DISSERTATION REPORT

at

GAUHATI MEDICAL COLLEGE & HOSPITAL, GUWAHATI, ASSAM

A REPORT ON

A study/project titled on **IMPLEMENTATION & CHALLENGES OF AYUSHMAN BHARAT DIGITAL MISSION (ABDM)**

by

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Enrolment No. PG/22/086

Under the guidance of

Dr. SUKESH BHARDWAJ

PGDM (Hospital & Health Management)
2022-2024

International Institute of Health Management Research, New Delhi

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

COMPLETION OF DISSERTATION from GAUHATI MEDICAL COLLEGE & HOSPITAL, GUWAHATI, ASSAM

The certificate is awarded to **Dr. RAINAH LAHKAR** in recognition of having successfully completed her internship in the Department of IT and has successfully completed her Project/titled on **Implementation and challenges of Ayushman Bharat Digital Mission (ABDM)** from 16th March 2024 to 17th June 2024 at **Gauhati Medical College & Hospital, Guwahati, Assam.**

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.

We wish her all the best for future endeavors.

Training & Development

Joint Director-IT
PMU, ABDM, Assam

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DISSERTATION CERTIFICATE

This is to certify that **Dr. RAINAH LAHKAR** a bonafide student of **International Institute of Health Management Research, New Delhi** has been successfully an internship with us at **Gauhati Medical College & Hospital, Guwahati, Assam** for 3 months.

She has submitted a dissertation titled "**IMPLEMENTATION AND CHALLENGES OF AYUSHMAN BHARAT DIGITAL MISSION (ABDM)"** to our IT Department which has been accepted and approved under the supervision of the Head of the Department.

We wish her every success in her future endeavors.

Regards

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No. MC/44/2019/Pt.II/187 Date : 26-06-2024

TO WHOM IT MAY CONCERN

This is to certify that **Dr. Rainah Lahkar**, PGDM (Hospital and Health Management) student of International Institute of Health Management Research, New Delhi has completed an internship (dissertation) training on **"Implementation and Challenges of Ayushman Bharat Digital Mission (ABDM)"** at IT Section (AMTRON) under Gauhati Medical College & Hospital, Guwahati for the period of **3 months** with effect from 18/**03/2024 to 17/06/2024**

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The Candidate has successfully carried out the study designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements. I wish him all success in all his/her future endeavors.

Dr. Sumesh Kumar
Associate Dean,
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5

Certificate of Approval

The following dissertation titled **"IMPLEMENTATION AND CHALLENGES OF AYUSHMAN HARAT DIGITAL MISSION (ABDM)"** at **"GAUHATI MEDICAL COLLEGE & HOSPITAL, GUWAHATI, ASSAM"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

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4

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Rainah Lahkar**, a graduate student of the PGDM (Hospital & Health Management) has worked under our guidance and supervision. She is submitting this dissertation titled "**IMPLEMENTATION & CHALLENGES OF AYUSHMAN BHARAT DIGITAL MISSION (ABDM)**" at "**Gauhati Medical College & Hospital**" in partial fulfilment of the requirements for the award of the PGDM (Hospital & Health Management).

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **Implementation and Challenges of Ayushman Bharat Digital Mission (ABDM)** at **Gauhati Medical College & Hospital, Guwahati, Assam** and submitted by **Dr. Rainah Lahkar** Enrollment No. **PG/22/086** under the supervision of **Mr. Dhiraj Deuri** for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from **18/03/2024 to 17/06/2024** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

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2

FEEDBACK FORM

Name of the Student: Dr. Rajesh Lahkar

Name of the Organization in Which Dissertation Has Been Completed:
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Area of Dissertation: Implementation & Challenges of Ayushman Bharat digital Mission (ABDM)

Attendance: Adherence to the Internship Norms.

Objectives achieved: Yes.

Deliverables:
* Adherence to SOP's.
* Improvement for smooth & hassale free Processes.
* Improvement in operational concepts.

Strengths:
Sincerity, dedication & hardworking.

Suggestions for Improvement:
Be more focused on work & grasp fundamental concepts.

Suggestions for Institute (course curriculum, industry interaction, placement, alumni):

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Area of Dissertation: Implementation and challenges of Ayushman Bharat Digital Mission (ABDM)

Attendance: Adherence to the internship norms

Objectives achieved:

- To analyze the importance of ABDM in the healthcare system of India
- To explore types of ABDM Components
- To Identify the challenges of implementing ABDM
- To recommend strategies for ABDM implementation

Deliverables:

- Operational concepts
- Improvement in the application for smooth and hassle-free processes
- Standard operating procedures

Strengths: Sincerity, hard work and dedication, keen learner

Suggestions for Improvement:

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Dr. Rainah Lahka

ABSTRACT

Purpose: Ayushman Bharat Digital Mission (ABDM) has been launched in India on 27th September 2021 which aims to provide universal coverage of health to individuals. The purpose of this study is to evaluate the scopes as well as challenges of implementing ABDM system in the Indian healthcare sector.

Method: A secondary study has been conducted here based on the review of a range of literature. In order to conduct this review, only descriptive, detailed or qualitative data have been gathered from previous relevant literature. In this context, three online databases, including Springer, Google Scholar and PubMed have been taken into consideration. However, a thematic analysis has been performed based on 15 research articles and other relevant grey literature to obtain significant review outcomes.

Findings: This study has revealed that the ABDM scheme has a positive influence on healthcare service efficiency and effectiveness. Due to this reason, the Central Government of India is trying to develop a state- of- the- art digital health system by continuously improving the digital infrastructure. In this context, a conclusion can be drawn that, the most common challenges of ABDM mission implementation in India are engaging State government, inequality in digital healthcare access, poor infrastructure ensuring privacy and some technical issues.

Recommendations: It is essential to focus on improving digital healthcare infrastructure, ensuring equality, and educating the care providers as well as receivers regarding this new system.

TABLE OF CONTENTS

List of Figures

1. INTRODUCTION

The purpose of this research is to understand the importance of The Ayushman Bharat Digital Mission. The prime focus of ABDM is to facilitate health service delivery in digital mode. This ensures safe keeping of medical documents and easily available and accessible healthcare information. In this research, the implementation and challenges of this initiative will be analyzed.

1.1 Background

Ayushman Bharat Digital Mission (ABDM) wants to provide universal coverage of health to individuals. Digital health IDs are provided to individuals to help them get access to the digital services of India's healthcare services [2]. The Ayushman Bharat Digital Mission (ABDM) helps people to get access to streamlined services through the collaboration of different healthcare providers [5]. There are certain services like "Patient Registration", "Patient Revisit", and "Creating ABHA Health ID" in the dashboard of ABDM Service. On the other hand, certain challenges are the resistance of people and technological constraints inthe Indian Healthcare system [6]. These challenges should be solved to improve efficiency of ABDM initiative and contribute to the success of the Indian Healthcare System.

On the other hand, the "UK Japan Digital Health Virtual Mission" is also an effective digital health mission introduced by "Department for International Trade" in the UK and Japan in 2021 [23]. The key purpose of this mission is to enhance the opportunity to access the Digital Health across Japan. This mission mainly focuses on digital therapeutics, remote monitoring imaging-based diagnostics. Similarly, in the UK, the "NHS Digital mission" also has shown its success by delivering its digital health services up to 53 million citizens and 1.3 million NHS staff [24]. This mission also aims to increase the access of people to hectare services through digital health transition. In this similar context, in the US, "MyHealthEData Initiative" has been introduced by the US Healthcare System to enhance it digital healthcare services [25]. From these macro level contexts, it has become clear that in the last few years,a number of countries have already initiated different types of digital health missions to improve their overall digital health services. Similarly, the Government of India has also taken a great initiative to ensure universal digital health coverage through the introduction of ABDM [5]. However, as these digital health missions in the developed countries have

succeed in enhancing the overall digital health services, it can also be expected that, being a developing country, India can also ensure the success of ABDM.

On the other hand, as the ABDM is a new initiative of the Indian Government, very few studies have been conducted on this field. As a result, people in this country are less aware ofthis digital health mission. People have also a limited knowledge about its use, advantages as well as limitations of the ABDM. Taking these aspects into consideration, this study is going to focus on analyzing both the positive and negative impacts of this new ABDM mission.

1.2 Aims and Objectives

The main aim of this research is to evaluate the scopes as well as challenges of implementing ABDM system in the Indian healthcare sector. On the basis of this particular aim, thedeveloped objectives of this research are-

Objective 1: To explore types of ABDM components

- Different types of currently used ABDM components are pointed out in this study.
- The advantages and limitations of such components are also found out.

Objective 2: To identify the challenges associated with the implementation of ABDM

- The challenges faced by the healthcare organizations in implementing ABDM system are identified.
- The consequences of such challenges are also evaluated based on the findings of this study.

Objective 3: To recommend effective strategies for ABDM implementation

- The most effective ways of implementing ABDM system in both the private and public healthcare system are recommended at the end of this study.
- The possible strategies of improving the implementation of this digitalized system are also recommended.

1.3 Significance of the Research

The ABDM has been launched in India in 2021 and due to this reason, there is a limited number of studies or information available about this new digital mission. Due to this similar reason, the effectiveness or benefits as well as negative consequences of this mission are not

clearly known. Due to this reason, this particular topic has been selected for this current research. However, this study has aimed to evaluate the importance and effectiveness of the ABDM in improving the overall healthcare system in India. In addition to that, another purpose of this research is to explore the types of ABDM components adopted in different healthcare settings across India. However, the benefits of implementing the ABDM in the Indian healthcare system in terms of improving healthcare access can be known from this study. In addition to that, the challenges or barriers to implement the ABDM policy in the Indian healthcare system can also be known from this research. Apart from that, the overviewof the ABDM policy can be obtained from the key findings of this study. Moreover, the effective strategies for successfully implementing the ABDM in the healthcare system in India can be found out from this study.

On the basis of this information, it can be possible to encourage all the public and private healthcare organizations across the nation to adopt the ABDM based healthcare technology. Therefore, the healthcare settings or the entire healthcare providers can benefit from this study by knowing the advantages and most effective ways of using this technology. On the other hand, the challenges associated with the integration of ABDM can also be known from the findings of this current study. In addition to that, this study is also going to recommendthe most effective strategies for successfully implementing ABDM. Hence, this particular research project can also be beneficial for the healthcare setting in terms of integrating the ABDM by overcoming all the possible challenges. In this way, they can also enhance the transparency, quality, efficiency as well as effectiveness of healthcare services. From this point of view, it can be stated that the healthcare receivers along with healthcare providers in India can also benefit from this research. Hence, this planned research project is significant enough to be conducted systematically.

1.4 Gap Analysis

Like other countries, India is also trying to digitalize its health system by implementing the different advanced technologies or digital mission. For instance, it has been noted that the digital health infrastructure in India is still poor in relation to staff storage, a lack of skills, and so on [26]. Due to this reason, previously, there was no significantly successful digital health missions seen in India. In a similar manner, India is still behind many of developed countries in the context of digital health service systems. Taking this gap into consideration, digital technology is used as an enabler in terms of ensuring affordable, accessible, as well as

Quality health services [27]. In this particular context, the ABDM initiative taken by the Government of India supports the specific goal of achieving of universal health coverage. Therefore, the success of this ABDM initiatives in relation to digital transformation or digital coverage of health can fill the identified gaps in this current or existing healthcare system in this country. Taking this particular gap into consideration, this current research project is going to evaluate the importance as well as challenges of the ABDM initiative.

2. LITERATURE REVIEW

2.1 Overview of the ABDM

The key purpose of the ABDM is to develop the backbone essential for supporting the integrated infrastructure of digital health of the country [2]. This mission has helped to fulfill the existing gaps between different stakeholders involved in the Indian healthcare sector. The potential stakeholders involved in this national healthcare mission are "State Governments", "clinics, nursing homes or hospitals", "regulators", "biotechnology or health-tech companies", "Central Government", "Program Managers", "Healthcare professionals" and so on [10]. Therefore, active participation and involvement of all these stakeholders can promote the success of this newly lauded national digital health system.

Figure 1: Ecosystem of ABDM

This new digital mission introduced by the Government of India on 27th September 2021 also aims to enhance the equity and accessibility of healthcare services. This mission has been planned based on a holistic healthcare programme approach by incorporating IT (Information technology) and other advanced associated technologies. Another objective of this mission is to develop advanced state-of-the-art digital health systems for further ensuring a better infrastructure for digital health practices [11]. Apart from that this mission also aims to enhance the management, storing and use of personal health records on the basis of the international standards. In this way, this mission is trying to ensure the availability as well as easy accessibility to patient-centered or citizen cantered care services for all people in India.

2.2 Building Blocks of ABDM

The building blocks of the ABDM system consist of a number of components, including "ABHA Number", "Health Facility Registry (HFR)", "ABHA Mobile App (PHR)", and "Healthcare Professionals Registry (HPR)" [1].

Figure 2: Components of ABDM

ABHA Number

"Ayushman Bharat Health Account (ABHA)" Number is a hassle-free method designed to access and share health records of the patients digitally. It is the unique health ID given to individuals known as the Ayushman Bharat Health Account Number Through which individuals can get access to digital healthcare services. Total ABHA numbers till now are 59,56,71,151 registered [2].

HFR

HFR refers to a comprehensive repository of the entire health facilities of the nation across different systems of medicine [10]. It is the development of a registry for all Healthcare services and facilities to effectively coordinate and collaborate among the different Healthcare facilities and total 255,818 registrations have been done

HPR

HPR is a comprehensive repository of all healthcare professionals who are involved in healthcare services delivery processes across both traditional and modern systems of medicine. The Registry of Health Professionals is made in which the details of all healthcare professionals starting from doctors and nurses are recorded in which 331009 healthcare professionals are registered.

PHR

PHR is an electronic application using which patients can maintain as well as manage their health information in a secure, private, and confidential environment. This platform is used

for creating a unified platform in which all stakeholders of the healthcare system can interact by using efficient digital tools [9].

Figure 3: ABDM Components Data

Certain other components are ABHA Linked Health Record, Health Records APP, Active integrators and Successful integrators. Some other components are OPD Billing, OPD Visit, Discount and OPD Refund which provides access to OPD services to people.

2.3 Features of ABDM or ABHA

The integration or adaptation of the ABDM based technology has several features that allow the healthcare providers as well as healthcare receivers to use this technology in an adequate and systematic manner. One of the key features of ABHA is creating the ABHA address of each patient in receiving care from any private or public healthcare setting in India. Another important feature of this new digital health system is the identification of a range of health information for developing better treatment and healthcare improvement plans [8]. Apart from that, linking specific individual health records with a given ABHA Address is another key feature of the AMHA technology. Furthermore, effective management of consents of the patients and viewing the health records of a patient in different healthcare settings in India are other two vital features of this ABHA or ABDM technologies.

On the basis of these features, this national health approach helps the service providers as well as service receivers to manage different emergency situations in more advanced ways. For instance, during the recent Covid-19 pandemic outbreak, the integration of the ABDM system has allowed the healthcare organizations to provide effective and efficienttelemedicine and e-pharmacy health services [6]. This digital platform of health has allowed people to receive their needed healthcare services remotely during this pandemic crisis [7]. Thus, these features of the ABDM have enhanced the access to healthcare in remote areas along with minimizing the burden on physical healthcare infrastructure.

2.4 ABDM Sandbox Integration

The sandbox contains mainly four digital building blocks that are necessary for anyone who wants to create products or software services integrated with ABHA services. However, the key building blocks of the ABDM Sandbox system are “ABHA number services”, “Sandbox PHR Mobile Application for Android”, “Consent Manager and Gateway” and “Health Information User App” [2].

Figure 4: ABDM Sandbox

However, the Sandbox process of ABDM has been designed based on a total of six phases, including sending requests, getting access, integrating APIs, functional testing, HTC demo and going live [5]. On the basis of this sandbox design, the ABDM technology maintains “the national directory of all doctors” which in turn ensures the engagement of a wide range of healthcare professionals in the digital health delivery system [4]. In addition to that, the ABDM sandbox facilities “the national directory of all healthcare facilities” to provide efficient healthcare services to patients irrespective of their geographic areas.

Figure 5: Sandbox process of ABDM

However, there are mainly three milestones that have been set considering the ABDMsandbox to provide citizen-centered effective services to all patients. In this particular context, the first “Milestone (M1) of ABDM Sandbox” is about creating, capturing and verifying seamless registration of each patient. In this milestone, Aadhaar card, Mobilenumber, Demographic specification or Driving License are used as the identity proof in termsof creating or verifying the ABHA number. The second “Milestone (M2) of ABDM Sandbox” has been set to create effective and required HIP services in terms of sharing digital records via the PHR or ABHA app [6]. As a part of this milestone, it is essential to

support all the functionalities of this system. Furthermore, the third "Milestone (M2) of ABDM Sandbox" is about planning HIU services to provide medical history of the patients to authorized healthcare workers with their informed consent [4]. Therefore, in order to access the ABDM systems, the patient first needs to register on the ABDM Sandbox and proceed with the following steps.

2.5 Benefits of ABDM in improving the Indian healthcare system

There are a number of benefits of implementing the ABDM system in the area of healthcare systems in India which are explained below.

Healthcare choice: The ABDM generally allows people to make their own choice in terms of accessing both private and public health services [3]. Additionally, his digital healthcare system also indicates the specific protocols and guidelines of accessing healthcare information as well as required health services in a systematic manner. Moreover, it ensures transparency in the services‟ pricing as well as accountability for the health services being rendered [2].

Transparency in healthcare system: It is expected that the implementation of ABDM can significantly enhance the effectiveness, transparency and efficiency in the overall healthcare service delivery system in India [1]. In this particular context, patients will be ensured that all their medical records, including diagnostic reports, their medical history, prescriptions, and discharge summaries are securely accessed and recorded as well. In this way, this application further helps to ensure that all the patients in this country receive adequate and appropriate treatment and follow-up. The patients with ABHA number are also allowed to easily access more accurate information related to health facilities and service providers based on their needs. Moreover, in this system, the patients or their family members have the opportunities to access health services remotely with the use of e-pharmacy and tele-consultation services [2]. In addition to that, the ABDM empowers people with accurate information to make effective and informed decisions related to their treatment and increase healthcare providers‟ accountability.

Healthcare professionals' access to health records: As the entire healthcare related records of a patient related to both private and public hospitals India are stored in the ABDM system, it enables healthcare professionals to access the medical history of the patients in an easier

and better manner [3]. In this way, h health care professional can also prescribe moreeffective and appropriate health interventions by making better treatment decisions. In this particular context, the integrated ecosystem of the ABDM also enables a better continuationof the care delivery practices. Furthermore, it can be said that the ABDM also helps todigitize the claims process with better and faster reimbursement that can take place in the overall healthcare delivery system [5]. Thus, the overall healthcare practices as well asoverall ease of providing services adopted by the healthcare providers can be enhanced.

Better data management and policy making: Programme managers as well as policy makers in the Indian healthcare system have better and easier access to a range of healthcare related data. In this way, the health authorities or the government of India can ensure better decision making in terms of improving the overall healthcare system in the nation. In a similar manner, more informed and better-quality micro as well as macro level data can enhancemore advanced analytics, and the use of health-biomarkers [8]. Additionally, on the access and use of such accurate data the healthcare providers in this country can also ensure better preventive health care practices. In a similar way, the healthcare organizations in this country can continue and enhance demography as well as geography-based healthcare monitoring to further ensure appropriate healthcare related decision making [10]. Thus, the ABDM system can strengthen the planning as well as implementation of different effective health policies and programmes for better health outcomes of pepe in this country.

Enhanced healthcare research: The availability of such important health records can enable researchers in the area of health to conduct studies in terms of further evaluating the effectiveness of different existing or new healthcare related programmes and interventions [11]. Furthermore, the ABDM system enhances a comprehensive and essential feedback loop between policymakers, researchers, and providers in the healthcare sector.

Taking all the above-mentioned information into consideration, it can be said that the ABDM system can be beneficial for the entire healthcare system in India in terms of providing better and enhanced healthcare services.

2.6 Challenges associated with ABDM integration

Although a range of expected benefits of the ABDM system have been introduced by the Indian Government, there are also some concerning challenges or barriers in integrating such a new digital system in the overall healthcare sector. For example, it has been noted that

engaging the State Governments as well as the private healthcare settings is a major challenge faced by the health authorities. Supporting this aspect, a relevant study has indicated that the ABDM is a national approach while healthcare is a state-based sector in India [5]. There are already some digital health missions introduced by different State Governments of India having the similar types of visions as the ABDM. As a result, convincing the State Government or the State level hospitals to integrate this national approach becomes a key barrier in this particular context. On the other hand, there is also a barrier related to the low level of acceptance by many communities or people in this country [4]. From this point of view, it can be said that implementing this digital mission in all States can be a major challenge.

On the other hand, managing interoperability issues is also one of the most concerning challenges associated with the implementation of the new digital system. For instance, a recent study has pointed out that due to poor digital skills or knowledge, it becomes difficult for many healthcare workers to operate such new digital systems [12]. Apart from that, due to skill shortage, in many healthcare settings, the healthcare workers face issues managing time in operating this technology. Taking it into account, another relevant research paper has shown that the integration of the ABDM further creates inequality in the overall healthcare service system in India. In this context, it has been noted that only the individuals or group of people with access to and are familiar with digital infrastructure can use this new ABDM technology [11]. On the contrary, people mainly from rural areas, senior citizens and with a lack of literacy face difficulties to access or use such digital health technologies. In this way, the integration of the ABDM technologies is more likely to create inequalities among people in accessing adequate, effective and efficient healthcare services [11]. Reviewing this relevant literature or information, it has been understood that there is a key challenge related to the accessor adoption of this new digital system.

Furthermore, some relevant studies and reports have also shown that there are some technological barriers associated with this ABDM system addressing of which is also a key challenge of this system integration. Being a completely new technology or system, different types of complications may arise while using this technology by different users in different areas [12]. On the other hand, due to limited information or feedback available related to this ABDM technology, it may also be difficult to address as well as solve such technicalproblems. Apart from that, although ABDM ensures security and privacy of all the data recorded in the system and service users, because of cyber breaching, privacy issues may

automatically arise. Therefore, storing any kind of sensitive medical data can be a security or privacy challenge associated with the integration as well as use of ABDM based technologies [10]. Challenges of implementing ABDM are the privacy issues as data is shared by using digital platforms. Along with that, the challenge of interoperability issues between various systems needs to be focused on to improve the digital health initiative. One of the basic challenges of the Indian Healthcare system is ineffective technology development which is a challenge for implementing this initiative [12]. Thus, these challenges need to be kept in mind and should be solved by collaboration and coordination.

3. METHODOLOGY

3.1 Data Type

A secondary review is conducted to obtain research findings based on the incorporation of a range of existing data. However, only descriptive, detailed or qualitative data have been used in this research from previous relevant literature. Qualitative data can help to understand different aspects of the ABDM in a detailed manner. On the contrary, it is quite difficult to quantify the benefits or impact of this ABDM on the healthcare system in India. Due to this reason, in order to conduct and complete this study, only secondary qualitative data available on the official websites of ABDM, Indian Government, National Portal of India, news reports and relevant research papers are considered.

3.2 Databases

A number of authentic electronic databases have been used in this literature-based study to search for the important and relevant research articles. These selected databases are asfollows.

- Springer
- Google Scholar
- PubMed

However, only these three databases have been chosen for this current research because a huge number of healthcare related and science-based articles, published in different journals, are available on these databases. On the other hand, as ABDM is a recent mission introduced particularly by the Indian Government, there is a limited number of articles published related to this topic area. However, at the time of initial research, it has been noticed that some important articles are available on these databases and due to this reason, only these three online databases have been selected for this current study. In addition to that, Google has alsobeen used as a search engine to collect data from the government and news reports.

3.3 Keywords

On the basis of the specific aim and objectives of this study, some relevant keywords have been extracted for further use on the selected databases in terms of searching only relevant research articles. These keywords mainly include “ABDM” or “Ayushman Bharat Digital Mission”, “challenges”, “components”, “India”, and “importance”. In addition to that two

"Boolean Operators" such as "AND"/"OR" are used to narrow down the overall search process. Thus, the search sentences are as follows.

- "Ayushman Bharat Digital Mission Implementation" AND "ABDM Challenges".
- "ABDM benefits" AND "ABDM Healthcare".
- "ABDM Components" AND "ABDM importance".
- "ABDM Strategies" AND "ABDM importance".

3.4 Inclusion and Exclusion Criteria

Some exclusion as well as inclusion criteria have been set to select the data sources or research articles in an adequate manner by justifying their relevance. These criteria are mentioned in the table below.

Inclusion Criteria	Exclusion Criteria
● The papers published in the last five years (2020-2024). ● Articles published in English language. ● Articles that only contain the above-mentioned keywords.	● Articles without full text availability are excluded. ● Accessing of articles that require paid subscription are excluded.

Table 1: Inclusion and Exclusion Criteria

3.5 Data Analysis Method

Using the collected or extracted qualitative data, a thematic analysis has been performed in this literature review-based study. In this context, considering the similar patterns or topic areas in the collected data in relation to the specific research objectives, some relevant themeshave been developed. In the next step, by using the gathered data from the secondary sources,the overall thematic analysis has been performed. Thus, based on the results of the thematic analysis, the key findings of this research are concluded by addressing the specific research aims and objectives.

However, in summary, it can be contended that the data for this research is to be collected by using a literature-based study in which literature studies from various databases are going to be reviewed. By using the literature articles from different databases regarding the Ayushman Bharat digital mission, different aspects related to the mission can be evaluated. Literature-based study will help this research to be completed with in-depth analysis.

3.6 Ethical Considerations

As per the above-mentioned plan, in this research, only secondary data is collected to further conduct a secondary review. Due to this reason, some specific ethical considerations have also been maintained throughout this secondary review. In this context, only three authentic online databases have been used in this study to ensure the authenticity and reliability of the used data. In addition to that, data have been used directly in this review without any kind of manipulation to further avoid the presence of biasness. On the other hand, in-text citations have been used considering the sources from where the data are collected. Moreover, an appropriate reference list is also provided at the end of this study to acknowledge authors of all the used data sources.

4. RESULTS/OUTCOME OF THE RESEARCH

4.1 Search Summary

Following the overall data collection or article searching methods discussed in the above section, a total of 15 relevant research articles have been selected for this study. All these research articles are related to different areas of ABDM and published after 2020. In this way, it has been possible to ensure that all the selected articles are relevant to this study and meet all the inclusion criteria. However, as ABDM is a new mission, there is a limited number of relevant articles available in the online databases. Due to this reason, data from different official websites of the Indian Government and healthcare sector are also used to support or contradict the findings of these articles. In this way, based on the relevant information extracted from these selected data sources, a total of four themes have been developed as follows for further analysis.

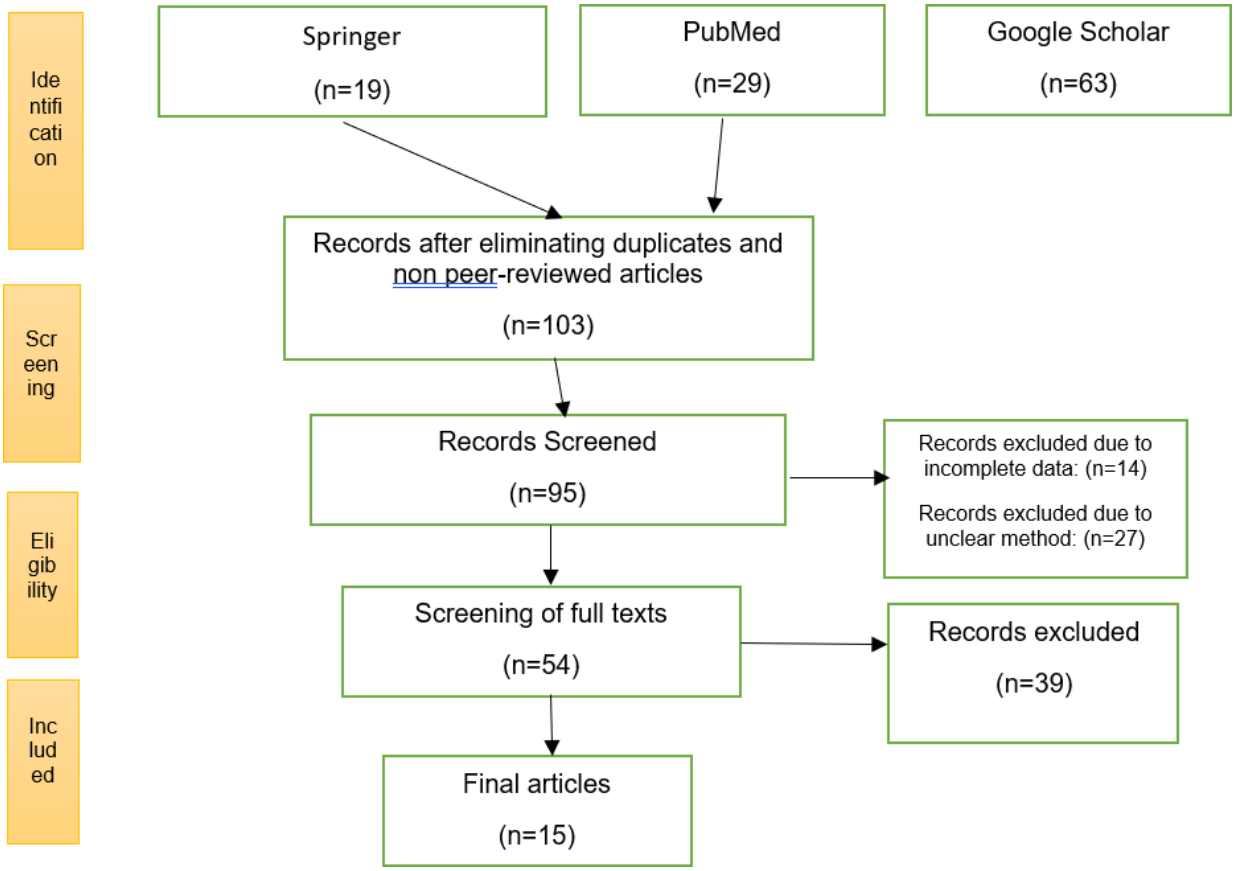

Figure 6: PRISMA Framework

(Source: Self-created)

The PRISMA framework has been used in this study to select the most relevant research articles for the thematic analysis. In this particular context, the article selection process has been performed through four different stages. For instance, in the „identification" stage, a total of 111 research articles have been primary search from the chosen three databases. Inthe „screening stage", the duplicates and irrelevant research articles have been excluded considering the title and abstract screening. Thus, a total of 57 research articles have been excluded and the remaining 54 articles have been considered fir further screening in the "eligibility" stage. In this context, the full texts of all these 54 research articles have been screened for further selection. Thus, 39 research articles have been further excluded due to less relevance to this current study. Based on the above figure, it can be notified that Based on the overall database search, a total of 15 research articles have been included in this study. Additionally, some relevant government reports, industry reports or news reports are also incorporated in thematic analysis. From this point of view, it can be said that the most relevant data have been reviewed or incorporated in this study to obtain a significant outcome.

4.2 Thematic Analysis

Theme 1: The integration of ABDM improved efficiency and effectiveness of the overall healthcare service system in India.

ABDM has developed a mission of enhancing the access, effectiveness, efficiency, and transparency of healthcare delivery system across India. For instance, recently it has been reported that through ensuring better access to personalized treatments, medical histories, as well as expanded healthcare access, ABDM integration helps to enhance overall healthcare outcomes [20]. Supporting this aspect, another report has also shown that efficient andadequate sharing of a range of important information creates better coordination among the healthcare stakeholders [21]. In this way, this new technology based digital mission positively and significantly contributes to personalized or patient-centered quality healthcare services. A recent research article has indicated that the ABDM program initiated by the Central Government of India leads to better health care access for the people with low- income status if it is implemented and sustained successfully [31]. It has also been found that this scheme is driving to strengthen the "Indian health care system" by integrating the"traditional medical therapy" with "allopathy" at Public Health Centers [32]. Similarly, it can allow the citizens of India with the ease of registration and access to multiple digital health services available across the ABDM ecosystem now and in the future [41]. In this way, the

ABDM has been recognized as one of the most reliable ways for providing financial coverage to the insured family [32].

On the other hand, the "Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) scheme" is a part of ABDM system aiming to increase healthcare access. In this particular context, this scheme provides health cover or health insurance of up to INR 5 lakh per family per year for certain beneficiaries [42]. AB PM-JAY is leveraging the platform of ABDM, so that its delivery becomes more efficient and transparent. Similarly, any other such scheme or health programmed can leverage the common building blocks or design of ABDM so that its efficiency can improve. On the other hand, the integration of ABDM with AB PM-JAY is like its integration with any other digital health system such as the one of NIKSHAY (antiTB programmed), CoWIN (COVID vaccination portal), hospitals, etc. Apart from this integration, both the schemes have different goals [42]. Thus, they are two different schemes being implemented by the same authority/office. However, the key benefits of PM-JAY include medical examination, treatment and consultation, pre-hospitalization and required hospital accommodation benefits. In addition to that, medicine and medical consumables, on-intensive and intensive care services and well as food services are also covered under this PM-JAY scheme for the patients [40]. Moreover, the activation of this scheme also focuses on diagnostic and laboratory investigations, medical implantation services and most- hospitalization follow-up care up to 15 days [36]. Thus, reviewing all these selected research articles as well as news articles and Government reports, it has become clear that the ABDM implementation has a significant as well as positive link with the improved efficiency and effectiveness of the overall healthcare service system in India.

Theme 2: CoWIN, PHR apps, LMIS solutions and e-Aarogya are the most commonly and successfully integrated AMDP components in India.

It has been noted that the most commonly and successfully implemented digital health service applications as a part of ABDM in India are PHR apps like "Aarogya Setu by National Informatics Centre", LMIS solutions like "Patient Registration Application by Dr.Lal path labs Ltd" and "National Viral Hepatitis Control Program" [19]. However, as the ABDM itself is a digital health scheme, it has encouraged the entire healthcare sector in Indiato innovate different digital technologies under its guidelines. For example, under the specificguidelines of "Ayushman Bharat", the previous "CoWin" program has been repurposed [35]. It has been recognized as one of the most widely used components in the process of

implementing the Covid-19 vaccination. However, after the introduction of the ABDM scheme in 2021, this CoWIN program has been replanned or mortified to be used as an efficient health management information system. By using this digital health information system, the clinics and nursing homes of small doctors are efficiently managed [36]. However, one of the main purposes of this CoWIN component of ABDM is to enhance the access to digital health solutions for health professionals and citizens across India. Supportingthis aspect, another relevant study has also indicated that under the ABDM scheme, the CoWIN system is expected to be the "Universal Immunization program" in India [37]. In thiscontext, different types of unique health ID such as "Ayushman Bharat Health Account" is used in terms of identifying the beneficiary across the "health system digital landscape" in this country. Based on the review of these relevant literatures, it has become clear that CoWIN is one of the most effective digital components of the "Ayushman Bharat" scheme.

On the other hand, "PHR App: ai.m healthy" has been designed as well as introduced as a digital health app under the ABDM guidelines in India. The key purpose of this app is to promote good health and well-being of citizens by increasing the access to overall healthcare services [38]. The adequate use of this particular app helps and supports people to take control of their health by using its different features. For example, the health assessment feature of this app helps the users to understand the level of risks they are facing related to any kind of heart diseases or diabetes. Thus, based on the collaborations with healthcare providers, people in this country can achieve their health and well-being goals by using this app [36]. However, as it is a key component of the ABDM program, the citizens of India can create as well as link their "ABHA card" by using the "ai.m healthy app". From the findings of these research articles, it has also been understood that the PHR app is also an effective technology-based component of the ABDM scheme in the Indian healthcare sector.

On the other hand, the "Laboratory Information Management System (LIMS)" solution has also been integrated in the ABDM project in terms of improving the overall quality in the Indian healthcare system [39]. However, the LIMS has been integrated in the sandbox of ABDM to give a digital solution in terms of further capturing the patient information.Similarly, it has been highlighted by another relevant research paper that as a part of the ABDM scheme, the integrated LIMS solution also enhances the overall information sharing process or quality in the laboratory system in India [40]. Therefore, it can also be said LIMS digital is also an effective digital component of the ABDM program that positively contributes to the overall diagnosis or treatment process. Reviewing all these aspects, it has

been known that there are a number of AMDP components integrated in India in terms of ensuring the active application of the ABDM scheme. Therefore, the healthcare organisations need to choose the most effective and suitable components or types of AMDP systems based on their settings‟ goals. In this way, it can further be ensured that the innovation of such components can help to ensure the success or the active integration of the overall ABDM scheme across the Indian healthcare system. It also creates a significant link with the digitalization of the entire healthcare system in this particular country.

Theme 3: Engaging State government, inequality, ensuring privacy and technical issues are the major challenges associated with ABDM integration.

This particular theme this focused on the limitations faced by the Indian Government to implement the ABDM scheme all over the healthcare sector in this country. Some relevant studies have already been conducted in this field to introduce different types of challenges associated with this program. For example, a recent news report has shown that inadequate digitization and developing trust among the people in the nation have become the most concerning challenges of the ABDM integration process [20]. Supporting this aspect, it has been pointed out by a research that creating awareness among all the people or healthcare service users are the major challenges of the ABDM implementation mission [27]. In addition to that, educating both the healthcare service providers and users for efficiently using the ABDM process is also a concerning challenge associated with this mission. Apart from that a lack of proper training to the personnel on the ABDM scheme is causing a range of problems for patients at the hospitals [28]. As a result, delay and many another problem take place in the overall treatment process. On the contrary, an argument has also been drawn that due to monetary constraints, organizing professional training has also become a key barrier to this digital mission. In this context, it has been noted that although the ABDM is the largest publicly funded health insurance program in India, many hospitals report problems related to training sessions because of poor funding [34]. From these contexts, it has become clear that training is not properly arranged in all healthcare organizations across India in terms of successfully integrating the “Ayushman Bharat” scheme.

On the other hand, a recent research study has indicated that reaching out to less-privileged populations or people living in rural areas has become a key concern of this mission. In this particular context, it has been noted that internet is still not properly accessible or available in all areas, specifically rural areas in India. As a result, it has become a key issue to integrate

the ABDM system in such areas [7]. In this similar area, it has also been found by a recent research work that maintaining equality among all citizens in relation to the access to digital healthcare services also creates a concerning limitation to implementing the ABDM system [9]. Similarly, it has been discussed in a study, as many people across India, especially older people or people at the low literacy level are unable to access such digital healthcare services. As a result, only the people in urban or town areas or educated people can be successfully part of this mission, indicating an inequality issue associated with this new initiative. Similarly, the marketing of the ABDM scheme has also been found as a major challenge for the Government of India [28]. For instance, it has been noted that mainly in the states such as Sikkim and Assam, where Hindi or English is not a common language with the native population, it becomes a challenge to make people understand the use of this digital system. This research paper has highlighted that the hospitals in Maligaon are unable to efficiently provide ABDM scheme-based services despite its developed infrastructure or equipment for this digital health scheme. In this particular context, it has been revealed that as majority of population in this town of Guwahati, Assam tribal population and not aware of Hindi or English language, they still have not been aware of the SABDM scheme. From these contexts, it has become clear that there is a key limitation related to access, marketing and inequality in the ABDM scheme.

Apart from that, engaging the local or state governments in this mission has also become a challenge of this mission as it has been particularly introduced by the Central Government of India [21]. Political constraints between the Central Governments and State Governments also effect the ways and efficiency of implementing the ABDM program. For instance, the Government of Kerala in said that their existing healthcare model without the ABDM scheme has been running smoothly [31]. Due to this reason, they do not implement the ABDM program introduced by the Central Government in this state. From these contexts, it has been understood that political constraint is one of the major challenges associated with the implementation of the ABDM program in terms of engaging the State Governments. Hence, the higher authorities of the Indian health system need to focus on these identified issues to further address effective solutions.

Theme 4: Through organizing community programs, engaging healthcare technology experts, providing staff training opportunities, ABDM can be integrated successfully.

Reviewing a range of literature, it has become clear that the successful integration of the "Ayushman Bharat" scheme can improve the overall health outcomes in India. Due to this reason, it is essential to identify the effective ways or strategies for successfully integratingthe ADDM scheme across the primate as well as public healthcare organizations in India. However, different studies conducted in this particular field have suggested different ways of successfully implementing or sustaining the ABDM program all over India. A research articlehas said that "proper governance", "increased awareness", "prompt referral pathways in both public and private healthcare providers" and "initiatives toward quality assurance", can further make the ABDM scheme effective in the next few years [32]. Moreover, by developing an effective and detailed communication strategy, the accessibility as well as adaptability of "Ayushman Bharat" program can be enhanced.

A recent research study has indicated that proper training is required for the healthcare staff to make them properly know and understand the guidelines and processes of ABDM scheme [28]. Different training programs conducted by the hospitals as well as different offline or online programs arranged by the Government can solve this issue. Additionally, in this particular context, this study has also suggested that there is a need of proper advertisement about the ABDM scheme to make people know about the way of utilizing and benefits of thisscheme. As a result, it can be easier for the healthcare staff to work effectively on the basis ofthis scheme. In addition to that, more people in this country can avail of the cashless treatment under this mass digital healthcare government scheme. Supporting this aspect, another study in this similar field has indicated that quality training can be one of the most effective and designed interventions for make all staff in the Indian healthcare sector about the standards and guidelines of the ABDM scheme [29]. Another study has indicated that proper training is also for nurses to provide efficient and quality care under the ABDM scheme [30].

However, it has also been noted that some States in India have accepted this Central Government's new health program in different ways. For instance, the State Governments of Gujrat and Tamil Nadu have mixed their existing health schemes with this new digital health scheme [32]. On the other hand, the Government of Andhra Pradesh has covered their healthcare services directly by the new ABDM program. On the other hand, all these three

States have been able to successfully implement this innovate digital health scheme in terms of serving to more people. Taking this success into consideration, it can be recommended to other countries to implement this “Ayushman Bharat” scheme by following any of these two ways for the betterment of their healthcare system.

5. DISCUSSION

5.1 Discussion Summary

i. Components of ABDM Building Blocks

It has been understood from the results of the overall thematic analysis and literature review that there are mainly three major components of the ABDM system. These components mainly include “Health ID, Healthcare Professionals Registry, and Healthcare Facilities Registry [18]. In this context, it has been noted that The ABHA Number is a randomly generated 14-digit number designed as a unique identifier for individuals participating in India’s digital healthcare ecosystem [43]. The ABHA Number is used for the purposes of authenticating individuals and threading their health records (with informed patient consent) across multiple systems and stakeholders in the healthcare ecosystem. In this particularcontext, ABHA can be generated when citizens visit a medical facility, using an ABDM- enabled HMIS at health facilities. A prerequisite for using this method for ABHA creation is to ensure that the HMIS being used at the facility, is integrated with ABDM. This can be done through either API integration of the existing HMIS with ABDM or implementing an ABDM-enabled HMIS [42]. This method helps register the individual at the point of care andensures record collection till the continuum of care.

ii. Government structure for execution of the project

The Government of India has itself launched the ABDM project in terms of promoting digitization of healthcare. In this context, the Indian Government is planning to create an open interoperable digital health ecosystem for the country. The Government is trying to develop a state- of- the- art digital health system, for managing the core digital health data. However, from the outcome of thematic analysis, it has been noted that the State Governments are expected to provide support to Government of India for improving adoptionof ABDM in the field. Government of India (National Health Authority) will be responsible for development and management of core building blocks such as Ayushman Bharat Health Account (ABHA – earlier known as Health ID), Health Facility Registry etc. However, in thefield, the entities joining the ABDM adds citizen/individuals, doctors/other Healthcare professionals and hospitals or other healthcare facilities, Health Tech companies, etc. will require intensive engagement. State governments or UT administration will help onboard and hand hold all the facilities to facilitate them joining the ABDM. For example, State Government /UT administration will undertake IEC and capacity building initiatives to

maximize the reach and use of ABHA among citizens. They will undertake initiatives to get maximum doctors, hospitals etc. on boarded on to the platform. They will further coordinate with the medical councils of all respective path's in that state to help facilitate early verification of doctors and other healthcare professionals. Through district administration or any such entity as may be decided by the State governments or UT administrations, they will be verifying the existence of the healthcare facilities and accordingly the healthcare facilities shall be marked in the Healthcare Facility Registry. State governments or UT administrations are also expected to act to redress grievances, queries etc. that may be coming from the field. The National Health Authority shall provide necessary guidance in this regard.

iii. Current status of ABDM activities in Assam

a recent report has shown that IIT Guwahati has hosted a regional workshop and undertake the responsibility of conducting training of Master Trainers of ABDM [22]. This educational institute is working in collaboration with the central and state authorities towards revolutionizing the entire healthcare sector. In this context, by organizing training for healthcare professionals to successfully implement the ABDM system for digital innovation in this sector. Apart from that, different State Governments in India have already introduced the "Programmed Portal generated ABHA" to enhance the entire adaptation process. For example, Assam Government has utilized the NCD portal for generate ABHAs at all the "Health and Wellness Centers". In addition to that, this state has also leveraged the "RCH portal" along with the "ANMOL application" for efficient creation of the ABHA system [43]. Similarly, Gujrat, another important State of India has addressed "auto-generated ABHA" at the time of enrollment in the "Pradhanmantri Jan Arogya Yojana – Mukhyamantri Amrutum (PMJAY-MA)". From these contexts, it has been known that different States of this country taken different initiatives to actively as well as efficiently integrate the ABDM system in their healthcare systems. In addition to that, this country has undertaken mass ABHA generation in the monthly "Swasthya Sewa Abhiyan – Special Health Meals and Special ANC Drives". This health promotion campaign further helps the health system of this State to be digitalized in a systematic manner.

iv. Approach for ABDM adoption

All the States nationwide are playing a crucial role in the adoption of ABDM. In thisparticular context, the state governments have developed an active digital health ecosystem that further ensures the benefits of digital healthcare reach every citizen of the country [19].

However, it has bene understood from the thematic analysis's outcomes that in terms of generating digital health records, healthcare settings need to be equipped with specific digital health solutions. In this particular context, it is vital to implement a "Hospital Management Information System (HMIS)" or "Lab Management Information System (LMIS)" [43]. In addition to that, in order to become a part of the ABDM ecosystem through digital health records, it is essential to enable the healthcare organizations with seamless linkage, exchange as well as well management of health records. In a similar manner, the digital solution needs to be integrated with ABDM at a facility or programmed, with patient consent.

However, the national launch of ABDM has enabled new avenues for expansion of ABDM related public and private services. in addition to that, the NHA has been focusing on driving adoption of the ABDM system by public and private healthcare providers [42]. In this way, it would be possible to ensure a wider range of digital health services are available for citizens, thereby fueling the creation of a self-sustaining ecosystem. During the last two years, the NHA has released detailed documentation for each of the Milestone by listing down the functional requirements [43]. In addition to that this system shows the "API sequencing" as well as offers step-by-step guidance for the integrators in their integration journey. In this particular context, the associated integrators are also being encouraged to leverage the sandbox documentation of the ABDM system. In this way, it becomes possible for the usersto understand all the optional as well as mandatory features. Taking all these aspects into consideration, further workflows are also recommended for the betterment of the digital health system in this country.

v. Challenges in implementation of ABDM

From the thematic analysis, a range of challenges have already been identified associated with the implementation of ABDM in the Indian healthcare sector. For instance, it has been found that creating awareness among all the people or healthcare service users and educating both the service providers and users are the major challenges of the ABDM implementation mission. On the other hand, reaching out to less-privileged populations or maintaining equality, engaging the local or state governments and organizing professional training due to monetary constraints are also key berries to this digital mission [20]. On the other hand, it hasalso been found that ABDM is in the process of integrating the healthcare ecosystem and making it interoperable. On the contrary, there are some concerning challenges such as a lack of adequate technological, including hardware and software infrastructure in health facilities

in India. There is also a lack of incentives and resistance to change in relation to theadaptation to ABDM [30]. For instance, it has been noted that in many hospitals, particularly small hospitals in India, there is lack of sufficient investment in technological and digital storage space. As a result, such healthcare settings become unable to take initiatives for digital transformation and these are pre-requisites for ABDM [35]. On the other hand, at some remote places in India, internet connectivity issues still exist which further creates a barrier to access digital health services [38]. Apart from that one of the most concerning challenges towards creating an interoperable ecosystem is a lack of adoption of HMIS(Hospital Management Information Software) in hospitals [41]. In this particular context, the FICCI 2020 report, namely "Leapfrogging to a Digital Healthcare System" has shown that above 500 software providers provided HMIS software to hospitals across the entire Indian healthcare sector [42]. On the contrary, the adoption of EHR in India has bene reported as at less than 10%. This data further indicates that there is a fragmentation and low digital penetration in India which is another challenge associated with ABDM activation across this country.

Apart from that, from the overall components, sandbox and features of ABDM system, it has become clear that the adaptation of the ABDM requires doctors to write prescriptions on their digital gadgets such as laptops, computers or tablets [32]. It, in turn, indicates a huge behavioral change for the doctors in their clinical practice. Oppositely, due to the huge workload, it becomes a big challenge for the doctors to use this particular digital system of making prescription. The same issue is true for other healthcare professionals such as nurses, pharmacists, lab technicians and so on. In this particular context, due to a lack of proper relevant training opportunity, in many cases, these healthcare professionals show resistanceto change their behavior or practices towards digitalization. Oppositely, some studies have also indicated that the application of this digital process through ABDM system helps to ensure time saving because of prefilled prescriptions and option for quickly looking atrecords chronologically [31]. Taking both these benefits and challenges into account, several awareness campaigns are also being planned to further ensure success of ABDM scheme in India.

At the end, it can be summarized that the aim of this study is to evaluate the scopes as well as challenges of implementing the ABDM system in the Indian healthcare sector. In order to meet this particular aim, a secondary review has been conducted. In this context, only

descriptive, detailed or qualitative data have been gathered from previous relevant literature. As it is quite difficult to quantify the benefits, challenges or impact of this ABDM on the healthcare system in India, secondary qualitative data has been considered as most suitable for this study. However, in order to complete this desk-based study, three online databases, including Springer, Google Scholar and PubMed have been taken into consideration. Thus, a range of relevant research articles as well as some grey literatures, including industry reports, news reports and government reports have been used to gather data. In this way, based on the collected qualitative data, the review has been carried out through thematic analysis. From this point of view, it can be said that, the entire review has been conducted in a systematic manner. In this way, this study has pointed out the drawbacks or limitations of implementing ABDM in different states of India. However, it has been found from this review that the ABDM scheme has a positive influence on healthcare service efficiency and effectiveness. Due to this reason, the Central Government of India is trying to develop a state- of- the- art digital health system by continuously improving the digital infrastructure. In this context, a conclusion can be drawn that, the most common challenges of ABDM mission implementation in India are engaging State government, inequality in digital healthcareaccess, poor infrastructure ensuring privacy and some technical issues. Due to this reason, itis essential to taken initiatives to ensure successful implementation of ABDM schemes acrossIndia.

5.2 Recommendations

From this secondary study, a range of challenges have been revealed associated with the ABDM system in India. Taking these aspects into consideration, some suggestions can be provided to.

It is essential to increase the access to ABDM or overall digital health system in the rural areas. In addition to that, community development or health promotional programs need to be conducted to increase awareness of this ABDM system among the people. Apart from that, the community level social care or healthcare workers can visit every house to create ABD card of all people. In this way, the chance of missing ABDM cards can be reduced. Furthermore, all the private and public healthcare organizations across the world should ensure that ABDM is applicable in their services.

5.3 Research Limitations

Some limitations have been associated with this study in terms of collecting sufficient data. For instance, as this current literature-based research project is completely based on ABDM which is a newly launched digital healthcare mission of India, very little data is available related to this topic area. As a result, only a limited number of research articles have been included for collecting and analyzing data. On the other hand, as any primary or real-time realdata has not been incorporated in this study, it has not been possible to know the current consequences of this new project execution in the Indian healthcare system. Therefore, at the end, it can be said that The ABDM is a newly launched digital healthcare mission of India. Due to this reason, there is limited information available related to this mission. It is a limitation related to current data interpretation.

It is a review-based study and because of this reason, any primary or current data is not used into this study. As a result, this study does not provide current or updated information.

5.4 Future scope of development of the research:

- Future studies can be conducted in this similar filed to examine the behavioral change of people for ABDM Adoption.
- Further studies can be planned in this similar field to evaluate the acceptability of ABDM by the healthcare professionals in India.
- In the future, more studies can be conducted in this topic area to investigate the aspect related to consistent data security.
- This current study has also explored scopes for future studies to focus on the application of ABDM in relation to different public health concerns.
- Further research can also focus on investigating the digital infrastructure requirements for ABDM implementation.
- The role of ABDM in enhancing telemedicine system can also be investigated in the future research in relation to the findings of this current research.

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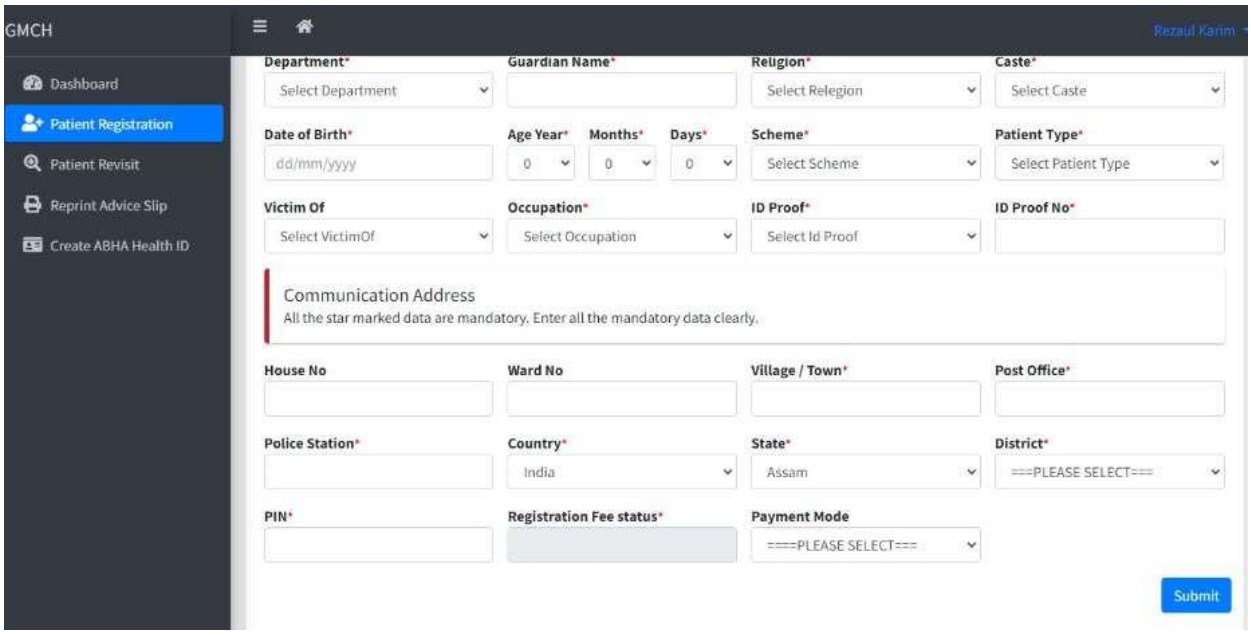
Appendix 1: ABDM Activities in Assam


national health authority
Access all your health records with one single number
Scan
Create


GMCH
Rezaul Karim
Dashboard
Patient Registration
Patient Revisit
Reprint Advice Slip
Create ABHA Health ID
Department*
Select Department
Guardian Name*
Religion*
Select Relegion
Caste*
Select Caste
Date of Birth*
dd/mm/yyyy
Age Year*
Months*
Days*
Scheme*
Select Scheme
Patient Type*
Select Patient Type
Victim Of
Select VictimOf
Occupation*
Select Occupation
ID Proof*
Select Id Proof
ID Proof No*
Communication Address
All the star marked data are mandatory. Enter all the mandatory data clearly.
House No
Ward No
Village / Town*
Post Office*
Police Station*
Country*
India
State*
Assam
District*
===PLEASE SELECT===
PIN*
Registration Fee status*
Payment Mode
====PLEASE SELECT===
Submit

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