ISSN No:-2456-2165

Empowering Rural Women's Health through Online Medical Assistance

Fahmida Yesmin Chowdhury
Department of Computer Science and Engineering, Faculty of Engineering,
University Of Development Alternative, Dhaka, Bangladesh

Abstract:- Basic medical help is less available in the rural area of developing countries. Women from the rural area are deprived of basic medical assistance for many limitations. Many unwanted deaths are occurred in every year without getting proper medical help or not getting any medical help in time. Women from the rural area are the major part of these types of patients. Because these women are too shy to share their physical problems and their health condition became too worse when they expose their problems to the doctor. If it is possible to implement a way through the rural women can connect with any female doctor from anywhere and anytime to share their problems then many unwanted death can be prevented. The design of implementing an online healthcare application for rural women to provide basic medical help has been presented in this paper.

Keywords:- *Online Healthcare, Cloud-Based Medical Assistance, Rural Women's Health*

I. INTRODUCTION

Digital Health Interventions (DHIs) have great potential in providing effective, safe, and scalable interventions to improve healthcare and health outcomes [1]. DHIs are typically complex interventions with multiple components and have multiple aims, such as promoting healthy behaviors, improving outcomes in people with long-term conditions, and providing remote access to effective treatments [1]. Active components of DHIs may include information, psycho-education, personal stories, formal decision aids, behavior change support, interactions with healthcare professionals and other patients, self-assessment or monitoring tools, and effective theory-based psychological interventions [1]. However, exploring the advantages and obstacles of digital health services is crucial [1]. One advantage of digital health services is that patients see e-consultations as complementary to face-to-face consultations, not as a replacement [2]. On the other hand, patients have concerns about the privacy and safety of digital care [2]. Furthermore, patients are not willing to pay extra costs for digital health tools [2]. It is important to evaluate whether there is a clear health need for DHIs before implementing them [1]. Overall, exploring the advantages and obstacles of digital health services is necessary to ensure that DHIs are effectively implemented and meet the needs of patients.

II. HOW CAN ONLINE MEDICAL ASSISTANCE IMPROVE ACCESS TO HEALTHCARE FOR RURAL WOMEN?

The feasibility study explored the potential of cloud-based medical assistance to improve healthcare access for rural women. The pilot phase focused on identifying challenges that would need to be addressed for the program to be successful. One of the challenges encountered was sustaining participation over time and fostering group interactions due to technological and sociocultural factors [3]. The technological challenge was related to network connection and audible dialing of the back-end program [3]. However, Message, the cloud-based platform, was found to be a highly acceptable approach for providing information and social support to postnatal women in rural areas [3]. The sociocultural challenge was related to women's comfort and cultural norms around sharing personal experiences with other women and interacting with physicians given the hierarchical social structures [3]. These challenges are common in medical Health and can be addressed through continuous improvement of the design and implementation of the platform[3]. Overall, the pilot phase successfully identified challenges that can inform further development and implementation of cloud-based medical assistance for improving healthcare access for rural women.

III. IDENTIFYING THE CHALLENGES IN IMPLEMENTING CLOUD-BASED MEDICAL ASSISTANCE FOR RURAL WOMEN

The implementation of cloud-based medical assistance for rural women is a complex process that requires a range of approaches to overcome challenges. Successful approaches have been identified in high-income countries, and these can be adapted to address the issues facing e-health cloud services in rural areas. One effective solution is the use of artificial intelligence (AI) to address the challenges of implementing cloud-based medical assistance in rural areas [4]. The adoption of cloud-based electronic medical records (EMRs) has also been identified as a promising solution, provided that implementation issues such as security and legal policies are adequately addressed [5][6]. The use of cloud-based solutions can help overcome physical barriers, as seen in the implementation of a cloud-based EMR system in Kenya in 2013 [7]. However, there are still challenges to be addressed, including limited adoption of the latest healthcare technologies such as AI, machine learning (ML), and deep learning (DL) [8]. A case

ISSN No:-2456-2165

study analysis of CMED's cloud-based medical framework revealed that digital health services can be an effective solution for rural areas, but effective implementation will require understanding the specific challenges facing these communities [9]. Effective delivery of electronic health records (EHRs) requires a transformation of job scope to overcome specific technical difficulties [10]. Overall, the successful implementation of cloud-based medical assistance for rural women will require a range of strategies tailored to address the unique challenges facing these communities.

IV. THE ARCHITECTURE OF THE PROPOSED SYSTEM

The proposed application will require a cloud-based database to store the information of all patients, doctors, and the related information of the patient-doctor conversation with privacy. The patients will be able to choose their doctors based on the requirements. The minor health problem of rural women can be solved by taking an appointment with an online female doctor at any time by using their own or a relative's device with an Internet connection or the Internet-connected computer which is available to their location. Different tasks of the proposed system are mentioned below.

- The admin users will store all the common medicine information in the database that can be collected from well-known medicine stores.
- The admin users will add all certified doctors' information with their visiting hours in the database based on the specific area.
- The patient will log in to the system and submit her requirements for searching the doctor. The system will select the appropriate available doctor randomly for the patient and send the connection request notification to the selected doctor.
- The doctor will communicate with the patient when she gets any connection request from the system and prescribe the medicines or give suggestions after discussing the problem with the patient.
- The patient will be able to provide the appropriate feedback to the doctor after taking the service.
- The female patient can talk with the doctor through video or audio calls with privacy.
- The patient will be able to download the audio or video conversation if she wants.
- Both patient and doctor will be able to check the previous records of the patients if needed.

The proposed system has been explained in the following diagram.

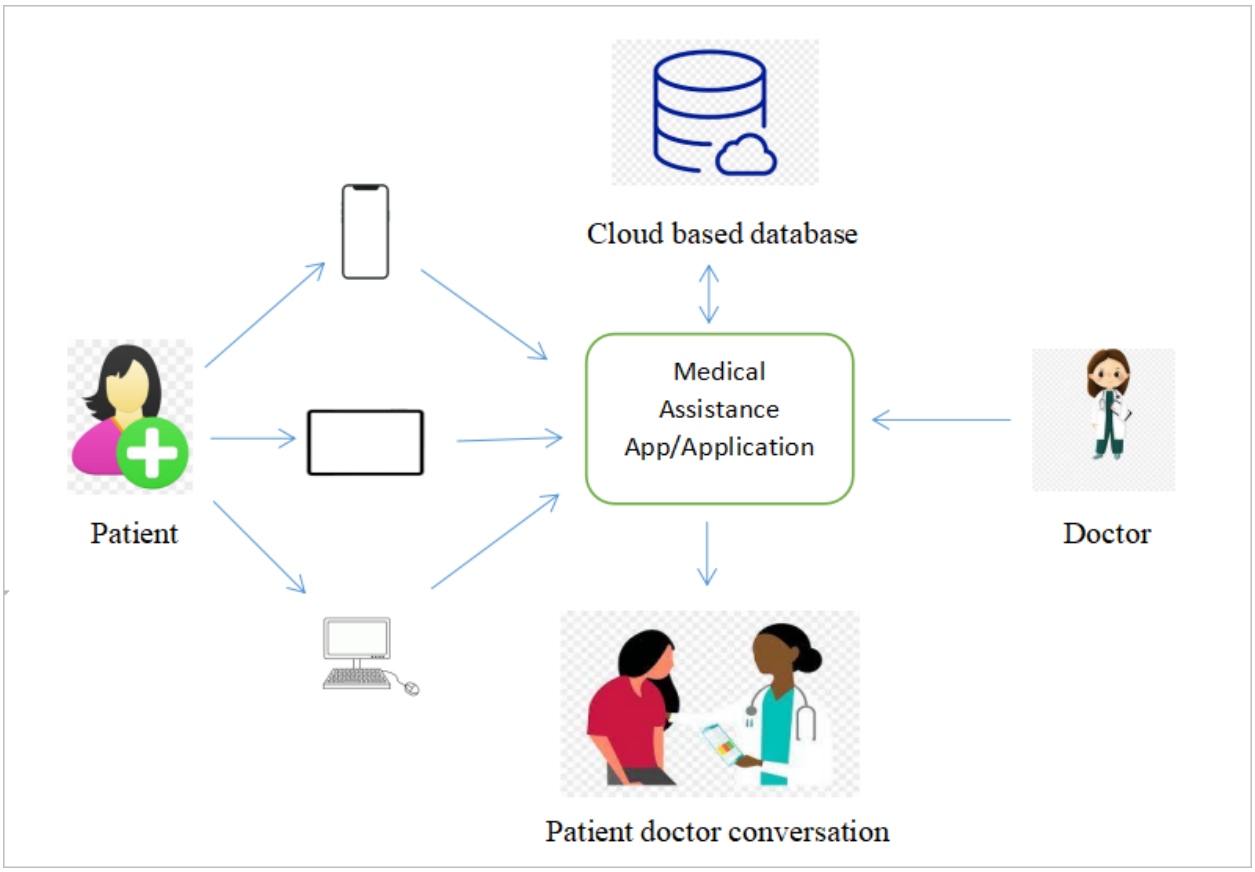

Fig 1 Online-Based Medical Assistance for Rural Women

V. BENEFITS OF THE SYSTEM

Some important benefits of the proposed system have been mentioned below.

- Rural women can take medical help and suggestion from the online real doctor any time if they have the facility of an Internet-connected device.
- The minor health problem of rural women can be solved earlier by discussing it with an online doctor.
- Time and money can be saved because the patient doesn't need to meet with the doctor physically.
- The rural women of developing countries who are very shy to share their problems with the doctor physically can talk with the online doctor freely and take better treatment in a short time.
- E. The psychological problems of the women that they can't share with anyone can share with the online doctor easily. This system can help them to solve their psychological problems easily and keep them mentally sound.

VI. LIMITATION OF THE SYSTEM

Some limitations of the proposed system have been mentioned below.

- The patient or the relative of the patient must need any type of smart device such as a mobile or tab or computer to use the system.
- The best Internet connection is a must for implementing this type of online-based healthcare application and the Internet connection problem is the major issue in the rural area.
- Most of the rural people are not educated or less educated. So they will not be able to use this application if the proper training is not provided for them.
- All types of treatment can't be done by using this online healthcare system because some physical problems need to visit the doctor physically.

VII. CONCLUSION

The proposed system has been emphasized mainly on the rural women of developing countries who are deprived of the proper medical help and their health conditions become worst for not taking treatment in the proper time and proper way. If the proposed system can be implemented successfully and used by the women of the rural area then their health condition will be improved. The implementation cost will be a little bit high for developing such a system. So, the government of the developing country can invest to develop such a system and make the treatment free for rural women.

REFERENCES

[1]. Elizabeth Murray, Eric B. Hekler, Gerhard Andersson, Linda M. Collins, Aiden Doherty, Chris Hollis, Daniel E. Rivera, Robert West, Jeremy C. Wyatt, "Evaluating Digital Health Interventions: Key Questions and Approaches", American Journal of Preventive Medicine, November 2016.

[2]. Lieneke FM Ariens, Florine ML Schussler-Raymakers, Cynthia Frima, Annebeth Flinterman, Eefje Hamminga, Bernd WM Arents, Carla AFM Bruijnzeel-Koomen, Marjolein S de Bruin-Weller, Harmieke van Os-Medendorp, "Barriers and Facilitators to eHealth Use in Daily Practice: Perspectives of Patients and Professionals in Dermatology", Journal of Medical Internet Research, September 2017.

[3]. Brian Wahl, Aline Cossy-Gantner, Stefan Germann, Nina R Schwalbe1,"Artificial intelligence (AI) and global health: how can AI contribute to health in resource-poor settings? ", BMJ Journal, July 2018.

[4]. Ayan Chatterjee; Martin W. Gerdes; Santiago Martinez, "eHealth initiatives for the promotion of healthy lifestyle and allied implementation difficulties", IEEE, October 2019.

[5]. Abdulrahman Alharthi a b, Madini O. Alassafi a, Robert J. Walters a, Gary B. Wills, "An exploratory study for investigating the critical success factors for cloud migration in the Saudi Arabian higher education context", Telematics and Informatics, May 2017.

[6]. Yara M. Asi, Cynthia Williams, "The role of digital health in making progress toward Sustainable Development Goal (SDG) 3 in conflict-affected populations", International Journal of Medical Informatics, June 2018.

[7]. M. M. Kamruzzaman, Ibrahim Alrashdi, and Ali Alqazzaz, "New opportunities, challenges, and applications of edge-AI for connected healthcare in internet of medical things for smart cities", Journal of Healthcare Engineering, Feb 2022.

[8]. Md. Mashiar Rahman, Moinul H. Chowdhury, Rubaiyat Alim Hridhee, Tanvir Islam, Mazharul Islam Leon, Mithila Faruque, Mohammad Badruddozza Mia, Farhana Sarker, Md. Jashim Uddin & Khondaker A. Mamun, "Implementation of a Digital Healthcare Service Model for Ensuring Preventive and Primary Health Care in Rural Bangladesh", Proceedings of International Conference on Fourth Industrial Revolution and Beyond 2021, October 2022.

[9]. Yusof Haji Sidek, Jorge Tiago Martins, "Perceived critical success factors of electronic health record system implementation in a dental clinic context: an organizational management perspective", International Journal of Medical Informatics, November 2017.