

Improving adherence to antiretroviral therapy for youth living with HIV/AIDS: a pilot study using personalized, interactive, daily text message reminders

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BACKGROUND: For youth living with human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), nonadherence to antiretroviral therapy (ART) can lead to poor health outcomes and significantly decreased life expectancy.

OBJECTIVE: To evaluate the feasibility, acceptability, and preliminary efficacy of short message service (SMS) or text message reminders to improve adherence to ART for youth living with HIV/AIDS.

METHODS: We conducted this prospective pilot study using a pre–post design from 2009 to 2010 at a community-based health center providing clinical services to youth living with HIV/AIDS. Eligibility criteria included HIV-positive serostatus, age 14–29 years, use of a personal cell phone, English-speaking, and being on ART with documented poor adherence. During the 24-week study period, participants received personalized daily SMS reminders and a follow-up message 1 hour later assessing whether they took the medication, and asking participants to respond via text message with the number 1 if they took the medication and 2 if they did not. Outcome measures were feasibility, acceptability, and adherence. Self-reported adherence was determined using the visual analog scale (VAS) and AIDS Clinical Trial Group (ACTG) questionnaire 4-day recall. Viral load and CD4 cell count were followed as biomarkers of adherence and disease progression at 0, 12, and 24 weeks.

RESULTS: Participants (N = 25) were mean age 23 (range 14–29) years, 92% (n = 23) male, 60% (n = 15) black, and 84% (n = 21) infected through unprotected sex. Mean VAS scores significantly increased at 12 and 24 weeks in comparison with baseline (week 0: 74.7, week 12: 93.3, $P < .001$; week 24: 93.1, $P < .001$). ACTG questionnaire 4-day recall also improved (week 0: 2.33, week 12: 3.24, $P = .002$; week 24: 3.19, $P = .005$). There was no significant difference in CD4 cell count or viral load between baseline and 12- or 24-week follow-up, although there was a trend toward improvement of these biomarkers and a small to moderate standardized effect size (range of Cohen d: –0.51 to 0.22). Of 25 participants, 21 (84%) were retained, and 20 of the 21 (95%) participants who completed the study found the intervention helpful to avoid missing doses.

CONCLUSIONS: In this pilot study, personalized, interactive, daily SMS reminders were feasible and acceptable, and they significantly improved self-reported adherence. Larger controlled studies are needed to determine the impact of this intervention on ART adherence and other related health outcomes for youth living with HIV/AIDS.

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