangladesh's healthcare sector's digital transformation. The report is based on a thorough analysis of data and information about Bangladesh's health system that has been published and unpublished. Scientific journal articles and research papers were also examined. The study is a retrieval article that is based on secondary data. However, the work solely relies on analyses of news stories, research reports, and articles written in English.

3. Health Sector in Bangladesh

In terms of health-related accomplishments, Bangladesh has "outperformed" several of its South Asian neighbours, "convincingly defying the expert view" that economic strength and an abundance of medical resources are the primary factors influencing improved public health (The Financial Express, 2018). In the nation, maternal and

neonatal mortality have dramatically dropped while life expectancy at birth has improved (Hasan, 2021). In recognition of its outstanding accomplishments in achieving the Millennium Development Goals (MDGs), specifically in decreasing the child mortality rate, Bangladesh was given a UN award in 2010. In 2019, the rate of death was 28 per 1,000 births. In the same year, in every 1,000 live births, the child mortality rate was 21 and the rate of neonatal rate was 15 respectively. These factors helped Bangladesh reach a life expectancy of 73 in 2019. At the same time, 72 years was the average age of people worldwide, whereas it was 69 years in India, 67 years in Pakistan, 71 years in Nepal, and 76 years in Sri Lanka (Sabur, 2021).

According to a report demonstrated by the World Health Organization's (WHO) most recent rankings of healthcare quality in various nations worldwide, Bangladesh is ranked 88th. Only Sri Lanka is ranked 76 places higher than Bangladesh among the SAARC nations. India comes in at number 112, Pakistan at number 122, Bhutan at number 124, the Maldives at 147, Nepal at number 150, and Afghanistan at number 173 on the list. According to this ranking, Bangladesh's healthcare system appears superior to India's (Al Mamun, 2021).

The newborn mortality rate in Bangladesh has decreased from 9.4 percent in 1981 to 1.9 percent in 2019, as the maternal mortality proportion has decreased by 67 percent since 1990 (LightCastle Partners, 2022). Regular vaccination campaigns are carried out in the nation against diseases like diphtheria tuberculosis, maternal and neonatal tetanus, whooping cough, hepatitis B, Haemophilus influenzae-B, poliomyelitis, pneumococcal pneumonia, rubella, and measles. Through the EPI program, immunisations are given away free of charge to everyone in the nation. The vaccination rate has increased from two percent in 1985 to over 98 percent today (Al Mamun, 2021). Thanks to a highly well-organized network run by the Directorate General of Health Services (DGHS) executive, rural residents can access healthcare.

Additionally, community clinics are crucial in delivering crucial medical services to residents of rural places. There are currently 1,312 union-level sub-centres besides 87 union health and family planning centres, 424 upazila health complexes, 65 sadar or district hospitals, and 14,384 community clinics in Bangladesh, according to the DGHS. Thirteen thousand eight hundred eighty-one community clinics are currently open and operating nationwide. In contrast, just 35 dispensaries, a minimal number of community clinics, over 60 medical colleges, specialised hospitals, and many private hospitals may be found in urban regions (Hasan, 2021). To increase the effectiveness of program execution, the Ministry of Health & Family Welfare (MOHFW) started the Health & Population Sector Programs (HPSP) in 1998, which marked the beginning of Bangladesh's e-Health project. Because of the current government's Digital Bangladesh initiative, which provides particular precedence to delivering health services to residents through ICT, e-Health is receiving extra attention (CRI, 2018).

With a current market size of USD 6.6 billion, demand for healthcare services in the nation is still on the rise, especially in the wake of the COVID-19 epidemic. As the market for the healthcare business mounts, the government needs to reassess how to support the sector's future expansion. Although donor money has historically been a cornerstone of the healthcare sector's transformation, significant funding shortfalls remain in this industry (LightCastle Partners, 2022). Even if there may be concerns about how the government handled the COVID-19 epidemic, the world community and the nation's people have recognised the health sector's ability for a relatively low number of illnesses and fatalities. Bangladesh is now self-sufficient in producing life-saving generic as it gears up to become a nation that produces vaccines.

Additionally, its manufacturing of medical equipment is receiving some well-deserved attention (Hasan, 2021). According to reports, Bangladesh implemented a "pluralistic" health system in which non-governmental organisations were given resources from public monies to work in the nation's health sector. The UN, WB, and Asian Development Bank's support for the country's health sector has been a crucial source of funding generation. Exemplary, as part of its response efforts, the World Health Organisation (WHO) supplied Bangladesh with 100 venturi masks, 200 oxygen concentrators, 400 pulse oximeters, 100 nasal cannulas, and 65 patient monitors to 10 Covid specialised health institutions, as well as these items for 17 district hospitals. Similar to this, the World Bank and the Asian Development Bank have committed to provide \$100 million in assistance to the nation for emergency COVID-19 response (Fidai, 2021).

All public health-related industries must collaborate toward a common objective. Bangladesh is one of the nations with whom the World Health Organization collaborates closely to attain specific ambitious and challenging goals in the field of global health care.

Additionally, the adoption of such technology opens up several options and benefits. To manage and maintain such technology and processes, a system like this needs well-trained staff and management and a positive attitude from regular people. Technology was used to implement a telemedicine system in medical services as part of the creation of Digital Bangladesh. This allows residents of distant locations to provide expert medical advice to large hospitals in Dhaka via video conferencing. Additionally, these patients are treated by specialists via email and mobile devices. To receive medical care through a telemedicine facility, patients do not need to pay additional fees (Khan & Al Amin, 2021). The rural healthcare system has also received a lot of praise, particularly the Bangladeshi community clinic concept. However, because the health and local government ministries disagree, well-designed healthcare still needs to be built for the urban residents.

4. Recent Innovations in the Health Sector in Bangladesh

One crucial tactic for meeting the demand for health care in the twenty-first century is the usage of information and communication technologies (ICT). ICT in health care services can deliver services to people's doorsteps. It aids in addressing expanding demands, rising costs, finite resources, labour scarcity, and the distribution of best practices nationally and worldwide. ICT health services can also ensure the proficiency and efficacy of the health management system (Khatun & Sima, 2015). Striking drops in maternal, newborn, and childhood mortality rates have accompanied rapid expansions in the number of health interventions covered in Bangladesh. All these developments call for a careful examination of Bangladesh's strategy for providing healthcare during the past 40 years, hampered by pervasive poverty, political unrest, and frequent natural catastrophes. We examine health-service delivery techniques concerning success stories that have increased reach and enhanced health outcomes (El Arifeen et al., 2013). In Bangladesh, the digitalisation of the healthcare services industry is still in its infancy. In actuality, Bangladesh still needs to be ready to handle the usage of ICT in the medical and healthcare services industry effectively. There needs to be set standards and laws for utilising ICT in the healthcare sector effectively and efficiently. ICT usage in Bangladesh varies depending on the situation, and some ICT applications are more popular than others (Alam et al., 2020).

The greatest wonder that makes the computerisation of healthcare services in underdeveloped nations like Bangladesh possible is the expansion of the digital healthcare system. Digitalising healthcare delivery systems is far more complex in countries like Bangladesh, where resources are limited, and people are unwilling to accept challenges and appreciate recent technological advancements. Although Bangladesh has made significant progress in many areas of digitalisation, the progression in the healthcare and medical services era is significantly less for that country. However, with the right foundations, associations, and arrangements in place, ICTs can be a precious tool for those working to enhance healthcare services in Bangladesh. Modern business methods for an organisation's investment and development area for digitising the healthcare sector include digital online platforms, various apps, pay-per-click advertising, and pay-per-click campaigns (Khan & Basak, 2021). To increase the effectiveness of program execution, the Ministry of Health & Family Welfare (MOHFW) started the Health & Population Sector Programs (HPSP) in 1998, which marked the beginning of Bangladesh's e-Health project. Because of the current government's Digital Bangladesh initiative, which places a premium on providing health services to residents via ICT, e-Health is receiving extra attention. The five-year Health, Population and Nutrition Sector Development Program (HPNSDP) 2011-2016 for MoHFW was approved by the government of Bangladesh in 2011. One of the 32 operational strategies that make up the HPNSDP 2011-2016 is e-Health (CRI, 2018). Internet access was introduced across the total health locations down to the Upazila level by Bangladesh's Directorate General of Health Services (DGHS) in April 2009. This network has recently been expanded to include all community clinics and union health centres. To offer e-health services to the patients, community clinics and union health centres have laptop computers and internet connections. To improve e-health services in Bangladesh, community health workers have also been handed Android tablets (Hoque et al., 2014).

A system of technology allowing people to securely connect and exchange their health data with a network of recognised health experts is being developed in Bangladesh as part of the country's adoption of digital healthcare. It increasingly offers the knowledge and resources to help people better understand and manage their health. Bangladesh has created a strategic plan to support this sector, which is crucial to the nation's economy. The healthcare industry has a mixed response to digital change, though. In this light, it may be said that service providers are required to create a high-quality, broadly accessible health service based on ICT. Government policy guidelines should be developed for managing and monitoring the digitisation of the healthcare sector. Future research can focus specifically on e-health, m-health, telecare, telehealth, electronic health records, telemedicine, digital startups, and video conferencing. In any event, when there is simplicity, the whole digitalisation of the healthcare industry is possible. An essential benefit of people being aware of their health is that it helps organizations construct applications or programming specifically designed to monitor people's health and well-being. The key driving force for digitalization is the accessibility of the medical services sector from any necessary location (Khan & Al Amin, 2021).

5. mHealth

In May 2009, the Ministry of Health implemented mHealth, widely known as Mobile Health Services, in all upazila and district hospitals nationwide. A cell phone has been issued to serve as a local call centre that offers citizens 24/7 access to medical advice. mHealth services have made it easier for people to access medical advice, especially those who are poor and live in rural areas. Now, even those who live far from a hospital and at odd hours can get medical advice (Ahmed et al., 2014). The ground-breaking mass SMS technology was launched in 2009. Bulk SMS was often used and driven by demand. All health managers' and employees' mobile numbers were gathered and organised into this system. Instantaneously broadcasting personalised text messages to one or more groups is possible (Hoque et al., 2014).

6. The Telemedicine Service

Twenty-nine telemedicine facilities are operating, while telemedicine services were launched at eight hospitals in 2011. In 4,547 unions across Bangladesh, Union Information and Service Centers are run by Access to Information (A2I), which received the 2014 World Summit on Information Prize. Telemedicine is among the most well-liked value-added services in the individual UDCs, particularly for rural residents. The first of its type in Bangladesh, the telemedicine system was set up at CRP (Centre for the Rehabilitation of the Paralyzed) in July 1999. This was accomplished with the help of the UK-based Swinfen Charitable Trust. The Royal Hospital, Haslar in the UK, provides CRP access to consultants with various disciplines who have consented to offer consultations without charge. In 800 public hospitals, notice boards have been erected that explain how to text complaints to improve services. If patients or anyone visiting the hospital is dissatisfied with the service, they can text. The complaints are handled by designated staff members who receive the text messages through a web interface (CRI, 2018).

7. Geographical Information System (GIS)

To test if the Geographical Information System (GIS) can be integrated into the health sector with the existing information personnel for mapping health facilities and services, the Health Ministry of Bangladesh launched a pilot study in the Nilphamari area of Bangladesh in 2009. The pilot program was successful, and policymakers were quite pleased with the report. Each divisional and district health office has been given a global positioning system (GPS) GIS device due to this pilot project. It aids service availability mapping and disease surveillance (Afroz, 2012).

8. Challenges of the Health Sector

Despite these advances, the Bangladesh health system still faces many challenges. This year, the United Nations Survey gives special recognition to countries with over 100 million people who have put much effort into providing e-government services to their citizens despite their challenges. Indeed, when it comes to e-government advancement, every nation confronts its particular challenges (Uddin, 2012).

8.1. Low Budget

The Bangladeshi public health system has long struggled due to a lack of funding from the government. Despite Covid issues, the country's allocation to the health sector this year is only 5.14% of the budget and less than 1% of GDP. Bangladesh has one of the lowest strata of public health spending worldwide, with 2.8% on average among lower middle-income countries and even 2.1% on average in South Asia. The nation's expenditure on the industry needs to be more reasonable and distributed across all geographic and residential divisions (Fidai, 2021).

8.2. Compromised Access

Public hospitals provide a full range of hospital care services. On the other hand, a 3-level primary health care system has been established to serve the entire population (district, mass, and village levels). However, access to this network of health facilities is often severely hindered. It should be pointed out that although primary health care should be provided free in public hospitals and other facilities, people often have to pay for drugs, tests, and additional hidden costs themselves. Because of these costs, most state-funded health services are out of reach for the poor and disadvantaged. In addition, many public hospitals have ambulances that cannot be used or used by doctors and other staff. Patient access to ambulance services is restricted. In short, the accessibility of low-income people is significantly jeopardised in public health facilities due to a mismatch between concept and reality (Islam & Biswas, 2014).

8.3. Resistance of Change

Older administrative workers in Bangladesh's medical sectors are accustomed to manual systems, and nobody wants to introduce new concepts into an established system. This problem of low motivation, frequently referred to as resistance to change or apprehension of new technologies, is well-documented. Administrative workers, policymakers, physicians, and nurses oppose using e-health for many causes. Two leading causes are that (1) they want to avoid accepting any form of change in their comfortable working environment, and (2) they are concerned that the computerisation of various healthcare operations may cause some redundant staff (Hoque et al., 2014).

8.4. Class Differences

After independence, there has been an increase in the socioeconomic class disparities in access to care. Racial/ethnic, socioeconomic, and other health-related behaviours and status differences are well documented. Additionally, not everyone in our nation benefits equally from economic progress, which affects everyone's health. The rapid economic expansion has permanently impoverished disadvantaged people without social support systems and protection (Amanullah & Khatun, 2022).

People's lives are in danger in the delicate field of healthcare. To ensure safe practices of healthcare services, it is necessary to develop and adhere to suitable processes and guidelines before using any system. Otherwise, significant consequences could result. Hospitals had yet to benefit from the Bangladeshi government's national ICT policy in 2009. Bangladesh's regulatory and legislative structure still needs to be updated to meet the expanding demands of the technological world. However, emails have no official status and cannot be regarded legally as a legitimate means of communication in government institutions. Both rules for electronic authentication and regulations to prevent cybercrime are weak (Hoque et al., 2014).

8.5. Lack of Devolution

The well-being framework has yet to experience a devolutionary preparation despite being decentralised. In other words, the UHCs were executing the plans and programs affirmed by the Service, with control and decision-making centralised at the MHFW in Dhaka. As a result, nearby substances need to be reflected in plans and programs. Also, the nearby wellbeing experts are regularly incapable of appropriately reacting to particular nearby crises or emergencies because of a need for a decision-making specialist (Islam & Biswas, 2014).

8.6. Inadequate ICT Infrastructure

For e-Health, Bangladesh needs the essential ICT framework, counting computers, an online association, printers, and vitality. Moreover, only a tiny parcel of the populace has gotten to computers. According to a Bangladesh Telecommunication Regulatory Commission study, 4.5% of the crowd employ the web. In Bangladesh, the fetched web network is also over the top and must be more consistent. Also, there isn't an adequate sum of power accessible to back e-Health operations. On the other hand, because of the long delay between obtaining equipment and creating a custom computer program, the equipment is not significant when the computer program is usable (Hoque et al., 2014).

9. Recommendations

To allow marginalised communities access to community healthcare administrations, the government of Bangladesh is serious about executing an open well-being card framework and shaping a consolidation with NGOs working in rustic districts and with powerless populaces. The availability of available well-being would move forward if the government successfully embraced this framework (Amanullah & Khatun, 2022). It needs to be more adequate to have an approach in hypothesis; controls and procedures must be put into hone. Within the various things that a few analysts have recorded, the noteworthiness of legitimate help, national benchmarks, and directions are also of significant concern. Rules and controls are pivotal for an unused framework or a framework currently in place. It has been proposed that creating a national approach serves as the establishment for the appropriation of e-health. To encourage the acknowledgement of e-health, Bangladesh's policymakers and government should make precise national e-health approaches and techniques.

9.1. Bridging the academia and industry gap can inspire innovation.

Younger generations' transformational ideas can be sparked into startup endeavours by supporting innovative ideas in educational institutions (LightCastle Partners, 2022).

9.2. Budget Allocation

The sector should receive an adequate budget. It's also crucial to stop the misuse of the resources that have been given. The number of secondary and tertiary hospitals is essential. Additionally, all hospitals at the district and upazila levels must have well-equipped intensive care units (Amanullah & Khatun, 2022).

9.3. Service Quality

Quality should be at the core of all mHealth solutions to provide a high level of care for patients. Patients have the right to obtain high-quality medical care, whether provided in person or through contemporary ICT technology—poor quality results in difficulties and the requirement for extra care, significantly increasing expenditures. Due to the platform's lack of dependability and efficiency, the provider's lack of knowledge and expertise, the security and privacy of data or information, and its influence on consumers, there are growing concerns about the quality of these services (Akter & Ray, 2010).

9.4. Decentralisation

Decentralisation can be accomplished effectively by incentivising healthcare professionals willing to work in remote and rural locations, with underprivileged groups, or both. The introduction of a patient referral system using digital communication and connectivity in primary, secondary, and tertiary hospitals, the provision of universal health insurance, and central monitoring and evaluation of the healthcare system to combat corruption and establish robust service are additional steps required for a modern design (Amanullah & Khatun, 2022).

9.5. Electronic Record

All healthcare institutions must maintain electronic patient records to provide quicker and higher-quality medical care (Khalifa, 2013). All parties involved in healthcare delivery can benefit from using electronic health records to store, process, and share medical data (Angst & Agarwal, 2009). As a first step, it is doable in the context of underdeveloped nations. Healthcare providers can use the voter list database for Bangladesh by supplementing it with extra data. Specialised urban doctors are well-positioned to use ICT or health records in their practice in rural areas.

10. Conclusion

The healthcare sector in Bangladesh is moving forward, but more is needed. Small data innovation has been implemented to increase the criteria of care, and it has to be more available for the general people and should be more efficient. The current investigation illustrates that Bangladesh's computerised well-being care administration segment needs to work more generally at a palatable level. The individuals accepting this benefit need to be recognised with these headways in healthcare administrations due to the absence of education, a need for mechanical know-how, and a hate to alter. These issues must be handled to improve the current healthcare framework and grant destitute and defenceless individuals better access to fundamental restorative treatment. No matter their financial level, everyone has the right to enjoy ideal well-being conditions since it could be a crucial human right.

On the other hand, the Bangladeshi government has executed a vital procedure to upgrade this industry, which could be a crucial component of the economy. The ponder emphasises the importance of a multisectoral, all-encompassing approach to making strides in the health system and the issue of reasonableness in well-being frameworks. Bangladesh's well-being framework critically needs inventive administration prepared to form and execute evidence-based approaches and activities. The well-being specialists ought to effectively empower remote ventures to update our healing centres, and moves should be made during international participation. At whatever point there's a dubious financial situation or a natural fiasco, the government should consider declaring a comprehensive social bundle. Generally, Bangladesh must endeavour to move forward with its positioning on the healthcare file and take all fundamental steps. The examination illustrates that Bangladesh's e-health environment is often favourable but needs to be improved. With these administrations, the benefit clients need to be more well-known. This leads to the conclusion that benefits suppliers must make strides in high-quality ICT-based well-being administrations that are broadly and effectively open nationwide. Analysts can conduct ponders on the use of e-health in Bangladesh.

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