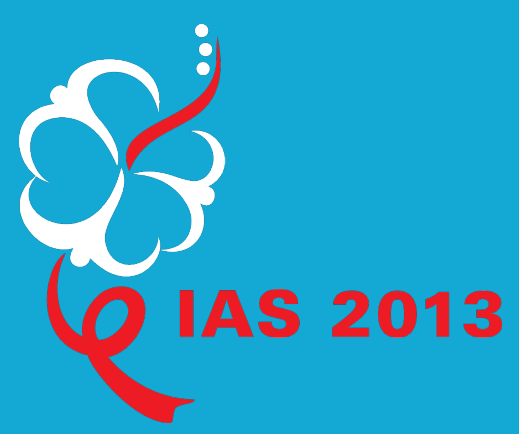


Mobile phone texting may be a viable tool for improving ART adherence amongst patients receiving HIV care in rural Uganda

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Background

- Previous research found that texting using mobile phones can improve ART adherence amongst other clinical outcomes for persons receiving HIV treatment. However, such research has primarily occurred in large, urban centers.
- We explored the potential of mobile phone texting to improve ART adherence among persons receiving care in a rural setting, from The AIDS Support Organization (TASO) in Jinja, Uganda.

Methods

- We performed a cross-sectional analysis measuring mobile phone ownership and literacy amongst TASO-Jinja patients who had been on ART for at least 4 years.
- We asked study participants: "Some ART programs have found it useful to use mobile phones to remind clients to take their ART or to check their health. Would you like TASO to use mobile phones for this purpose?"
- We performed a bivariate analysis comparing characteristics of persons who would benefit from the intervention (literate, mobile phone owners) with all others (illiterate or not a mobile phone user or both).
- Pearson's chi-square and Fisher's exact test were used to test associations between categorical variables and the Wilcoxon rank sum test for continuous variables.
- Sub-optimal adherence was defined as missing one ART dose at least once a week.

Results

- We enrolled 540 TASO patients (76% female, median age: 44 (IQR: 40-50) years) with a median time on ART of 6.75 (IQR: 5.92-7.58) years.
- Overall, 85% of study participants self-identified as a mobile phone owner, 75% as literate and 67% as both (Table 1).
- A greater proportion of men were literate and owned a mobile phone (84%, (111/132)) compared to women (61%, (249/408) ($p < 0.001$) (Table 2).
- Sub-optimal ART adherence was 12% in literate mobile phone owners vs. 7% for all others ($p = 0.08$).
- The most frequently reported reason for missing ART was "forgot" for both literate mobile phone owners (51%) and all others (62%) ($p = 0.370$).
- The most useful ART adherence aid was reported to be "use of reminders" by 44% of literate mobile phone owners, followed by "other" (37%). For illiterate or non-mobile phone owners, "other" (63%) was chosen to be the most useful ART reminder followed by "use of reminders" (22%) for all others ($p < 0.001$).
- The majority, 94%, of literate mobile phone owners answered they would like TASO to contact them by mobile phone for ART reminders versus 61% of illiterate mobile phone owners ($p < 0.001$) (Table 3).

Table 1: Descriptive statistics for 540 TASO patients surveyed about mobile phone use as a form of ART adherence support.

Characteristics	n (%)
Sex	
Female	408 (76%)
Male	132 (24%)
Age at Baseline (median, IQR)	44 (40-50)
Median Time on ART (years)	6.75 (5.92-7.58)
Mobile Phone Owner	
Yes	455 (85%)
No	82 (15%)
Able to Read	
Yes	411 (76%)
No	129 (24%)
Able to Write	
Yes	403 (75%)
No	137 (25%)
Able to Read and Write	
Yes	403 (75%)
No	137 (25%)
Literate, Mobile Phone Owner	
Yes	360 (67%)
No	180 (33%)
Optimal ART Adherence	
Yes	483 (89%)
No	57 (11%)

Table 2: Bivariate analysis comparing literate mobile phone users with "all others" (illiterate or non-mobile phone users).

Characteristics	Literate, mobile phone user	All Others	p-value
Total	360 (67%)	180 (33%)	
Sex, n (%)			
Female	249 (69%)	159 (88%)	<0.001
Male	111 (31%)	21 (12%)	
Age at Baseline (median, IQR)	45 (40-51)	44 (40-49)	0.076
Time on ART (median, IQR)	6.75 (6.00-7.67)	6.67 (5.25-7.50)	0.220
Most Important Income, n (%)			
Agriculture farming	120 (33%)	74 (41%)	0.098
Wage or salaried employment	49 (14%)	16 (9%)	
Crafts and Trade work	27 (8%)	10 (6%)	
Petty trade in Kiosks, stalls and hawking	96 (27%)	37 (21%)	
None	27 (8%)	13 (7%)	
Other	41 (11%)	30 (17%)	
Marital Status, n (%)			
Single	16 (4%)	1 (0.6%)	<0.001
Legally Married	108 (30%)	34 (19%)	
Co-habiting	72 (20%)	30 (17%)	
Separated	42 (12%)	29 (16%)	
Divorced	1 (0.3%)	0 (0%)	
Widowed	12 (3.4%)	86 (48%)	
Optimal ART Adherence, n (%)			
Yes	316 (88%)	167 (93%)	0.077
No	44 (12%)	13 (7%)	
Reasons for Missing ART: Away from home, n (%)			
Yes	23 (31%)	7 (27%)	0.807
No	52 (69%)	19 (73%)	
Busy, n (%)			
Yes	6 (8%)	0 (0%)	0.334
No	69 (92%)	26 (100%)	
Forgot, n (%)			
Yes	38 (51%)	16 (62%)	0.370
No	37 (49%)	10 (39%)	
Most Useful ART Reminder, n(%)			
Use of reminders (ex. Cock's crow)	160 (44%)	40 (22%)	<0.001
Support of a TASO counselor	0 (0%)	1 (0.6%)	
Support of my medicine companion	34 (9%)	15 (8%)	
After brushing my teeth	5 (1%)	1 (0.6%)	
Morning/evening prayer	28 (8%)	10 (6%)	
Other	133 (37%)	113 (63%)	

Table 3: Descriptive statistics for responses to the question 'Would you like TASO to contact you by mobile phone for ART reminders?' comparing between literate vs. illiterate TASO participants among mobile phone users.

Would like TASO to use phones?	Able to Read and Write?		P-value
	No	Yes	
Yes	58 (61%)	337 (94%)	<0.001
No	37 (39%)	22 (6%)	
Total	95	359	

Conclusion

Amongst long-term ART users, 67% owned a mobile phone and were literate, suggesting that mobile phone texting could be an ART adherence aid in a rural setting in Uganda. However, other means of supporting adherence are needed for the remaining one-third of individuals who are illiterate or lack access to a mobile phone.



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