SHORT TEXT MESSAGES IMPROVES ANTIRETROVIRAL ADHERENCE AMONG PEOPLE LIVING WITH HIV IN GEORGIA

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BACKGROUND

Adherence to antiretroviral therapy (ART) is critical for sustained viral suppression among people living with HIV (PLHIV) and to control epidemic. Short message service (SMS) reminders offer a low-cost digital approach to support adherence to ART, but evidence from large-scale national programs remains limited.

In Georgia, an automated SMS reminder system was launched in 2023 with support of The Global Fund to fight AIDS, Tuberculosis and Malaria, sending messages 23 and 27 days after ART refills. We evaluated its impact on ART adherence.

METHODS

We analyzed data from 7,806 PLHIV receiving ART in Georgia. Adherence was assessed using the proportion of days covered (PDC) and on-time refill, defined as medication pick-up within ±7 days of the scheduled date.

Adherence before and after SMS service implementation was compared using Wilcoxon signed-rank tests. Multivariate analyses included a linear mixed model (LMM) for PDC and a logistic mixed model for on-time refill, adjusting for age, gender, HIV transmission route, CD4 count, and viral load.



Automated short text messages (SMS) reminders improved ART adherence in a national HIV treatment program in Georgia, increasing the proportion of days covered by 4.6% and improving on-time medication refills.

RESULTS

Of 7,806 PLHIV, 5,707 (73%) were male; median age of 57 years (IQR: 17). Probable HIV transmission routes were heterosexual contact (59%), injection drug use (21%), sex between men (18%), and other (2%). Wilcoxon signed-rank tests showed significant improvements in both PDC (V=31,88, p=0.035) and on-time refill (V=17,40, p=0.013) following SMS implementation.

In multivariate analyses, SMS reminders were independently associated with improved adherence, reflected by higher odds of on-time refill (OR=0.72, 95% CI: 0.66 – 0.78) and an increase in mean PDC (+4.6 percentage points, 95% CI: 3.0–6.3). Additional predictors of improved adherence included older age (+0.15% PDC per year, p<0.001), higher CD4 count (+0.006% per cell, p<0.01), and lower viral load (–1.0% per log increase, p<0.001)..

Figure 1. Impact of SMS reminders on ART refill timeliness, Within-patient comparison before and after SMS initiation.

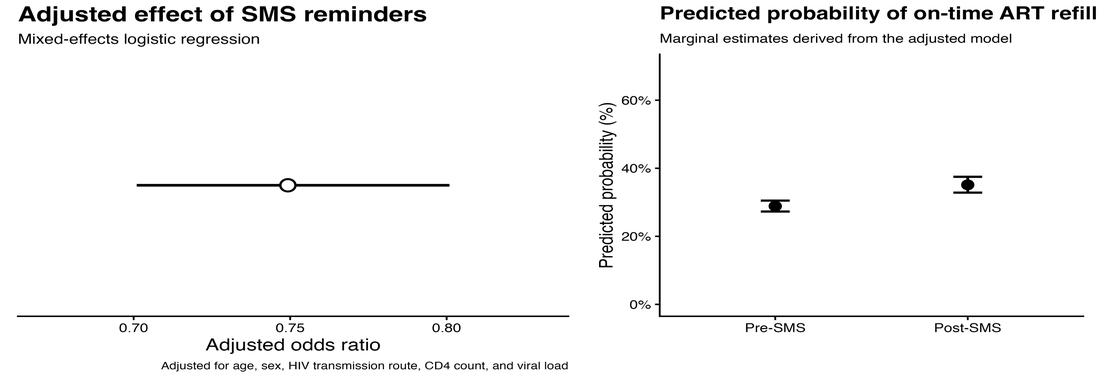


Figure 1. In a within-patient analysis using mixed-effects logistic regression, initiation of SMS reminders was associated with a reduction in the odds of late ART refills (adjusted OR ≈ 0.75), after adjustment for age, sex, HIV transmission route, CD4 count, and viral load. Marginal estimates from the adjusted model show a corresponding increase in the predicted probability of on-time ART refills following SMS initiation.

CONCLUSIONS

Nationwide implementation of SMS reminders significantly improved ART adherence among PLHIV in Georgia, increasing the likelihood of on-time refills and producing modest but meaningful gains in PDC.

These findings support the use of simple, low-cost digital interventions for HIV treatment programs and underscore their potential to enhance adherence and viral suppression in similar settings.

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In Georgia, sending simple SMS reminders to people living with HIV significantly improved ART adherence and ART medicine refill. This low-cost digital intervention helped patients to pick up medications on time and modestly increased overall treatment coverage.

REFERENCE

- *Sam Chidi Ibeneme, Effectiveness of mobile text reminder in improving adherence to medication, physical exercise, and quality of life in patients living with HIV: a systematic review. BMC Infect Dis. 2021 Aug 23;21:859. doi: 10.1186/s12879-021-06563-0.*
- *David J FinitsisDavid J FinitsisJennifer A PellowskiJennifer A PellowskiBlair T JohnsonBlair T Johnson, Text Message Intervention Designs to Promote Adherence to Antiretroviral Therapy (ART): A Meta-Analysis of Randomized Controlled Trials. February 2014PLOS One 9(2):e88166. DOI: 10.1371/journal.pone.0088166*
- *Dickson Shey Nsagha. Et. Al. One-Way and Two-Way Mobile Phone Text Messages for Treatment Adherence Among Patients With HIV: Protocol for a Randomized Controlled Trial. 30.Sep.2020 in Vol 9, No 9 (2020): September.*