SHORT COMMUNICATION

Quality evaluation and content analysis of mobile applications in tuberculosis: MARS approach

Atefeh Paghe, Somayeh Paydar, Zahra Daeechini, Hossein Valizadeh laktarashi, Amir Hossein Daeechini*

* **Correspondence to**: *Department of Health Information Technology and Management, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran Email:* amir.h.daeechini1377@sbmu.ac.ir

About the authors:

Atefeh Paghe; MSc in Health Information Technology, Department of Health Information Technology and Management, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Somayeh Paydar; Assistant Professor in Health Information Management, Department of Health Information Technology, School of Allied Medical Sciences, Kermanshah University of Medical Sciences, Kermanshah, Iran.

Zahra Daeechini; BSc student in nursing, Department of Nursing, Faculty of Medical Science, Kermanshah Branch, Islamic Azad University, Kermanshah, Iran.

Hossein Valizadeh laktarashi; MSc in Medical Informatics, Department of Health Information Technology and Management, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Amir Hossein Daeechini; MSc in Health Information Technology, Department of Health Information Technology and Management, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

INTRODUCTION: Tuberculosis (TB) is one of the most common infectious diseases. According to the report of the World Health Organization (WHO), more than 10 million people worldwide are infected with this disease every year, and more than 1.5 million people die as a result [1]. Considering the significant transmission of this disease to others, the use of mobile applications can facilitate remote care and treatment activities for patients. Today, mobile health is a growing field in the domain of digital health [2].

Review Assessing the quality of mobile applications can help users choose the most appropriate application[3, 4], and one of the tools developed for mobile health Apps is MARS [5]. Therefore, it is necessary to evaluate the quality and content of these mobile applications for patient use.

This study aims to evaluate the quality of mobile applications designed for TB patients in the Google Play Store using the MARS approach.

METHODS: A systematic search with keywords related to TB in April 2024 was conducted by three independent authors, initially focusing on identifying TB-related applications on the Google Play Store. These applications were categorized based on Inclusion criteria and then evaluated using the mobile app rating scale (MARS) approach. The MARS approach is a 23-item scale that measures the quality of mobile applications based on four qualitative dimensions (Engagement, Functionality, Aesthetics, and Information)[5].

RESULTS: We identified 23 mobile health apps in the domains of TB management on Google Play, and only 6 mobile apps met the inclusion criteria and were analyzed. The average overall score of the applications was 3.3 out of 5, indicating that the applications are at an average to above-average level, with the highest score related to the functionality domain (3.9 out of 5). Among the mobile applications, the "WHO TB Guide" app scored the highest in all domains (3.76 out of 5).

DISCUSSION: The results showed that the studied mobile applications are at the medium to high level. The most prominent feature of the applications was providing comprehensive information about the disease, including prevention, screening, treatment, laboratory tests, and diet.

CONCLUSION: The apps were poor in providing interaction between patients and doctors, and it is suggested that app developers should pay more attention to this essential feature.

Keywords: Tuberculosis, Telemedicine, Mobile Health, Mobile Applications, MARS

REFERENCES

1. WHO. Tuberculosis 2023 [Available from: https://www.who.int/news-room/fact-sheets/detail/tuberculosis.
2. Kumar D, Hasan Y, Afroz S. Mobile Health Monitoring System: A Comprehensive Review. International Journal of Research Publication and Reviews. 2023;4:1922-54.
3. He J, Zhang J, Xiaochen l, Ren Z, Lo D, Wu X, et al. Recommending New Features from Mobile App Descriptions. ACM Transactions on Software Engineering and Methodology. 2019;28:1-29.
4. Wu H, Deng W, Niu X, Nie C. Identifying Key Features from App User Reviews2021. 922-32 p.
5. Stoyanov S, Hides L, Kavanagh D, Zelenko O, Tjondronegoro D, Mani M. Mobile App Rating Scale: A New Tool for Assessing the Quality of Health Mobile Apps. JMIR mHealth uHealth. 2015;3:e27.