Efficacy of a lay health worker led group antiretroviral medication adherence training among non-adherent HIV-positive patients in KwaZulu-Natal, South Africa: results from a randomized trial

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Background

Resource-intensive interventions directed towards the individual (e.g., cognitive behavioural therapy, e.g., Safren et al., 2009) could be difficult to implement in sub-Saharan Africa because of large numbers of patients, restricted resources, and the public health approach to treatment (Bärnighausen et al., 2011).

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Background

- In South Africa, government estimates are 65,000, mostly HIV/TB care-related lay workers contribute their labour in the public health sector, outnumbering the main front-line primary health care providers and professional nurses (Schneider & Lehmann, 2010).

Aim

we aimed to examine whether a lay health worker lead structured group intervention is effective in improving adherence to ART when combined with standard adherence intervention strategies in a cohort of HIV-infected adults.
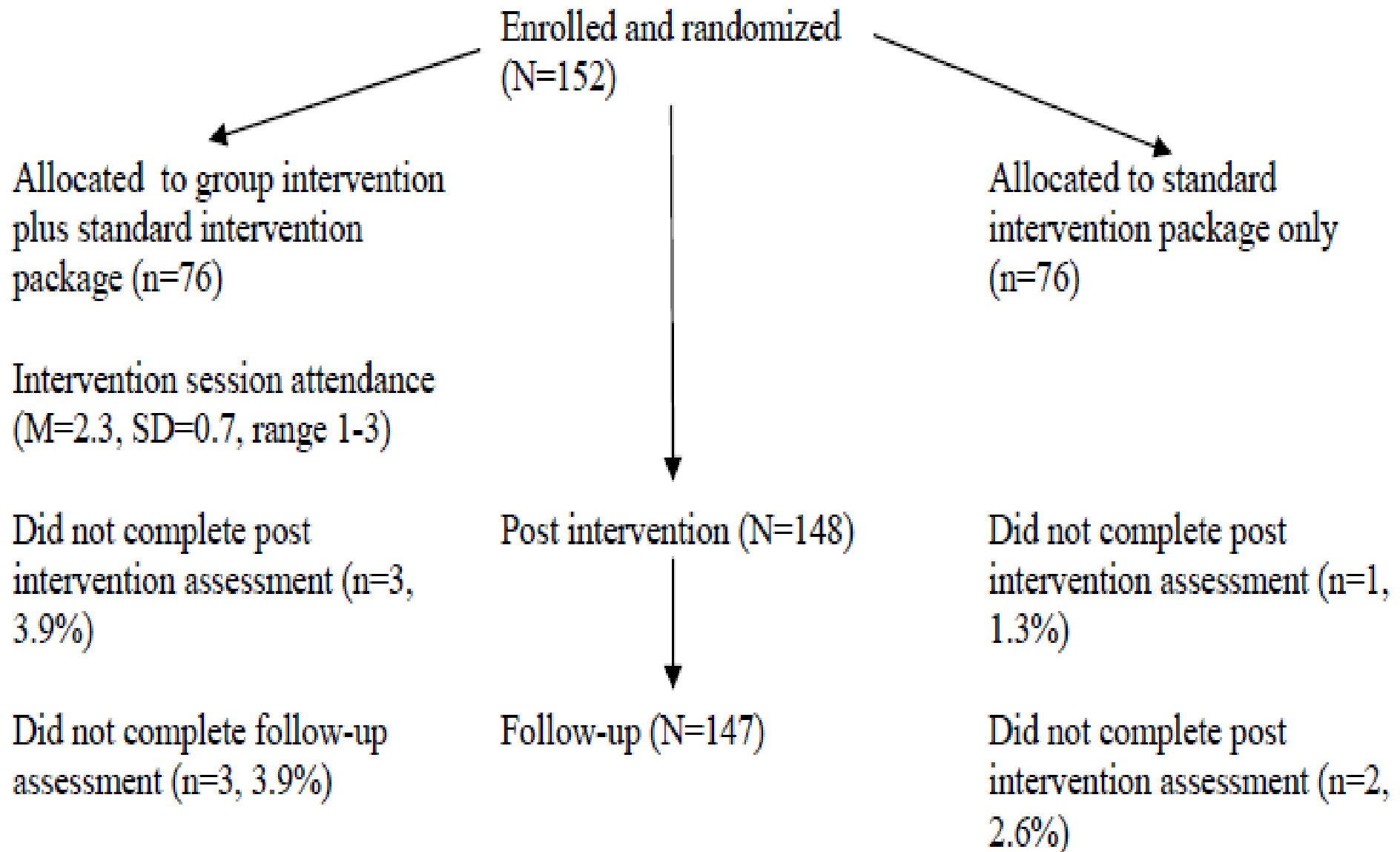
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Study design

- 1) Medication Adherence Intervention (MAI) condition: Led by a trained lay health worker and adherence counsellor, participants received 3 monthly one hour sessions of medication information combined with problem solving skills in an experiential/interactive group format.
- 2) Practitioner Medical Directive (Standard of Care): Participants individually attend monthly one visit to review their health status with their medical practitioner (20 minutes, standard of care). MAI sessions are scheduled to coincide with regularly scheduled physician visits.

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Recruitment

-Health care providers from Ladysmith hospital (ART clinic) informed HIV+ men and women who are new ARV medication users (6 - 24 months of ARV use) about the study during patients' clinic visits.

-Screening criteria are that the physician identified that the patient had an adherence problem and had been screened by an interviewer. The physician utilised patient records, including pharmacy medication refill data, to calculate missed appointments and especially continued missed medication refill.

-Patients were referred into the study by the physician if patients did not take at least one dose of ARV's in the past month.

Figure 1: Participant flow

Enrolled and randomized (N=152)

Allocated to group intervention plus standard intervention package (n=76)

Intervention session attendance (M=2.3, SD=0.7, range 1-3)

Did not complete post intervention assessment (n=3, 3.9%)

Did not complete follow-up assessment (n=3, 3.9%)

Post intervention (N=148)

Follow-up (N=147)

Allocated to standard intervention package only (n=76)

Did not complete post intervention assessment (n=1, 1.3%)

Did not complete post intervention assessment (n=2, 2.6%)

SAMPLE CHARACTERISTICS	Intervention		Comparison		χ^2 or t test	P	Total	
Variable	**N= 76 or M**	**% or SD**	**N= 76**	**% or SD**			**N or M**	**% or SD**
Sex								
Male	23	30.3	30	39.5	1.42	0.140	152	100
Female	53	69.7	46	60.5				
Age	36.6	9.4	37.1	9.8	-0.30	0.764	36.9	9.5
Education								
Grade 7 or less	15	19.7	18	24.0	1.12	0.571	33	21.9
Grade 8-11	42	55.3	35	46.7			77	51.0
Grade 12 or more	19	25.0	22	29.3			41	27.2
Married/cohabitating	7	9.3	12	16.0	1.51	0.220	19	12.7
Never married/separated/divorced/widowed	68	90.7	63	84.0			131	87.3
Residence								
Rural	33	43.4	33	43.4	0.00	1.000	66	43.4
Urban	43	56.6	43	56.6			86	56.6
Employed	17	22.4	23	30.7	1.34	0.248	40	26.5
Not employed	59	77.6	52	69.3			111	73.5
Main household income: Formal salary	13	17.3	21	28.0	2.43	0.119	34	77.3
Not formal salary	62	82.7	54	72.0			116	22.7
Time since HIV diagnosis								
≤2 year	30	39.5	32	42.1	1.12	0.517	62	40.8
>2 years	46	60.5	44	57.9			90	59.2
CD4 count (cells/µL)	309	215	261	171	1.46	0.146	285	196
BDI-Depression symptoms (range 0-63)	26.8	22.2	25.5	23.0	0.33	0.744	26.1	22.6

Adherence related knowledge, motivation and skills

	Experimental Motivational/Skills (N=76)		Control (N=76)		ANOVA	
Adherence information	N or M	% or SD	N or M	% or SD	F	
Baseline (α .66)	28.9	4.6	28.5	3.8		
Post-intervention (α .64)	28.5	3.8	27.1	4.5	4.00	0.048
3 months follow-up (α .79)	30.2	7.5	28.5	3.1		
Adherence motivation						
Baseline (α .65)	29.3	5.0	29.2	4.8		
Post-intervention (α .65)	29.0	4.9	28.8	4.5	0.78	0.379
3 months follow-up (α .84)	31.2	6.3	30.5	4.4		
Adherence skills						
Baseline (α .66)	45.8	9.3	46.9	9.5		
Post-intervention (α .61)	45.2	7.1	44.9	7.2	0.16	0.687
3 months follow-up (α .68)	45.6	6.1	46.4	7.2		

(α= Cronbach alpha)

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ART adherence, CD4 count and depression scores

	Experimental Motivational/Skills (n=76)		Control (N=76)		ANOVA	
ART adherence	N or M	% or SD	N or M	% or SD	F	P
Baseline	38	50.0	36	47.9		
Post-intervention	66	91.3	63	84.1	0.917	0.341
3 months follow-up	71	98.3	65	88.2		
CD4 count						
Baseline	308	217	264	170		
Post-intervention	317	183	308	156	0.675	0.412
3 months follow-up	384	186	368	196		
BDI depression score						
Baseline (α .96)	26.8	22.2	25.5	23.0		
Post-intervention (α .96)	21.5	21.3	21.3	21.6	0.018	0.894
3 months follow-up (α .86)	19.7	19.3	19.2	17.4		

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Discussion

-Findings from our study show that having a group antiretroviral medication adherence training as well as the control condition (standard care) impacts positively on ART adherence, which is broadly consistent with findings from the few published studies that have been conducted in sub-Saharan Africa (Sarna et al., 2008; Kunutsor et al., 2011).
-Persisitent adherence counselling in a clinic setting may be effective in improving adherence to ART

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Discussion

Considering the fact that the intervention by the lay counsellors was as effective as that by the medical personnel, it creates the opportunity of strengthening the role of lay workers in chronic HIV care. With the human resource limitations in the delivery of antiretroviral therapy (ART) in low-resource settings, the use of lay counsellors may be an effective intervention to sustain long-term ART in low-resource settings (Chang et al., 2010).

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Conclusion

-Our study findings highlight the importance of identifying patients with adherence problems and offer additional treatment support.

-The lay health worker structure group adherence intervention may be a practical, cost-effective and feasible strategy for enhancing adherence.

-Lay counsellors could be given a specific role with regards to intensified adherence support. It may also be a feasible to intensify care provider intervention for ART patients with treatment problems.

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