Managing long-term conditions through m-health technology

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Abstract- Objective: The main aim of this study is to understand the problems faced by the individuals while using the M-health apps for managing chronic diseases. Methodology: Studies were identified based on the literature published in Pubmed, BMC public Health, BMJ, JMIR Mhealth Uhealth, European journal of Public Health, JSTOR journals from 2018 to 2024. The keywords such as m-health apps, Mobile health applications, Fitness apps with different combinations are used to collect these publications from various journals.
Findings: Although a broad variety of M-health applications are accessible with various usages based on consumer needs, they lack complete familiarity with these applications and their use is still minimal. These applications must be created with the needs of the user and security for their privacy in mind.

Keywords: M-health; Mobile health; health care; Mobile penetration; fitness apps.

INTRODUCTION

According to WHO (World Health Organisation), the cause for the premature death based on the non-communicable diseases can be caused by four major factors such as sedentary lifestyle, unhealthy diet, tobacco usage and harmful use of alcohol. This can be controlled by using M-health applications. The mobile health applications play a crucial role in maintaining the health condition of the patients who are diagnosed with Arrhythmia Management as the patients should be monitored with the help of mobile applications, wearable devices, sensor patches which are to be connected with mobile phones. These applications monitor the heartbeat, their EGC duration in order to observe the patient's health. Though these applications are useful to know about the patient's current conditions, hacking these devices is also possible as they are connected with the internet. Based on these

readings proposing any medication is not possible as these data may have errors, so these m-health applications are to be innovated as per the needs of the utilizers of these applications Varma et al. (2021). There is a limited study on the m-health applications for management of Food Borne Disease outbreaks Ntshoe et al. (2021). Physical activity is said to be the basic need from birth to old age, not only the physical activity but the psychological health and social wellbeing also has to be taken care of. These can be achieved with the help of M-health applications Emberson et al. (2021). Commercial health apps reviews help to know the important insights in building the applications in the best possible way Gasteiger et al. (2023). The previous studies concentrated only on any one of the diseases of the patients or the efficacy of the users but did not concentrate on the difficulties faced while using applications

LITERATURE REVIEW

According to WHO, the term Chronic diseases mean the long-term health condition of any non-communicable diseases occurred because of genetic, physiological, environmental and behavioral factors. The notable diseases such as cardiovascular diseases, cancer, chronic respiratory diseases and diabetes may affect most of the low- and middle-income countries. The reason for these health conditions includes tobacco use, physical inactivity, alcohol usage, unhealthy diets and air pollution may affect the people (1). Current tobacco usage in India among adult population is 35.2% which is mostly found in east zone 55.4%, followed by the northeast 51.8%respectively(Pahari et al., 2023)(2). Lancet Global health found that nearly 50% of the Indian adults do not meet the exercise duration recommended

by WHO in which 52.6% of women and 38.4% of men which may pose a threat of heart diseases in India (Economic Times Article, n.d.)(3). On the other hand, the alcohol consumption in India amounted to five billion liters in 2020 and estimated to rise 6.21 billion liters in this year (4). In India, 56.4% of people facing health issues due to unhealthy diet which may be the cause of type 2 diabetes (5).

The advancement of technology has opened a gateway of opportunities to explore the m-health application for monitoring the long-term disease(Peiris et al., 2014). Mobile health has become a game changer for managing non-communicable diseases. This technology has enormous potential to monitor by using self-monitoring devices, electronic information services(van Olmen et al., 2020).

OBJECTIVE

The aim of the study is to know about the current condition of m-health application in managing the non-communicable diseases.

METHODOLOGY

The study analyses the main objective of the study with the help of secondary sources available based on the topic chosen. This study has been conducted based on the publications from the reputed journals using the keywords such as M-health, Mobile health, healthcare, Mobile penetration, fitness apps
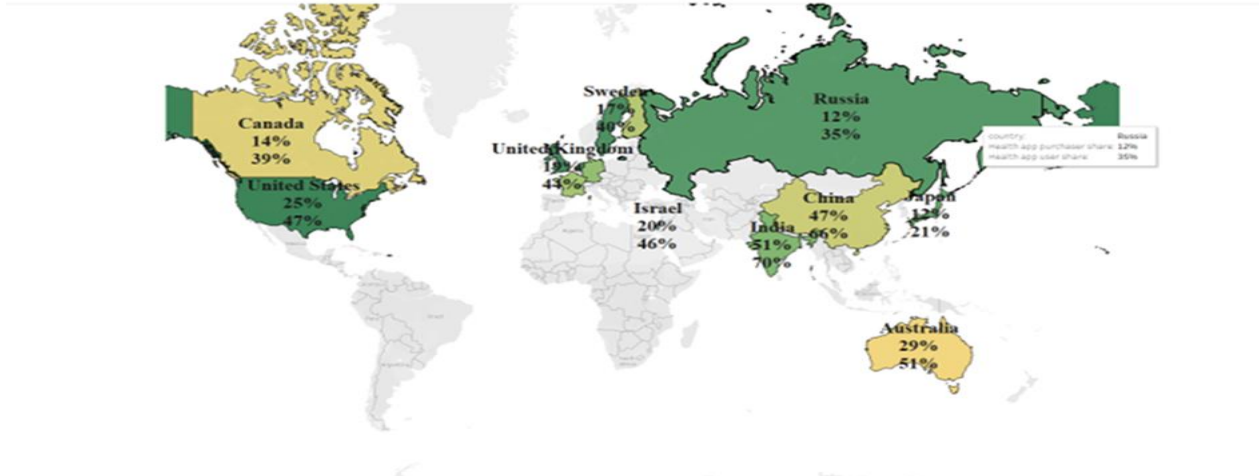
TYPES OF M-HEALTH APPLICATIONS

Fig. No: I

Source: https://www.statista.com/search/?q=digital+health&p=1
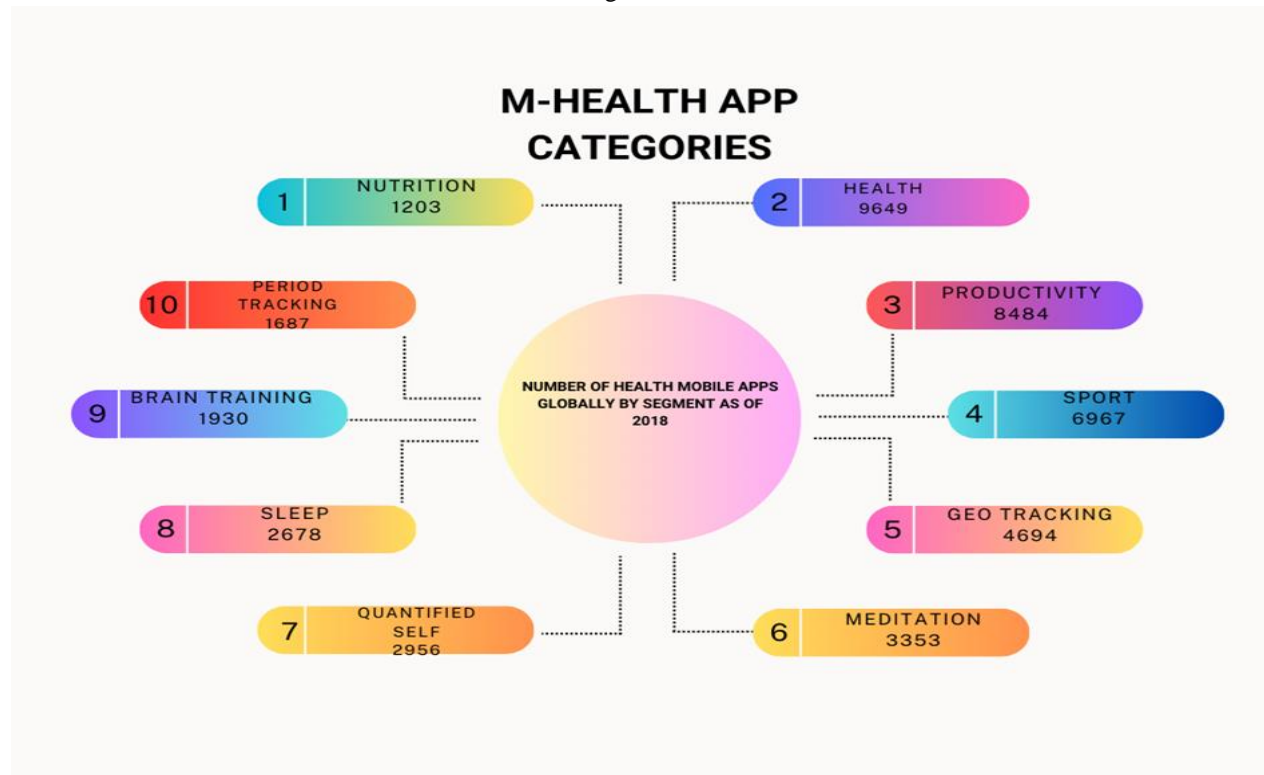
According to Statista, the number of health and fitness applications downloaded in 2018-2021 all over India is around 245 million in total.

Figure No. II - Share of health app users & purchasers in selected countries

The above figure represents the number of health app purchaser and number of health app users in selected countries. Out of 70% of m-Health application users in India, 51% of them are opting the health related plans in the paid version of personalized health data.

Figure No. III

Internet Penetration and Cost of Health diet in India compared with Share of Diabetics in India
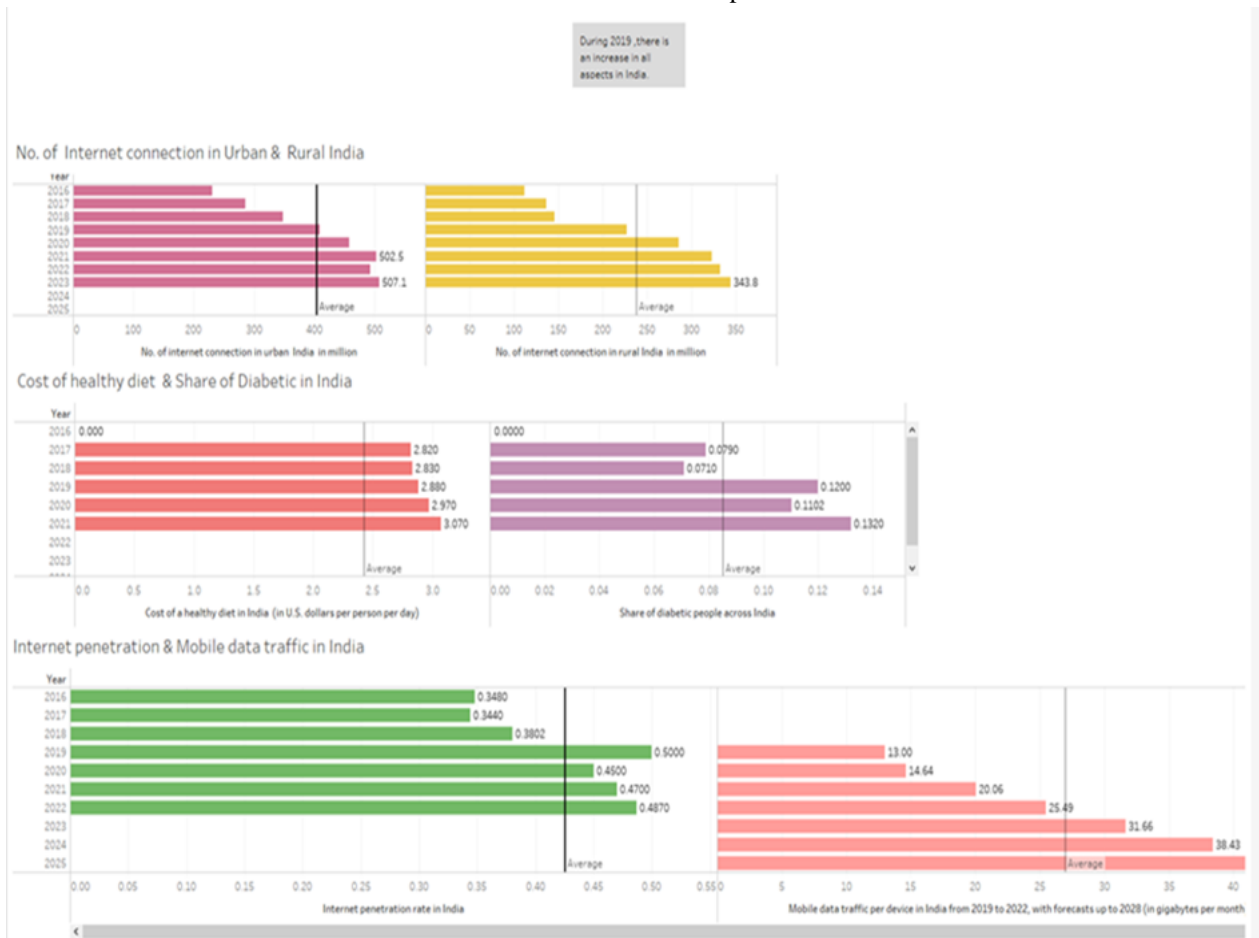
The above figure shows the internet penetration, mobile data traffic, number of internet connections in both rural & urban, cost of healthy lifestyles and share of diabetes across India. All the graphs cross its average point during the year 2019 due to the impact of Covid19 pandemic. Due to the increase in mobile penetration in India, most people are willing to use the M-health application for maintaining their health.

Table No. II Cost factors of medical expenses as of 2016

Cost factors	Share of respondents %
Cut down on hospital stay costs	0.63
Reduction in patient treatment cost	0.61
Lower doctor visit cost	0.44
Lesser preventive cost	0.33
To cut back on unnecessary testing and pharmaceutical expenses	0.23
Lower clinical trials	0.2
Lesser labor cost	0.16
Reduce technology spending	0.14

Source: https://www.statista.com/search/?q=digital+health&p=1

The adoption of m-Health technologies may result in reducing the medical expenses such as patient admission cost, cost incurred on medical trials, consultation cost, medication cost, cost of stay, labor charges and invest in tech.

Figure No. V Government health expenditure in India FY 2022-2024, by major headings

Government health expenditure in India FY 2022-2024, by major head				
Government health expenditure in India in financial year 2022, with estimates until 2024, by major head (in billion Indian rupe				
	2022	2023*	2024**	
National Health Mission	274.48	289.74	290.85	
AIIMS, JIPMER, PGIMER, and other autonomous and statutory bodies	84.59	103.48	173.23	
COVID-19	164.45	2.28	4.97	
Pradhan Mantri Swasthya Suraksha Yojana (PMSSY)	92.7	82.7	33.65	
National AIDS & STD control programme	21.26	21.82	30.8	
Pradhan Mantri Jan Arogya Yojana (PMJAY)	31.16	64.12	72	
Family welfare schemes	3	4.74	5.17	
Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM ABHIM)	7.61	21.67	48.46	
Central government health scheme (CGHS)	27.41	46.4	38.46	
ICMR	18.41	21.17	23.6	
National Digital Health Mission	0.28	1.4	3.41	
Others	119.36	131.93	166.96	

Source: https://www.statista.com/search/?q=digital+health&p=1

DISCUSSION

Based on the data, the study shows that the customers face difficulty in logging the details and also, they feel privacy risk while using health applications. Though the monitoring sensor apps installed in mobile phones measure the heartbeat, oxygen level, stress level, glucose level and ECG of the individuals using wearing devices, the data collected through the apps may produce errors or the data may have gone wrong as the data is processed through the internet. The apps are used to get medical advice for the minor infections with minimal cost and the patients need not to spend much time on the hospitals for getting appointments and consulting doctors for the general checkups. During covid the patients cannot consult the doctors personally and the medicines were purchased based on the health applications. As the study analyzed the publications from 2018 to 2023, majority of the studies have the impact of covid in their results.

The study uses secondary data and available sources on the internet and other means. It focuses on the impact of mobile health applications and the expansion of the market for the benefit of people as the

people can use these applications for a better lifestyle. The companies which market these applications have to concentrate more on the gamification of health apps as it motivates the persons who use these applications for fitness. The doctors have to motivate the patients to use applications for minor infections to save their time and money.

To encourage people's health and welfare, the Indian Government has launched the Fit India Movement in 2019, which can be downloaded from the Play Store. In order to ensure the high quality of health facilities all over India, the Ministry of Health and Family Welfare has planned to invest Rs. 862.01 billion in the year 2023.

CONCLUSION

Thus, the study concentrates mainly on the secondary data, in future the study can be conducted with the primary data collected from the respondents who use these applications by using questionnaire methods. This study can be used as a further reference as the study uses various published papers from the journals.

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