# Advances in Mental Health & HIV in Uganda

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Agenda

- The Mental Health–HIV Interface

- Persistent Gaps in HIV Mental Health Care

- Group Support Psychotherapy: A community-based solution

- Advancing the Science

- Treatment-adjusted prognostic modelling

- Causal mediation analyses

- Implications for HIV Mental Health Care.

- 5 Key lessons integrating predictive & mechanistic findings

- Conclusion

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The Mental Health–HIV Interface

- Mental health problems drive enormous suffering, especially in LMICs where access to care is lowest.   WHO,2022

- In Africa, among PLWH, **1 in 3 experience significant depression symptoms.**   Nakimuli-Mpungu et al 2012

- Depression ↓ ART adherence & ↓ viral suppression

- Scalable, community-based solutions such as Group Support Psychotherapy offer hope, but are not integrated into routine care
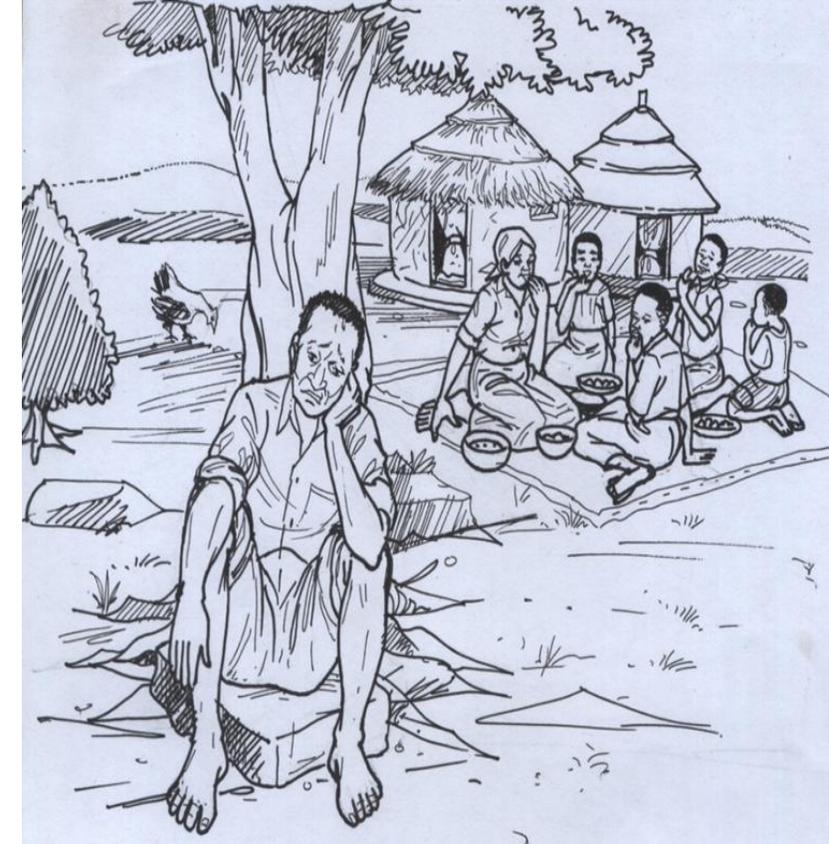
                    Nakimuli-Mpungu et al. 2020, 2022

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Persistent Gaps in HIV Mental Health Care

- Health workers are unsure how to support distressed patients.

- Most mental health training is theoretical and rarely includes practical psychotherapy skills.

- Providers in Uganda and Kenya say: *"We were taught the diagnosis — but not how to sit with someone suffering."*

- Many health workers unintentionally dismiss mental health symptoms.

- In most facilities, mental health is *never* discussed in supervision or meetings.

- Leaders often treat mental health as "not urgent" — until it becomes a crisis.

Liu et al. 2016; Wakida et al.; Nguyen et al., 2019; Abaatyo et al. 2024; Letsoalo et al 2025
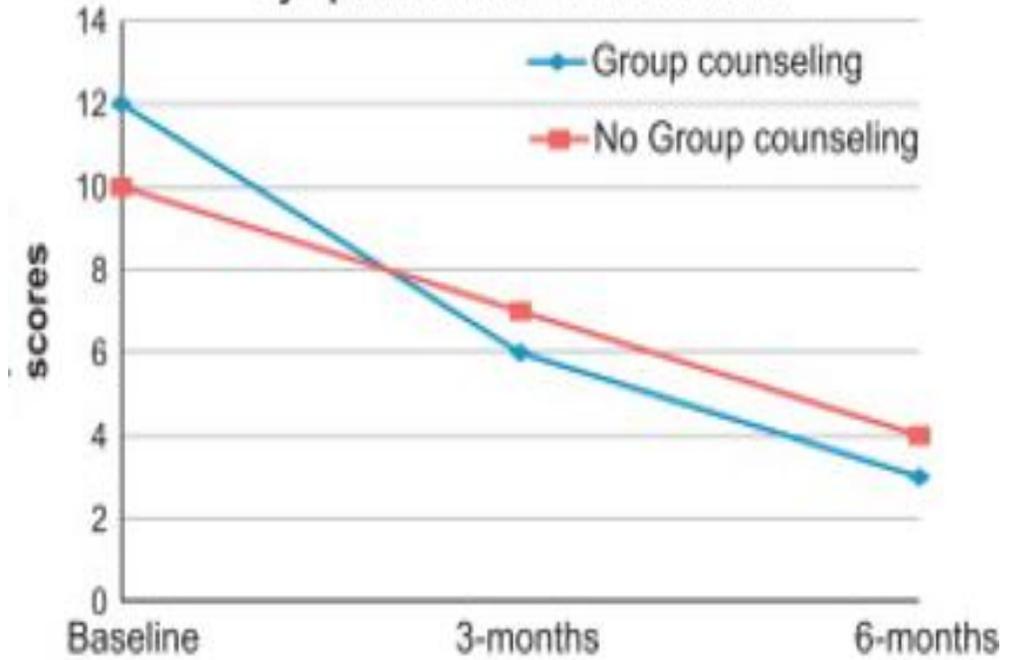
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Why Group Support Psychotherapy Offers Hope

• Communities Heal Faster Together

• **People who received group support recovered faster than those who did not.**

• This finding became the foundation for what later became Group Support Psychotherapy (GSP).

Nakimuli-Mpungu et al;2013

The effect of group counseling on change in depression symptom scores over 6 months
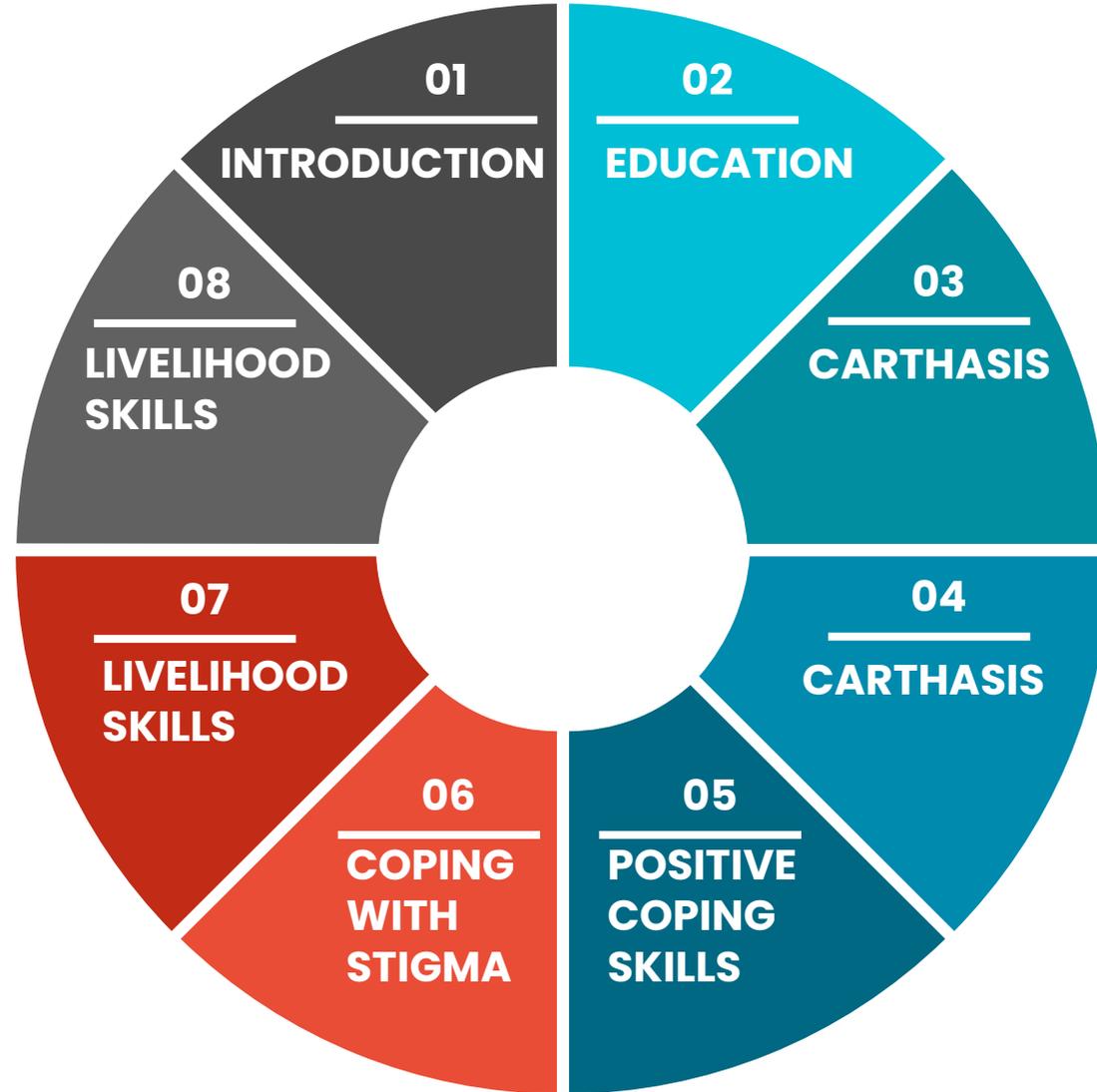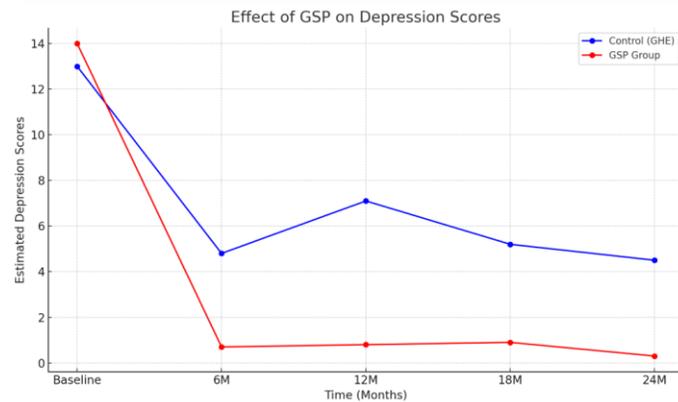
GSP: A Community-Driven, Theory-Informed Psychotherapy Model
Co-developed with target communities + grounded in CBT, Social Cognitive Theory & the Sustainable Livelihoods Framework

- 01 INTRODUCTION
- 02 EDUCATION
- 03 CARTHASIS
- 04 CARTHASIS
- 05 POSITIVE COPING SKILLS
- 06 COPING WITH STIGMA
- 07 LIVELIHOOD SKILLS
- 08 LIVELIHOOD SKILLS

Cluster Randomized Trial Success
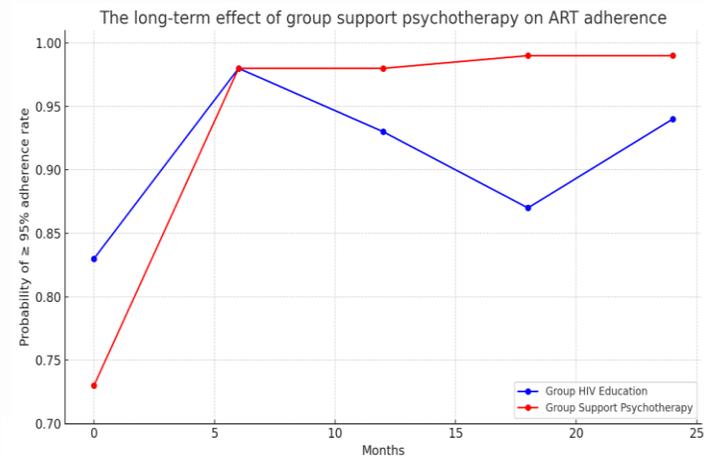
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Building Treatment – adjusted Prognostic Models

What does predictive modelling tell us?

Predictors of Depression Non-Remission

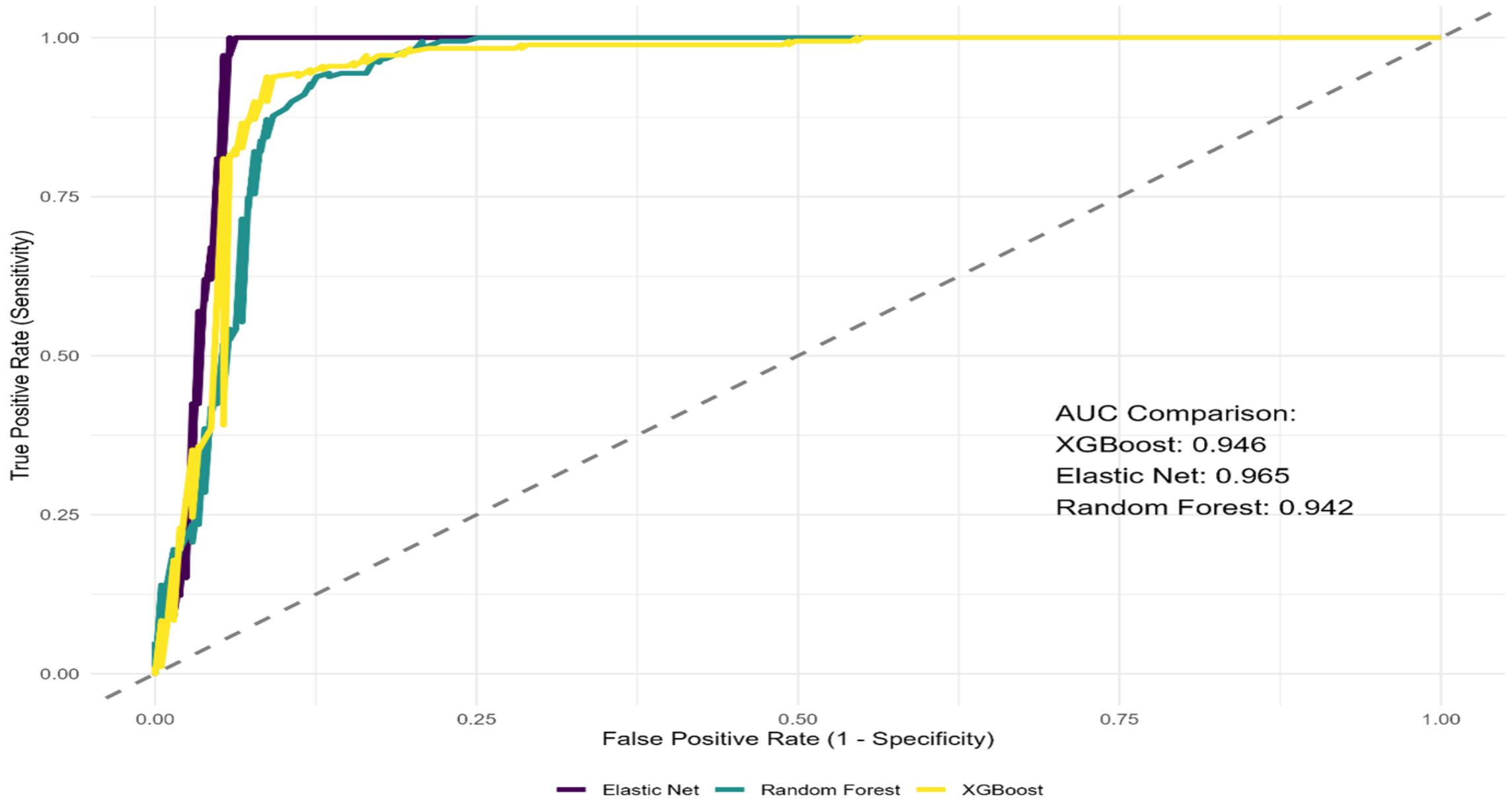| Predictor	Elastic Net (OR)	Random Forest	XGBoost
Treatment Assignment			
GSP	↓ protective	↓ Protective	↓ Protective
GHE	↑ risk	↑ Risk	↑ Risk
Low perceived social support	↑ risk	↑ risk	↑ risk
Higher self-esteem	—	↓ Protective	↓ Protective
Acceptance / Active coping	—	↓ Protective	↓ Protective
Income (low)	—	↑ Risk	↑ Risk
Savings (low)	—	↑ Risk	↑ Risk
Total assets (low)	—	↑ Risk	↑ Risk
Self-blame (high)	—	↑ Risk	↑ Risk
Enacted stigma (high)	—	↑ Risk	↑ Risk
Time not working (more)	—	↑ Risk	↑ Risk
Older age	—	↑ Risk	↑ Risk

ROC Curves: Model Comparison

External Test Set (Pader District)

AUC Comparison:
XGBoost: 0.946
Elastic Net: 0.965
Random Forest: 0.942

True Positive Rate (Sensitivity)

False Positive Rate (1 - Specificity)

Elastic Net — Random Forest — XGBoost

Mechanisms

What do mechanistic analyses tell us?

What do mechanistic analyses tell us?

Overarching goal

- To identify the **Early & Late Mechanisms** by which Group Support Psychotherapy (GSP) reduces depressive symptoms in HIV-positive individuals

Psychosocial Variable	Emotion-Focused Coping Skills	Problem-Focused Coping Skills	Avoidant Coping
Social support	Emotional support seeking	Seeking help on tasks	Denial
Self-esteem	Positive reframing	Active coping	Behavioral disengagement
Stigma	Acceptance	-	Substance use
Economic empowerment	Emotional expression	-	Self-blame
	Self-Distraction		

Indirect and total effects of change in mediator (baseline to 2 months) on 2-month Depression
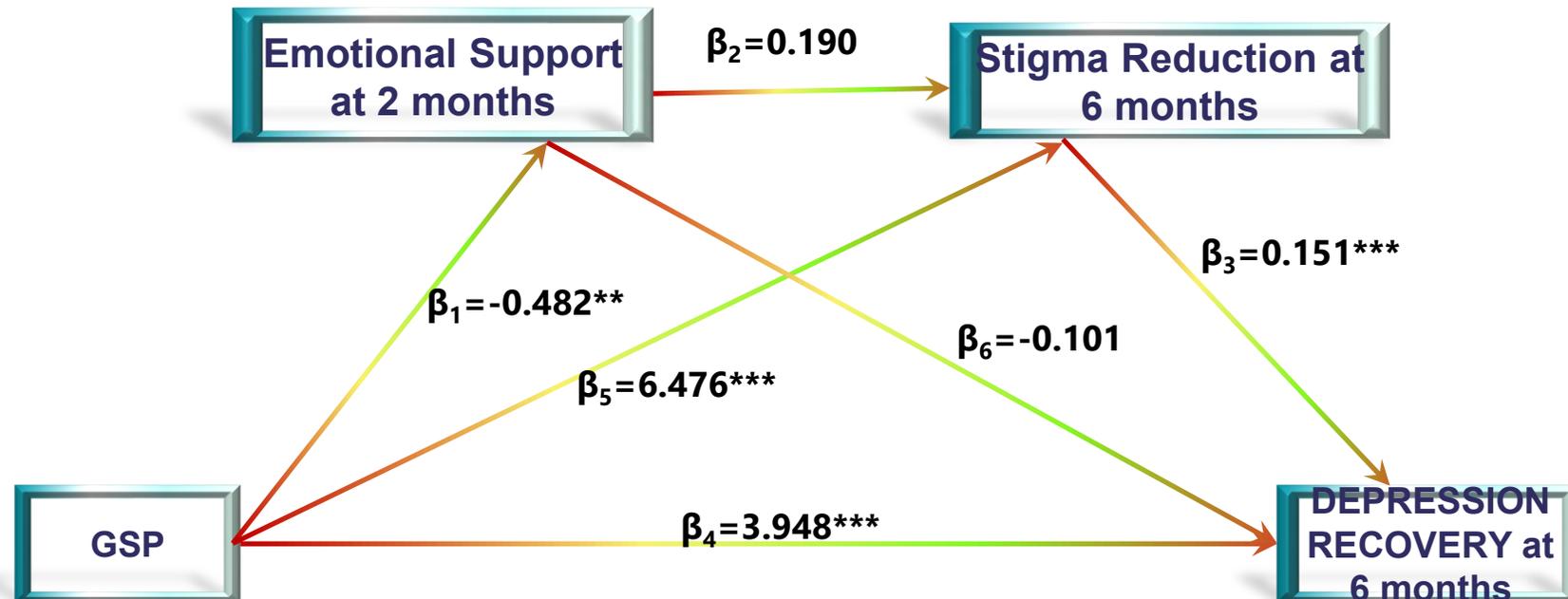
Mediator	Path a: β (SE) [95%CI]	Path b: β (SE) [95% CI]	Indirect effect β(SE), [95% CI]	Total effect β(SE), [95% CI]
Distraction	0.551 (0.165)*** [0.232, 0.866]	-0.214 (0.094)** [-0.405, -0.042]	- 0.118 (0.061)*** [-.289, -.029]	2.873 (0.565)*** [1.786, 4.592]
Active coping	0.427 (0.154)*** [0.121, 0.717]	-0.115 (0.074)* [-0.263, 0.028]	-0.049 (0.038)** [-0.146, -0.000]	2.893 (0.905)*** [1.732, 4.484]
Emotional support seeking	0.457 (0.136)*** [0.179, 0.702]	-0.210 (0.073)*** [-0.371, -0.064]	-0.096 (0.046)*** [-0.205, -0.028]	2.813 (0.838)*** [1.729, 4.093]
Seek help others	0.131 (0.157) [-0.147, 0.450]	-0.214 (.078)*** [-0.403, -0.088]	-0.028 (0.037) [-0.145, 0.024]	3.239 (1.053)*** [1.909, 5.221]

Indirect and total effects of change in mediator (baseline to 2 months) on 6-month Depression

Mediator	Path a: β (SE) [95%CI]	Path b: β (SE) [95% CI]	Indirect effect (SE), [95% CI]	Total effect (SE), [95% CI]
Emotional support seeking	0.474 (0.136)*** [0.207, 0.727]	0.161 (0.062)** [0.037, 0.284]	0.076 (0.036)*** [0.022, 0.172]	4.891 (4.999)*** [3.723, 19.483]
Seek help others	0.153 (0.160) [-0.116, 0.471]	0.058 (0.078) [-0.112, 0.194]	0.009 (0.016) [-0.007, 0.070]	4.934 (5.832)*** [3.676, 20.278]
Venting	0.638 (0.186)*** [0.305, 1.045]	0.071 (0.055) [-0.031, 0.184]	0.045 (0.037)* [-0.010, 0.145]	4.881 (4.859)*** [3.673, 19.235]
Acceptance	0.289 (0.154)** [0.008, 0.610]	0.218 (0.065)*** [0.097, 0.3466]	0.063 (0.038)** [0.003, 0.159]	4.835 (5.122)*** [3.631, 19.882]

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Early mediation pathways

***p≤0.001; **p≤0.05

Early, late, and chained indirect effects on 6-month recovery through baseline to 2 months change in ==emotion support seeking==

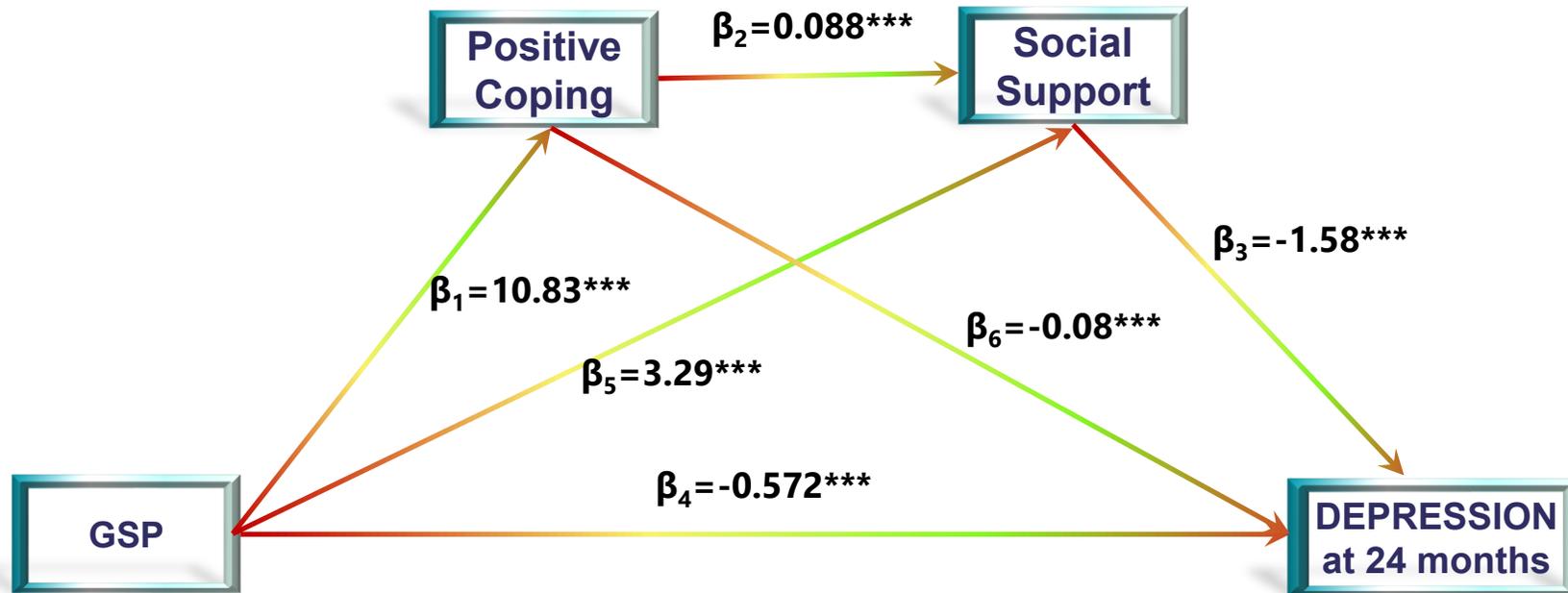| Mediator	Early IE (SE), [95% CI]	Late IE (SE), [95% CI]	Chained IE (SE), [95% CI]	Total IE (SE), [95% CI]	Total Effect (SE), [95% CI]
Social support	0.060 (0.032)*** [0.014, 0.147]	0.465 (0.239)*** [0.085, 0.965]	0.002 (0.007) [-0.010, 0.019]	0.527 (0.248)*** [0.147, 1.072]	4.874 (0.586)*** [3.755, 5.949]
HIV-related stigma	0.101 (0.048)*** [0.026, 0.216]	1.281 (0.285)*** [0.822, 1.962]	0.008 (0.021) [-0.021, 0.065]	1.390 (0.297)*** [0.898, 2.115]	4.995 (0.812)*** [3.824, 6.086]
Self-esteem	0.105 (0.049)*** [0.032, 0.224]	1.161 (0.283)*** [0.663, 1.780]	0.013 (0.015) [-0.005, 0.070]	1.278 (0.297)*** [.0745, 1.903]	4.931 (0.647)*** [3.699, 6.105]
Distraction	0.098 (0.043)** [0.027, 0.195]	0.610 (0.152)*** [0.347, 0.949]	-0.014 (0.012) [-0.049, 0.003]	0.694 (0.160)*** [0.405, 1.037]	4.974 (1.328)*** [3.875, 6.353]
Active coping	0.106 (0.048)*** [0.020, 0.199]	0.769 (0.159)*** [0.505, 1.181]	-0.013 (0.014) [-0.044, 0.010]	0.862 (0.160)*** [0.595, 1.271]	4.885 (0.815)*** [3.836, 5.985]
Seek help others	0.111 (0.046)** [0.036, 0.214]	1.330 (0.222)*** [0.921, 1.827]	-0.026 (0.018)** [-0.075, -0.002]	1.414 (0.218)*** [1.014, 1.890]	4.821 (0.610)*** [3.762, 5.964]

Late mediation pathways

STIGMA at 12 months

$\beta_2 = -0.067^{***}$

INCOME at 12 months

$\beta_3 = -0.617^{***}$

$\beta_1 = -3.083^{***}$

$\beta_5 = 3.343^{***}$

$\beta_6 = 0.264^{***}$

GSP

$\beta_4 = -0.562^{***}$

DEPRESSION at 24 months

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UKRI Medical Research Council · Uganda Virus Research Institute · LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

Total Indirect effects

$\beta = -4.301^{***}$

Total effects

$\beta = -4.44^{***}$

Late mediation pathways

β₂=0.088*** — between **Positive Coping** and **Social Support**

β₁=10.83*** — from GSP to Positive Coping

β₃=-1.58*** — from Social Support to Depression

β₅=3.29***

β₆=-0.08***

β₄=-0.572*** — from GSP to Depression

Positive Coping

Social Support

GSP

DEPRESSION at 24 months

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Total Indirect effects

β=-4.59***

Total effects

β=-9.05***

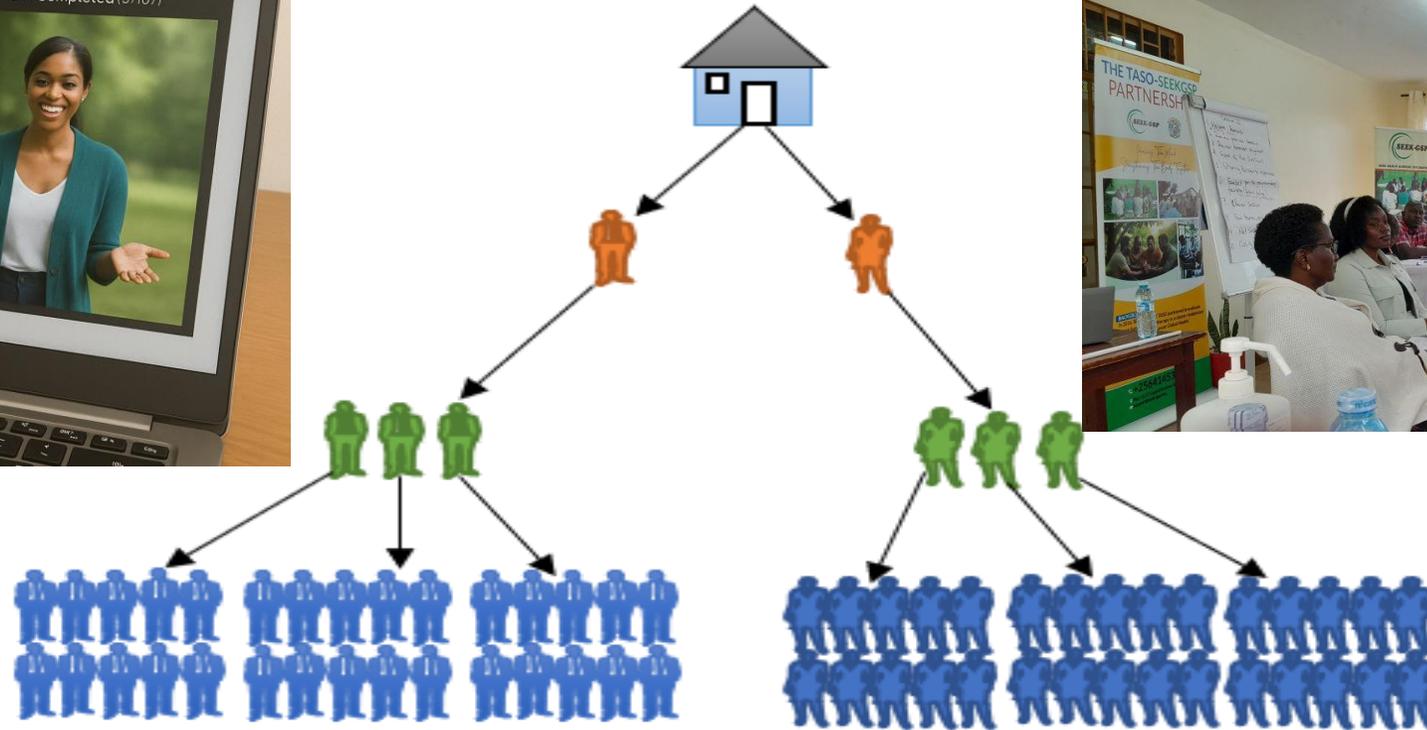# Implications for HIV Mental Health Care.

Layer 1: Risk Identification.

- Identify: Low support, High stigma, Low assets, High self-blame.

Layer 2: Mechanism-Targeted Intervention

- Focus on: Emotional support seeking

- Stigma reduction

- Self-esteem rebuilding

- Active coping

A Hybrid Train the Trainer Approach

TASO-SEEK GSP PARTNERSHIP

TASO Roles:

- Training

SEEK-GSP Roles:

- Service delivery

5 Key lessons integrating predictive & mechanistic findings:

- Social Support Is Both a Risk Marker and a Mechanism of Recovery

- Early Change Emotional connections Predict Long-Term Recovery

- HIV-Related Stigma Drives Persistent Depression

- Structural Vulnerability Shapes Treatment Response

- Mechanism-Targeted Care Enables Precision Mental Health

CONCLUSION

Depression non-remission among people living with HIV is strongly shaped by social and structural vulnerability, and recovery appears to occur primarily through early improvements in emotional support seeking, social connectedness, and adaptive coping.

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Thank you