Effects of Integrated Community-Based Care and Group Microfinance on Antiretroviral Therapy Adherence Among Adults Living with HIV in Western Kenya

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Funding and Acknowledgments

- Research reported in this presentation was supported by the National Institute of Mental Health (NIMH) of the National Institutes of Health under award number R01MH118075. One hundred percent of this research was financed with Federal money. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

- We gratefully acknowledge all the study participants, healthcare providers, and Academic Model Providing Access To Healthcare (AMPATH) personnel for their time and willingness to support our research.

- **No conflicts of interest to report**

Background

- In 2017, Kenya approved a single-pill anti-retroviral (ART) regimen containing dolutegravir
  - Less side effects → easier to adhere to → higher barrier to viral resistance
  - High ART adherence required for successful viral suppression
- In 2020, an estimated 81% of persons living with HIV (PLHIV) achieved viral suppression in Kenya
  - Poor retention in HIV Care
  - Retention ensures access to ARTs, clinical monitoring, and disease management

Interventions to Improve HIV Care Retention in SSA

Community-Based Care

- Decentralized clinical care
- Alleviates transportation barriers
- Direct patient delivery of clinical services and medicines

Group Microfinance

- Economic-strengthening via access to informal banking
- Opportunities for health education
- “Group Effect”

Harambee Study

- Recently completed two-arm cluster randomized trial
  - Randomization at the level of microfinance groups (n=57 groups)
- Arm A: Delivery of community-based integrated HIV/NCD care during regular microfinance group meetings (MF + ICB)
- Arm B: Microfinance group participants with facility-based care (MF + SOC)
- Arm C: Facility-based care participants matched to microfinance group members (SOC)

Data Sources

- **Harambee study data:**
  - Participant-level demographic data and covariates
  - ART refill data through dispensing records during ICB care visits (MF + ICB)
- **Local facility dispensing records:**
  - ART refill data through facility-based electronic and paper medical records (MF + SOC)
- **AMPATH medical records:**
  - ART refill data through AMPATH electronic medical records (SOC)

Objectives and Hypothesis

- **Objective:**

  To evaluate the effects of integrated community-based care and group microfinance participation on pharmacy-reported ART adherence in a cluster randomized control trial.

- **Hypothesis:**

  MF + ICB participants will demonstrate more significant improvements in ART adherence over 18 months than MF + SOC and SOC participants

Participant-Level Covariates

Covariates	Sources
Gender Education Status Employment Status	Patient reported or from the medical record
Food Security	Household Food Insecurity Access Scale
Internalized HIV Sigma	HIV Felt Stigma Questionnaire
Social Support	OSLO Social Support Scale

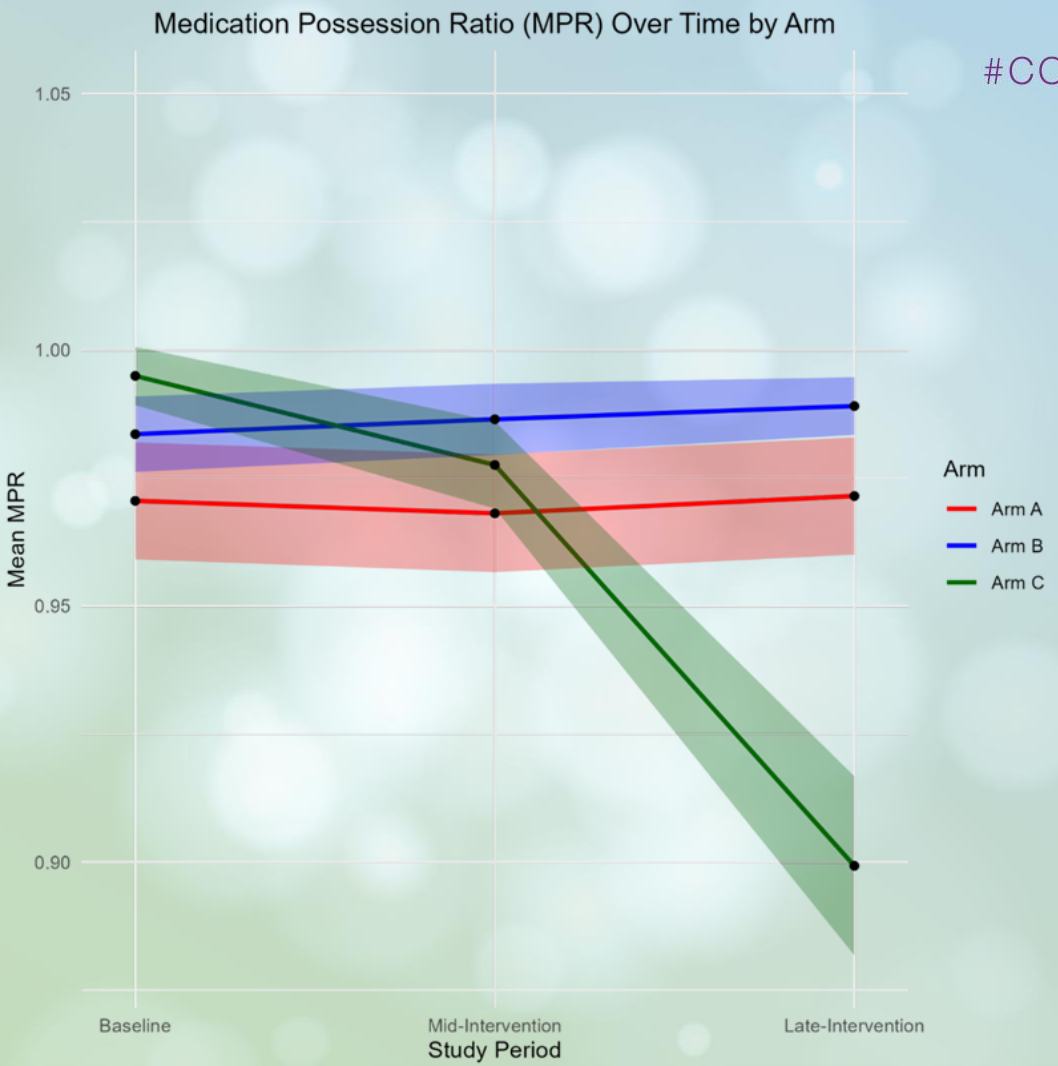
Outcome Measures

- Medication Possession Ratio (MPR):

$$MPR = \frac{Sum\ of\ day's\ supply\ for\ all\ fills\ in\ period}{Number\ of\ days\ in\ period}$$

- Time-interval-based measures: Baseline (0 – 6 months), Mid-Intervention (>6 - 12 months), Late-Intervention (>12 – 18 months)

MPR	Clinical Effect
>0.94	Optimal
0.80 – 0.94	Suboptimal
<0.80	Poor


Medication Possession Ratio (MPR) Over Time by Arm
1.05
1.00
0.95
0.90
Mean MPR
Baseline
Mid-Intervention
Late-Intervention
Study Period
Arm
Arm A
Arm B
Arm C

Pharmacy-Reported ART Adherence Results

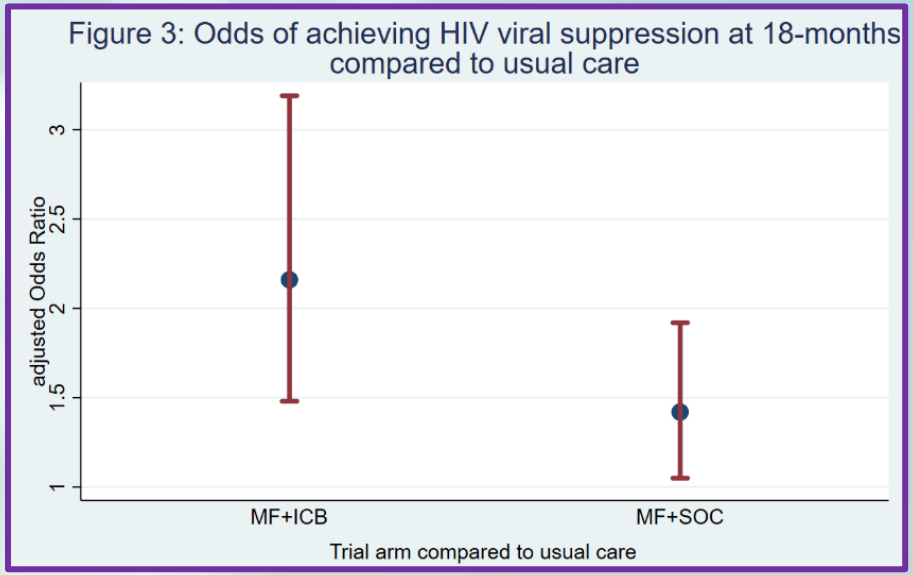
The effects of group MF with and without ICB care, compared to SOC alone, on pharmacy-reported adherence. Unadjusted Treatment-by-Time Model:

Model Term	Beta Estimate	Std. Error	T-value	P-value
MF + ICB vs SOC	0.048	0.008	5.678	**<0.001**
MF + SOC vs SOC	0.057	0.007	7.191	**<0.001**
MF + ICB vs MF + SOC	-0.008	0.012	-0.741	0.459

Table Notes: Post-time indicates the post-treatment period. Medication Possession Ratio (MPR); Antiretroviral Therapy (ART); Integrated community-based care (ICB); Microfinance (MF)

Harambee Study: Viral Suppression

- Compared to SOC, viral suppression increased over 18 months among:
  - MF + ICB care participants (OR: 2.16, 95% CI [1.48, 3.19], p< 0.001)
  - MF + SOC participants (OR: 1.42, 95% CI [1.05, 1.92], p= 0.023)
- No significant difference was observed in MF + SOC and MF + ICB participants



Genberg, B., et al., M. (2024, March 7). Integrated HIV+NCD care in Community Microfinance Groups: Harambee Cluster Randomized trial Results . CROI Conference

Conclusions

- ART adherence may act as a surrogate measure for HIV care retention
- Group microfinance participation may increase ART adherence
  - Group effects
  - ART adherence education
- Integrating community-based care into group microfinance could improve ART adherence

Limitations

1) MPR is not a perfect measure of adherence or ART effectiveness
   - MPR >0.94 is associated with improved viral suppression and increased clinical outcomes in PLHIV in SSA
2) Missing MPR data during the late-intervention period was observed among patients with higher reported HIV stigma
3) Generalizability of results
   - *Harambee Study* recruited patients involved in HIV care for a substantial amount of time with access to AMPATH services

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Analytical Approach: Difference-in- Differences

$$ART_{it} = \beta_{1it}(Arm) + \beta_{1it}(Arm) \times Postt + \beta_{3t} + \beta_{4i} + \in_{it}$$

Equation	$\beta_{1it}(Arm)$	Comparator
#1	ICB Care (Arm A)	SOC (Arm C)
#2	MF (Arm B)	SOC (Arm C)
#3	ICB Care (Arm A)	MF (Arm B)