Effectiveness of a Digital Adherence Tools (DAT) on Adherence to Anti-Tuberculosis Treatment: Preliminary Results of an Implementation Study Among TB Patients in Kilimanjaro

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Introduction: Tuberculosis continues to be the leading global cause of mortality, mainly affecting the poor population. Out of 10.6 million cases reported in 2016, 1.7 million died, and 490,000 developed multidrug resistance TB (MDR-TB). Poor adherence to treatment is the main challenge in managing TB, consequently leading to treatment failure, MDR-TB, and death. The world health organization (WHO), through its 2035 'END TB' initiative, has emphasized more on the treatment of the disease focusing on adherence to medication. A novel digital adherence tool, evriMED, has proven effective in China, but uncertainties exist on its implementation in low-income settings like Tanzania. The study aims to determine the effectiveness of evriMED on adherence to anti-tuberculosis treatment among TB patients in Kilimanjaro, Tanzania

Methods: This was a pragmatic two-armed cluster-randomized trial; the experimental arm used evriMED and the control arm receiving standard TB care. Patients in the evriMED arm use the box to store and take their medication. Medication intakes are measured through box openings which trigger and send real-time electronic signals to a central server. In case of mediation is not taken on time, the patient receives a reminder SMS. Patients are followed up for six months to determine their adherence using the WHO cut-off points at 90%, 95%, and 100%.

Results: Preliminary results of 238 patients recruited in the intervention arm showed 181 (76.0%) males and 57 (23.9%) females. Data from evriMED adherence reports show that 8 (3.4%) patients reached 100% adherence while 60 (25%) reached adherence greater than 95% and 88 (36.9%) reached adherence greater than 90%. Most patients have low adherence levels; 163 (68%) greater than 50% and 110 (46.2%) greater than 80%.

Conclusion: The effect of evriMED on adherence to treatment measured by the evriMED device seems to below. Data will have to be confirmed with other parameters such as treatment outcomes, self-reported adherence, and measurements of isoniazid in urine. In-depth knowledge is needed on the reasons for evriMED failure, based on that the DAT can be improved for better results.

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