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Factors Influencing Youths to Adopt Healthcare Applications to Maintain a Healthy Lifestyle

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Abstract
This study explores the factors encouraging the adoption of healthcare applications among the youth to maintain a healthy lifestyle. The idea of the study came from the observation of the sudden emergence of healthcare application usage. A study found a 330% surge in health and fitness app usage over three years, highlighting the growing public inclination toward healthcare applications. The study was executed using qualitative and quantitative methods of research. It targeted 184 respondents for a survey from a population of 16,284, which represents students from three universities in Khulna city. Also, 12 healthcare providers participated in the key informant interview (KII). The researchers used the uses and gratifications theory and the diffusion of innovation theory to design questionnaires and draw results from the collected data. This study incorporated the perspectives of both healthcare consumers and providers to bring out the most suitable conclusion with strong evidence. The general findings revealed that the youth these days depend on the internet for healthcare, which eventually leads them to use healthcare applications as they find them cost-effective and available anywhere and anytime. A study stated that smartphone apps offer a low-cost, accessible alternative to in-clinic cessation programs, tailored to patients with chronic illnesses and available anytime. Again, the study

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suggests that the healthcare applications are mostly used to keep track of the menstrual cycle. Besides, the apps can be effective for those who have long-term health issues by helping them keep an eye on their regular diet and exercise. However, the study's findings also indicate that people should only rely on the applications in cases of minor illnesses and maintaining a healthy lifestyle, and they are advised to consult a medical professional in person for serious illnesses, as physical examination is an irreplaceable part of treatment.

Key Words: healthcare applications, youth, factors, healthy lifestyle, healthcare consumer, healthcare provider

Introduction

Healthcare applications, a form of mHealth, use mobile technologies to deliver health services and information to users and professionals. Smartphones, as noted by Paradis et al. (2022), play a vital role in democratizing Mobile Health (mHealth) and influencing health behavior. In Bangladesh, where 35 million people live below the poverty line, such apps offer low-cost access to services like consultations, health monitoring, disease prevention, and basic diagnosis (Karim et al., 2016). Apps like DocTime, Maya, and Arogga provide on-demand healthcare, reducing the need for appointments and benefiting those with limited income. This study explores why youth use these apps, as many now rely on them for tracking health, learning fitness habits, checking medications, and consulting professionals. With smartphones transforming healthcare access and interaction, mHealth tools have proven effective in promoting better health behaviors and managing chronic conditions. One of the objectives of this study is to assess the fundamental factors behind healthcare applications adoption to maintain a healthy lifestyle.

Research Questions

This study attempts to answer the following research questions (RQ):

- **RQ1:** What encourages young adults to adopt healthcare applications as a contemporary healthcare service to keep an eye on their lifestyle?
- **RQ2:** What is the extent of healthcare application usage among youth who aim to maintain a healthy lifestyle?

RQ3: What relationships exist between demographic variables like age, gender, and educational attainment and the tendency to utilize healthcare applications for healthy living?

RQ4: What are the most popular healthcare app categories?

Literature Review

Proliferation of Healthcare Applications

A global surge in healthcare app usage reflects a growing shift toward digital health solutions. Yan et al. (2021) reported a 330% rise in health and fitness app usage over three years, with the global mHealth market projected to grow from $8.0 billion in 2018 to $111.1 billion by 2025. Similarly, Covolo et al. (2017) estimated the mHealth market, valued at $13.67 billion in 2015, would grow at a 34% annual rate through 2022, driven by rising demand for health and wellness tools.

In Bangladesh, this trend aligns with national efforts to improve healthcare access through technology. Alam et al. (2020) noted the country's focus on eHealth and mHealth frameworks, particularly targeting youth. Given the health vulnerability of those aged 23–26, mHealth plays a vital role in addressing Sustainable Development Goals (SDGs).

Remarkable Emergence During the COVID-19 Pandemic

Batista et al. (2023) stated that apps can help with data collecting, remote monitoring, disease self-management, and health education. Additionally, mobile apps may be used as a tool to assist with required dietary modifications. This study aimed to identify the ratio of mobile healthcare app usage before and during COVID-19 in Brazil. Between the phases, the study saw a rise in nutrition-related apps of about 46.8% (280 vs. 411). During this time, the SARS-CoV-2 virus had a significant global impact, paving the way for the COVID-19 pandemic. Before and during the epidemic, there was a lot of interest in and action surrounding mobile health. Telehealth services have shown rapid expansion, as evidenced by a 25% rise in mHealth app downloads. People were able to get health treatments despite their social isolation thanks to these advancements in digital health.

Behavioral Change due to Healthcare Applications

A study conducted by Bricker et al. (2014) evaluated the feasibility, acceptability, efficacy, and behavioral change mechanism of a

smartphone-delivered Acceptance and Commitment Therapy (ACT) application for smoking cessation compared to a US Clinical Practice Guidelines application. Bricker et al. (2023) aimed to identify the efficacy of smartphone applications to help cancer patients quit smoking. The study stated that smartphone applications offer a low-cost alternative to in-clinic smoking cessation programs, tailored to cancer patients' needs and available anytime.

Theoretical Framework

Uses and Gratifications Theory

The Uses and Gratifications Theory suggests that individuals use media to fulfill specific needs and desires. According to Rubin (1994), media use is shaped by factors such as communication motives, psychological and social environments, available media, alternatives, communication behavior, and its outcomes. This theory served as a relevant framework for the present study, which aimed to explore factors influencing the use of healthcare applications for maintaining a healthy lifestyle. By applying this theory, researchers were able to better understand user motivations, expectations, and benefits, ultimately contributing to the design of more user-centric and effective healthcare applications and interventions.

Diffusion of Innovation Theory

Everett Rogers' Diffusion of Innovation Theory [1962] explains how new ideas gain acceptance within a community, highlighting factors such as innovation characteristics, communication channels, social systems, and adopter traits. This study aimed to identify factors influencing the adoption of healthcare apps, a relatively new innovation in healthcare services. Researchers of this study applied key elements of the theory to design questionnaires that would effectively assess consumer behavior.

Materials and Methods

The study employed a mixed-methods approach, combining a survey with 184 students and key informant interviews with 12 healthcare providers, providing a comprehensive understanding of the topic. The study focused on three universities in Khulna city – Khulna University, Khulna University of Engineering and Technology, and North Western University, with a total student population of 16,284.

Using exponential non-discriminatory snowball sampling, the survey targeted smartphone-using students. Key informant interviews were conducted with healthcare providers who have direct experience in the field. Data collection reached saturation, and tools were based on uses and gratifications theory and diffusion of innovation theory. A total of 184 students participated in the survey, and 12 healthcare providers were interviewed. Two separate questionnaires were used (one for survey participants and another for in-depth interviews) to collect data from the field. The survey was conducted via Google Forms and distributed through social media platforms. Interviews were scheduled with healthcare providers at least one day in advance.

Results

The survey was carried out with 184 respondents from three universities in Khulna, who represent the youth. The demographic information of the survey respondents is demonstrated below.

Table 1: Demographic information of the survey respondents

Category		**Frequency(?)**
Sex	Male Female	98 86
Age	20-25 26-30 31-35	131 51 02
Level of Education	Graduation Post-graduation	109 75
Smartphone Users	Male Female	184

Table 2: Respondents' tendency to and frequency of seeking internet-based healthcare

		Around one month ago	Around one week ago	Not in a while	Today	Yesterday	Total
Tendency to seek internet-based healthcare	No	2	0	9	1	0	12
	Yes	47	60	24	17	24	172
Total		49	60	33	18	24	184

Among 184 respondents, 93.47% sought healthcare online, with most doing so within the past month. Notably, 9.23% searched on the survey day, 13.04% the day before, while 32.60% did so within a week or month. However, 13.04% hadn't used the internet for healthcare in a while, showing varied usage frequency.

Table 3: Frequency of taking medication based on internet recommendations

		Frequency	Valid Percent
Valid	No	134	73.9
	Yes	50	26.1
	Total	100.0	100.0

Even though most of the respondents use the internet to search for health-related information, they do not trust this medium enough in the case of taking medication based on internet recommendations. While (73.9%) of the respondents have never taken medication based on internet recommendations, only (26.1%) of them have done otherway.

Table 4: Tendency to consult medical professionals

		Percent	Valid Percent
Valid	No	54.3	54.3
	Yes	45.7	45.7
	Total	100.0	100.0

"Table 4 indicates that the majority of respondents do not consult a doctor in person for minor health issues. While only 45.7% of them seek medical attention for health-related complications, the remaining 54.3% choose not to do so."

Factors Influencing the Adoption of Healthcare Applications

The study found that multiple factors influenced respondents to adopt healthcare apps, with some driven by a single reason and others by several. The most influential factor was cost-free service, cited by 57.8% of users. Ease of use (46.2%) and availability of guidance (45.7%) were also significant. Additionally, 23.5% of users valued privacy and security features, which helped them maintain confidentiality regarding their health issues.

Table 5: Factors Influencing the Adoption of Healthcare Applications

Factors	Percent	Valid Percent
Availability of guidance	14.8	14.8
Ease of use	14.8	14.8
Ease of use, Availability of guidance	2.5	2.5
Ease of use, Free of cost	2.5	2.5
Ease of use, Free of cost,	1.2	1.2
Ease of use, Free of cost, Availability of guidance	8.6	8.6
Ease of use, Free of cost, Privacy, and security features	3.7	3.7
Ease of use, Free of cost, Privacy and security features, Availability of guidance	7.4	7.4
Ease of use, Privacy, and security features	3.7	3.7
Ease of use, Privacy and security features, Availability of guidance	2.5	2.5
Free of cost	25.9	25.9
Free of cost, Availability of guidance	6.2	6.2
Free of cost, Privacy and security features	1.2	1.2
Privacy and security features	1.2	1.2
Privacy and security features, Availability of guidance	3.7	3.7
Total	100.0	100.0

Influence of Others on the Decision to Adopt Healthcare Apps

Table 6: Influence of Recommendation

Relations with the influencer		Percent	Valid Percent
Valid	Friend	46.9	46.9
	Health Consultant	8.6	8.6
	No one	32.1	32.1
	Relative	11.1	11.1
	Senior	1.2	1.2
	Total	100.0	100.0

The study shows that recommendations significantly influence healthcare app adoption, with only 32.1% of users not receiving any. Friends were the most common source, cited by 46.92% of users, followed by relatives (11.1%), health consultants (8.6%), and one user who was advised by a senior. Those without recommendations likely adopted the apps for other personal reasons.

Table 7: Different Types of Healthcare Apps Used by the Respondents

Types of Healthcare Apps		Percent	Valid Percent	Cumulative Percent
Valid	Adidas Running	3.7	3.7	3.7
	Arogga	4.9	4.9	8.6
	Arogga, Flo	1.2	1.2	9.9
	DIMS	1.2	1.2	11.1
	DocTime	18.5	18.5	29.6
	DocTime, Arogga, MedEx	1.2	1.2	30.9
	Doctor Kothai	2.5	2.5	33.3
	Eyecarelive	1.2	1.2	34.6
	Fitness Care	1.2	1.2	35.8
	Flo	14.8	14.8	50.6
	Health Tips	1.2	1.2	51.9
	Healthify: weight loss coach	2.5	2.5	54.3
	IbnSina	1.2	1.2	55.6
	Maya	17.3	17.3	72.8
	MedEasy	1.2	1.2	74.1
	MedEx	1.2	1.2	75.3
	MeetYou	11.1	11.1	86.4
	Mibro Fit	2.5	2.5	88.9
	MILVIC	1.2	1.2	90.1

	My Net Diary	1.2	1.2	91.4
	MyFitnessPal	1.2	1.2	92.6
	Patient Aid	2.5	2.5	95.1
	Praava Health, Zeplife	1.2	1.2	96.3
	Samsung Health, DocTime	1.2	1.2	97.5
	Surokkha	1.2	1.2	98.8
	Teladoc health	1.2	1.2	100.0
	Total	100.0	100.0	

Health Issues and Other Reasons for Which Participants Use Healthcare Apps

Table 8: Health issues or other reasons

		Percent	Valid Percent	
Valid	Basic information	1.2	1.2	
	Blood pressure	6.2	6.2	
	Blood pressure, Menstrual cycle, Regular exercise, Track medication	1.2	1.2	
	Blood pressure, Regular exercise	1.2	1.2	
	Blood pressure, Regular exercise, and Track medication	1.2	1.2	
	Consultancy, Medication Delivery	1.2	1.2	
	Consultation	4.9	4.9	
	Cross-check the prescribed medicine	6.2	6.2	
	Diabetes	3.7	3.7	
	Eye treatment	2.5	2.5	
	Hairfall	1.2	1.2	
	Menstrual cycle	27.2	27.2	
	Menstrual cycle, Consultation	1.2	1.2	
	Menstrual cycle, Regular exercise	1.2	1.2	
	Regular diet	17.3	17.3	
	Regular diet, Regular exercise	4.9	4.9	
	Regular exercise	11.1	11.1	
	To buy medicine	1.2	1.2	
	Track medication	4.9	4.9	
	Total	100.0	100.0	

Table 8 shows various reasons for adopting healthcare apps. The most common use is tracking menstrual cycles (27.2%), followed by monitoring

diet and exercise (4.9%). Some users rely on apps for managing chronic conditions like high blood pressure (6.2%) and diabetes (3.7%).

Comprehensibility of Medical Terms and Functions Used in Healthcare Applications

Table 9: Comprehensibility of medical terms

		Medical Terms (Percent)	Functions (percent)
Valid	Agree	48.1	48.10
	Disagree	18.5	18.5
	Neutral	14.8	17.3
	Strongly Agree	14.8	16.0
	Strongly Disagree	3.7	0
	Total	100.0	100.0

Table 9 shows that 48.1% of healthcare app users find medical terms and functions understandable, with 14.8% and 16% strongly agreeing, respectively. While 18.5% disagreed with both, none strongly disagreed, indicating most users have no trouble understanding them.

Requirement for Advance Technological Knowledge to Use Healthcare Applications

Table 10: Requirement for Advanced Technological Knowledge

		Percent	Valid Percent
Valid	Agree	29.6	29.6
	Disagree	38.3	38.3
	Neutral	19.8	19.8
	Strongly Agree	11.1	11.1
	Strongly Disagree	1.2	1.2
	Total	100.0	100.0

According to Table 10, 38.3% of healthcare app users disagreed that advanced technological knowledge is needed to use such apps, though only 1.2% strongly disagreed. Meanwhile, 29.6% agreed with the statement, including 11.1% who strongly agreed, and 19.8%

remained neutral. Thus, while many users find the apps accessible, the need for some level of technological knowledge cannot be entirely dismissed.

Frequency of Cross-checking the Information Retrieved from a Healthcare Application

Table 11: Information Cross-checking

		Percent	Valid Percent
Valid	Always	27.2	27.2
	Never	7.4	7.4
	Sometimes	65.4	65.4
	Total	100.0	100.0

According to Table 11, most of the respondents who use healthcare applications are conscious about the trustworthiness of the information they receive from the apps. This can be articulated as only 7.4% of the users never check the information a second time. On the other hand, 27.2% of them always cross-check information, and 65.4% cross-check information only sometimes.

Long-term health issues among respondents

Table 12: Long-term health issues

		Percent	Valid Percent
Valid	No	54.3	54.3
	Yes	45.7	45.7
	Total	100.0	100.0

Table 12 demonstrates that 45.7% percent of the respondents who use healthcare applications have long-term health-issues. On the other hand, 54.3% of them do not have any long-term health issues that require them to regularly keep track of their diet and medication.

Tendency to Observe Other People Using Healthcare Apps to Evaluate Their Usability

Table 13: Observability

		Percent	Valid Percent
Valid	No	35.8	35.8
	Yes	64.2	64.2
	Total	100.0	100.0

According to table 13, 64.2% respondents who use healthcare apps evaluate their compatibility by observing others use the apps. Whereas, only 35.8% never observe others to evaluate whether or not the applications are usable.

Key Informant Interview Results

The socio-economic information of the KII participants is demonstrated below.

Table 14: Socio-demographic information of the key informants

Category		Frequency
Sex	Male Female	03 09
Age	26-30 31-35 36-40 41-45 46-50	02 06 02 00 02
Employment Status	Medical Officer Paramedic Facilitator	10 01 01

Dependency on and trustworthiness of online-based healthcare

Ten informants often meet people seeking health advice online, while two haven't personally but have heard it's a common trend from peers. One of

our key informants stated, “I haven’t personally met anyone misled by online health info, but medical professionals often mention encountering patients whose self-sought advice proved ineffective.”

According to the informants, internet users often seek health-related advice online, making it crucial to assess the accuracy of such information. All 12 informants agreed that not everything online is reliable; however, two noted that some content—especially research-based—can be accurate if users know how to identify it. One of our key informant stated, “The internet hosts authentic articles and research papers with reliable data, so people must learn where to find accurate information and identify what will benefit them most.”

Tendency to and Factors Influencing the Adoption of Healthcare Applications as Contemporary Healthcare Facilities

The growing use of healthcare apps is mainly due to their availability, with 11 out of 12 informants agreeing that these apps are especially helpful in remote areas or emergencies. One noted, “A few years ago, we suggested that diabetes patients keep a diary, but a mobile phone is easier to carry while traveling.”

Four informants believe cost-saving is another factor. One said, “In the future, more people will rely on healthcare apps because they save both time and money.” Apps also provide privacy, as one informant explained: “A mobile app remains hidden inside the phone, and no one but the user can see the data, offering comfort for sensitive information like menstruation dates.”

Additionally, some apps are designed for healthcare providers. One said, “We use DIMS to search for a drug’s generic name when we don’t recognize its brand name.”

Health Issues for Which Healthcare Applications Can Be Effective

“In the end, I would like to suggest my patients use an app that can keep records of menstrual cycle, ovulational periods, etc. This app can be useful to people who want to conceive. Given that the menstrual cycle regulates hormones, mood swings, and other bodily changes, it is important to keep this in check and to be aware of it before it affects the body each month.” A key informant said.

Meanwhile, individuals who have high blood pressure, diabetes, or obesity can use certain healthcare applications that will send them

notifications from time to time as a reminder for medicine, diet, and exercise. “Besides, individuals with obesity can use an app that will remind them to exercise or a particular diet plan.”

According to our informant, “Healthcare apps such as DocTime provide the option to consult a doctor within a few minutes via audio or video call. This type of service can be useful if you only consider it for first aid.”

Trust among Healthcare Providers in Healthcare Applications

All 12 informants agreed that healthcare apps are only reliable for primary treatment. One stated, “People are allowed to use a healthcare app for primary knowledge but should consult a professional for further examination.” Another noted, “A proper examination cannot be done without visiting a medical center.” While eight recommended the apps, others were cautious, with one saying, “I will not recommend any app unless proven reliable.” Thus, most found value in basic care, but some remained skeptical.

Suggestions for the improvement of the apps

To enhance usability, healthcare apps should offer both English and native language support. One informant noted, “Older people or those who don’t know English well are deprived of the benefits of this modern facility.” Simplifying medical terms is also important, as one said, “Difficult medical terms should be explained.”

Strengthening security is essential, with one medical officer stating, “Only BMDC registered doctors should be authorized to provide treatment through healthcare apps.”

Discussion

This study aimed to identify the key factors motivating youth to adopt healthcare applications for maintaining a healthy lifestyle, using a mixed-methods approach involving both surveys and key informant interviews. The findings reveal that due to technological advancements, young individuals heavily rely on the internet for health information, with 93.47% of respondents using it regularly and 34.9% accessing health-related content at least once a week. However, only 26.1% admitted to taking medication based on online recommendations, aligning with Painter et al.

(2021), who emphasized the internet's influence on health decisions, especially among young athletes.

Contrary to Zhang et al. (2014) and Powell & Ansic (1997), who found sex to be a significant factor in m-Health adoption, this study found no gender-based influence. Multiple motivators were identified for app adoption: cost-free services (57.8% of users and 33.3% of informants), time-saving features (42% strongly agreed), and availability (91.7% of informants and 45.7% of respondents). Mubeen et al. (2020) also emphasized the role of healthcare apps in enabling remote communication. Moreover, 46.92% of app users cited ease of use as a deciding factor, aligning with Hoque et al. (2016), who highlighted perceived ease and utility as adoption drivers.

Security and privacy concerns were acknowledged by 23.4% of respondents. Recommendations from friends, family, or professionals played a role, with only 32.01% not influenced by others. Although Alsalamah et al. (2017) questioned the reliability of some emergency apps, 8.6% of current study respondents received recommendations from health professionals, confirming growing trust.

The most-used apps include DocTime (21%), Maya (17.3%), Flo (14.8%), and MeetYou (11.1%), with DIMS preferred by 66.7% of healthcare providers. Apps are used primarily to monitor menstrual cycles (30.9%), general wellness, diet, and exercise. Chronic conditions like hypertension and diabetes are underrepresented in usage, though key informants advocate for their inclusion, echoing Knorr et al. (2015), who supported mHealth for self-management of chronic diseases.

Users also use apps for consultations and verifying prescriptions (e.g., Arogga, DocTime). Usability was affirmed by 48.1% of users for comprehensible medical terms and functions, and most found them user-friendly even without advanced tech skills. Although trust is gradually increasing—65.4% cross-check app advice and 64.2% observe others using them—key informants recommend consulting doctors for serious conditions.

Improvements are still needed. Key informants stressed multilingual availability, simpler terminology, stricter security, and limiting professional advice to BMDC-registered doctors. Kim et al. (2024) supported the need for linguistic inclusivity, and Haluza & Jungwirth (2014) highlighted the importance of public health collaboration and ICT in health promotion.

Accordingly, this study suggests training for both providers and users to enhance app effectiveness and accessibility.

Conclusion

There is a clear projection about the futuristic approach to healthcare interventions due to the proportionate increase in demand for healthcare services and the usage of technology. In this journey to reduce the distance between healthcare professionals and patients, healthcare applications are already playing a pivotal role. The study's findings show that young adults depend on the internet for healthcare, as they tend to find easy solutions to every issue, and this particular trait leads them to adopt healthcare applications. The fact that these applications allow access from anywhere and at any time encourages youth the most to adopt them. On top of that, cost-effectiveness adds another layer to their interest in the apps. While healthcare applications are effective for minor health issues or to maintain a healthy lifestyle, they are not advised when it comes to serious illnesses because consulting a medical professional in person creates an empathetic doctor-patient relationship, which is essential for complete treatment. Notably, these mobile health applications are most effective for tracking the menstrual cycle, according to the study. However, it is undeniable that this modern healthcare service will flourish in the future. Therefore, in order to improve the quality and boost the popularity of the applications, it is imperative that they be made understandable and accessible to people from diverse backgrounds. This can be achieved by adding multilingual features, clarifying complex medical terms, and hosting training sessions and workshops for both healthcare providers and consumers.

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