Use of mHealth to improve retention to pre-exposure prophylaxis for HIV prevention among female sex workers. An evaluation of the *Jichunge* intervention in Dar es Salaam, Tanzania

Christopher Mbotwa[1,2*], Method Kazaura[1], Elia J Mmbaga[1,3]

[1]Department of Epidemiology and Biostatistics, Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania

[2]Mbeya College of Health and Allied Sciences, University of Dar es Salaam, Mbeya, Tanzania

[3]Department of Community Medicine and Global Health, Institute of Health and Society, Faculty of Medicine, University of Oslo, Oslo, Norway

[*]Correspondence: cmbotwa@gmail.com

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Background: Female sex workers are among groups at increased risk of HIV infection. Pre-exposure prophylaxis (PrEP) has been proven to be effective in preventing HIV transmission, but low retention to services poses a challenge to its effectiveness. Innovative interventions to tackle the problem and help achieve universal health coverage goals are called for.

Objective: To determine the effect of smartphone based mHealth application on retention to PrEP among female sex workers in Dar es Salaam.

Methods: Using respondent driven sampling, 470 female sex workers eligible for PrEP and who owned a smartphone were recruited. All participants were provided with a smartphone-based mHealth app (*Jichunge app*) which has multiple functionalities designed to promote PrEP use and retention among HIV at risk population. We utilized information collected during the baseline, month 1 follow-up, and data on the use of *Jichunge app* for a period of 30 days. Associations between PrEP retention and optimal use of different functionalities of the app was assessed using modified Poisson regression model with robust standard errors.

Results: Of 470 recruited participants, 253 (53.8%) were retained to PrEP services at month 1. Retention to PrEP services was significantly higher among those who opened the *Jichunge* app after installation (APR=1.4, 95% CI: 1.13-1.85), used gamification functions (APR=1.5, 95% CI: 1.18-1.89), visited PrEP editorial contents (APR=1.4, 95% CI:1.16-1.67), consulted a doctor or peer educator (APR=1.5, 95% CI:1.29-1.79), or engaged in the discussion with other PrEP users (APR=1.4, 95% CI:1.17-1.62).

Conclusion: The use of *Jichunge* mHealth application significantly increased retention to PrEP among female sex workers in Dar es Salaam. The results indicate that use of mHealth interventions hold potential to promote universal health coverage in a cascade of PrEP and other related interventions.