eHealth Interventions for HIV Prevention and Management in Sub-Saharan Africa

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Background

- Around 70% of global HIV diagnoses are in Sub-Saharan Africa
- Despite recent medical advances, HIV is still the leading cause of death in the region
- eHealth interventions are effective for HIV prevention and management, but it is unclear whether this is true of resource-poor settings
- Aim: to determine the effectiveness of eHealth interventions for HIV prevention and management in Sub-Saharan Africa

Methods

Systematic review of randomised controlled trials

- Study selection: RCTs conducted in Sub-Saharan Africa, comparing eHealth interventions for HIV prevention or management in comparison with minimal interventions (control)
- Data analysis: meta-analyses: data pooled using random-effects models
- 4,210 citations were screened, and the full texts of 95 potentially eligible papers

Results

- 25 RCTs of eHealth interventions in 10 Sub-Saharan African countries were included (8 Kenya, 7 Uganda, 5 South Africa). Participants were HIV positive in 13 studies.
- eHealth interventions included smartphone games, internet-based programmes, educational text messages
- The odds of engaging in behaviours for **HIV management** (e.g., adherence to ART and retention in HIV care) were **21% higher** among those in the intervention group compared with control (p=0.008)

	Experimental	Control		Odds Ratio	Odds Ratio
Study or Subgroup	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Kalichman 2019 (1)	22	25	32.1%	1.20 [1.05, 1.37]	
Lester 2010 (2)	185	145	3.3%	0.97 [0.46, 2.08]	
Linnemayr 2017 (3)	86	95	4.3%	0.82 [0.43, 1.58]	-
Mbuagbaw 2012 (4)	76	76	5.3%	1.14 [0.64, 2.03]	
Van der Kop 2018 (5)	349	351	11.0%	0.89 [0.61, 1.29]	
Venter 2019 (6)	181	164	9.0%	1.15 [0.75, 1.76]	
Haberer 2016 a (7)	20	21	1.3%	0.75 [0.22, 2.61]	
Haberer 2016 b (8)	21	21	0.9%	3.69 [0.82, 16.66]	-
Joseph Davey 2016 (9)	330	321	5.1%	1.54 [0.85, 2.78]	
Linnemayr 2017 (10)	92	95	4.6%	0.94 [0.50, 1.77]	
Nsagha 2016 (11)	45	43	2.6%	2.29 [0.97, 5.40]	
Pop-Eleches 2011 a (12)	57	119	4.6%	1.09 [0.58, 2.04]	
Pop-Eleches 2011 b (13)	57	119	4.2%	2.44 [1.25, 4.74]	
Pop-Eleches 2011 c (14)	60	119	4.7%	1.13 [0.60, 2.09]	
Pop-Eleches 2011 d (15)	66	119	4.9%	1.62 [0.88, 2.99]	
Reid 2017 (16)	54	54	2.1%	2.42 [0.94, 6.27]	•
	1701	1887	100.0%	1.21 [1.05, 1.40]	
				71. -	0.1 0.2 0.5 1 2 5 10
					Favours control Favours eHealth

Forest plot: Impact of eHealth interventions on HIV management behaviours

- eHealth interventions had positive effects on HIV-related knowledge and behavioural intentions
- We found no difference in the odds of engaging in HIV prevention behaviours and no impact on biological outcomes

Conclusions

- eHealth interventions in Sub-Saharan Africa increased HIV management behaviours but did not significantly impact HIV prevention behaviours
- There was no detectable impact on HIV-related biological outcomes
- This review provides good evidence supporting the implementation of eHealth interventions for HIV management behaviours in Sub-Saharan Africa

Implications

- eHealth interventions for improving adherence to ART and retention in HIV care could reduce the likelihood of transmitting HIV to others, and reduce HIV-related morbidity and mortality
- Since healthcare systems across
 Sub-Saharan Africa face challenges
 with scare resources, low-cost eHealth
 strategies have huge potential to
 improve HIV-related outcomes across
 the region