ABSTRACT

Background: Drug-resistant tuberculosis (DR-TB) continues to be a significant problem in public health. Treatment monitoring is crucial to ensuring patient adherence and improving patient outcomes. WHO recommended digital health interventions for the End TB strategy to support tuberculosis treatment adherence. Tuberculosis Monitoring (TOMO) is a mobile application that supports TB treatment monitoring. TOMO has been introduced in TB referral hospitals in Surakarta, Indonesia, since 2021. The scale-up of TOMO implementation would increase the coverage area and the number of patients who benefit from the application. This study explores the barriers and enablers for scaling up TOMO implementation.

Objectives: To explore the barriers and enablers for scaling up drug-resistant tuberculosis treatment monitoring mobile application, TOMO, implementation.

Method: A qualitative study with supporting quantitative data analysis was conducted in the Central Java Province from March to August 2024. Secondary data from the health offices and Tuberculosis Monitoring (TOMO) application was collected and analyzed quantitatively. In-depth interviews (IDI) and focused group discussions (FGD) involving the Ministry of Health, health offices, hospitals, public health centers, DR-TB patients and their caretakers were performed to collect qualitative data. All interviews were audio-recorded, transcribed verbatim, and analyzed using thematic analysis.

Results: Only half of the TOMO users exhibit high compliance (>80% drugs intake reported) to daily medication intake report in the TOMO application, with missing data in around 17% of total sample. The overall result of scalability assessment shows a dominance of the domains perceived as simplifying factors, compared to neutral and complicating factors. The result suggests credibility, relevancy, testability, and certain aspects of transferability considered as favorable domains for the scalability of the TOMO implementation. Barriers to scale up TOMO implementation include technical issues, privacy and data security issues, increased load of work perception, and accessibility to smartphone and internet connection.

Conclusion: The use of mobile application such as TOMO is an acceptable option to support remote tuberculosis patient treatment monitoring. The use of mobile application instead of direct observed therapy should be based on patient preference and needs. Further studies should focus on maximizing the potential benefits of digital health intervention in improving tuberculosis management, particularly drug-resistant tuberculosis.

Keywords: drug-resistant tuberculosis, mobile application, scale-up, barriers, enablers