



Depression and Increased Alcohol Use among People Living with HIV

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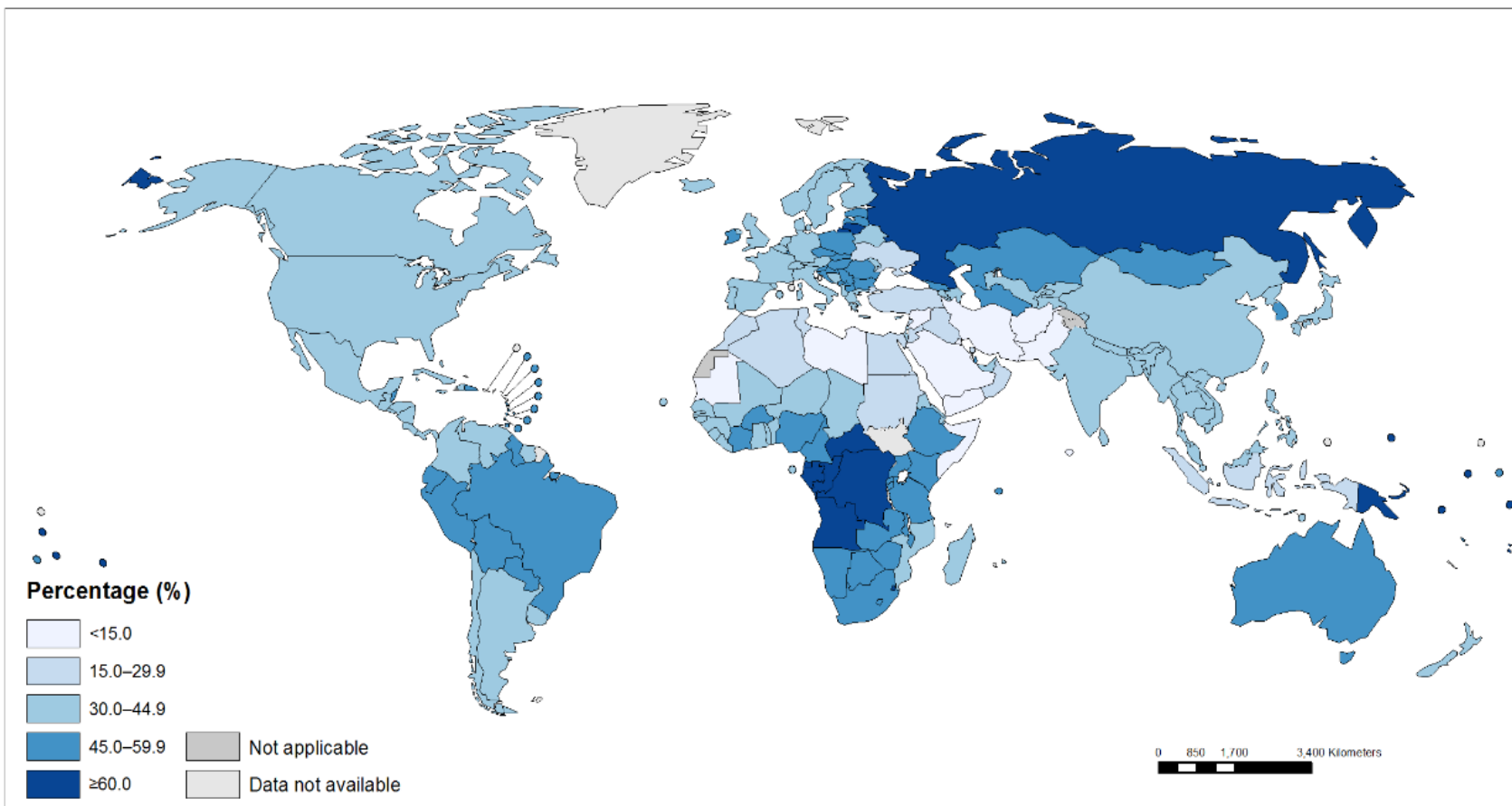
UNIVERSITY OF CAPE TOWN

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OVERVIEW

- 1) Alcohol use and alcohol use disorders
- 2) The role of alcohol (and depression) in HIV infection and treatment among people living with HIV
- 3) Alcohol reduction interventions for people living with HIV: what works and implementation challenges
- 4) Recommendations for addressing alcohol use and depression among people living with HIV in health care and community settings

Prevalence of heavy episodic drinking among current drinkers (%; 15+ years), 2016



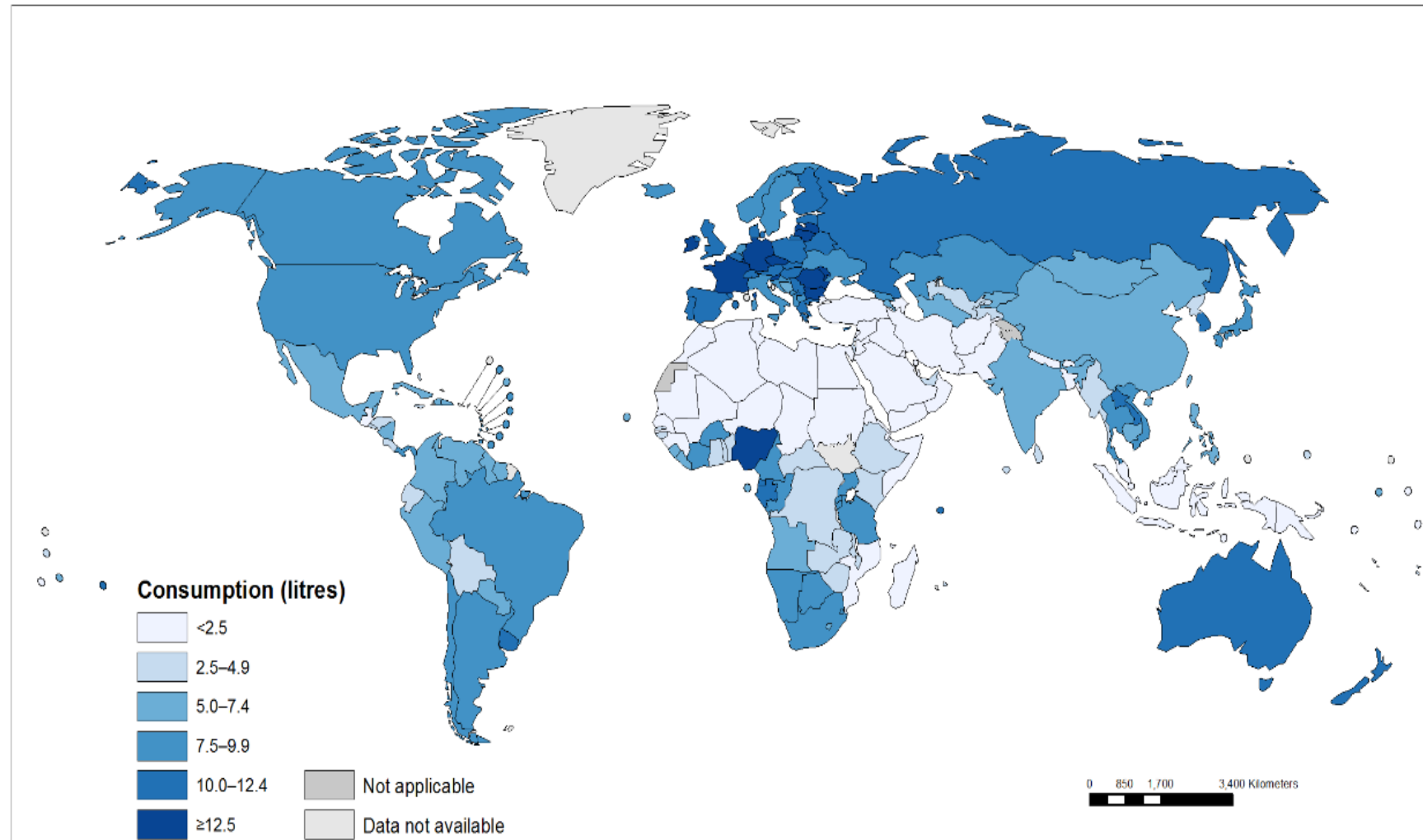
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Total alcohol per capita consumption (15+ years; in litres of pure alcohol), 2016



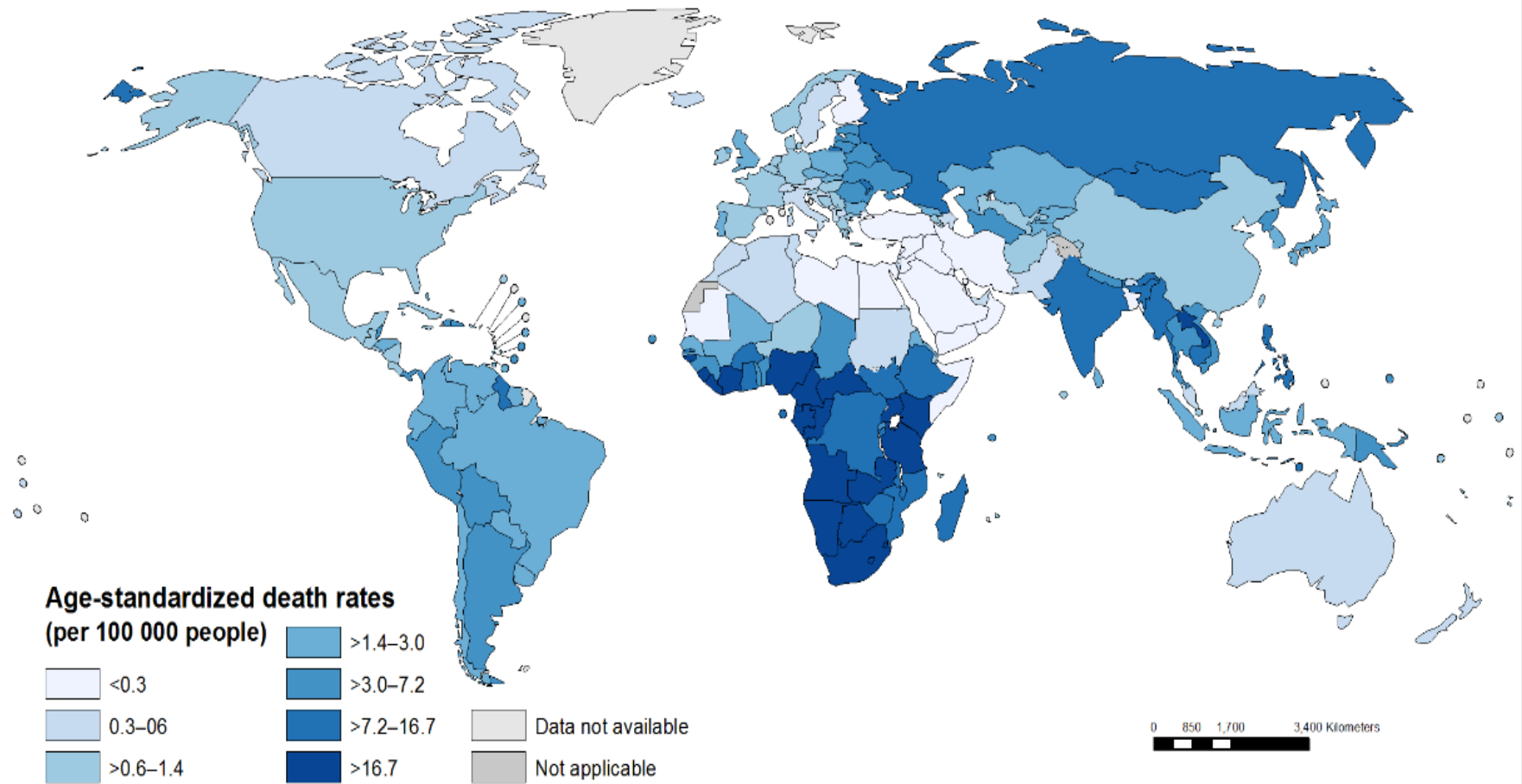
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Global age-standardized alcohol-attributable infectious disease death rates, 2016



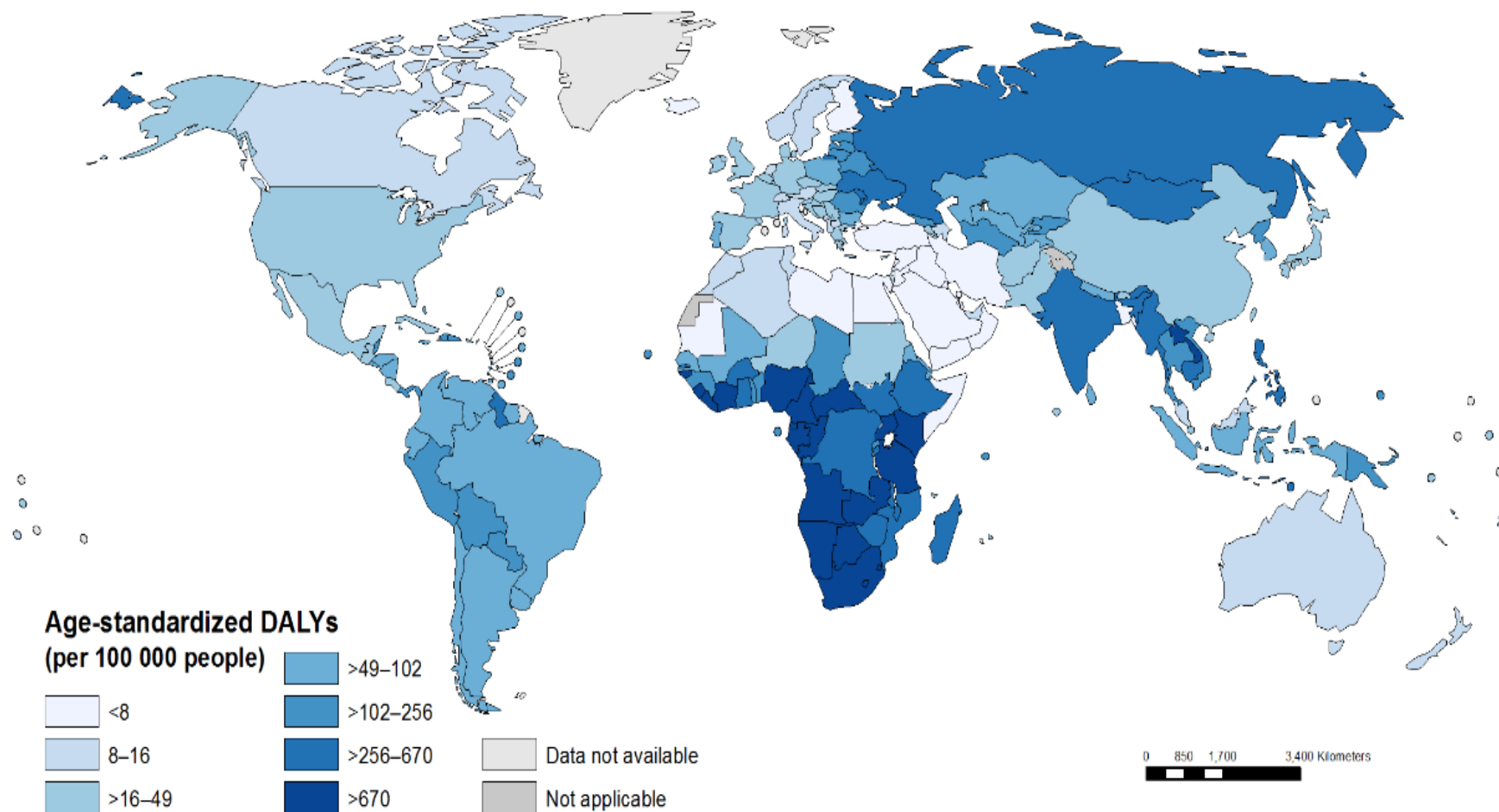
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Global age-standardized alcohol-attributable infectious disease disability adjusted life years (DALYs) lost in 2016



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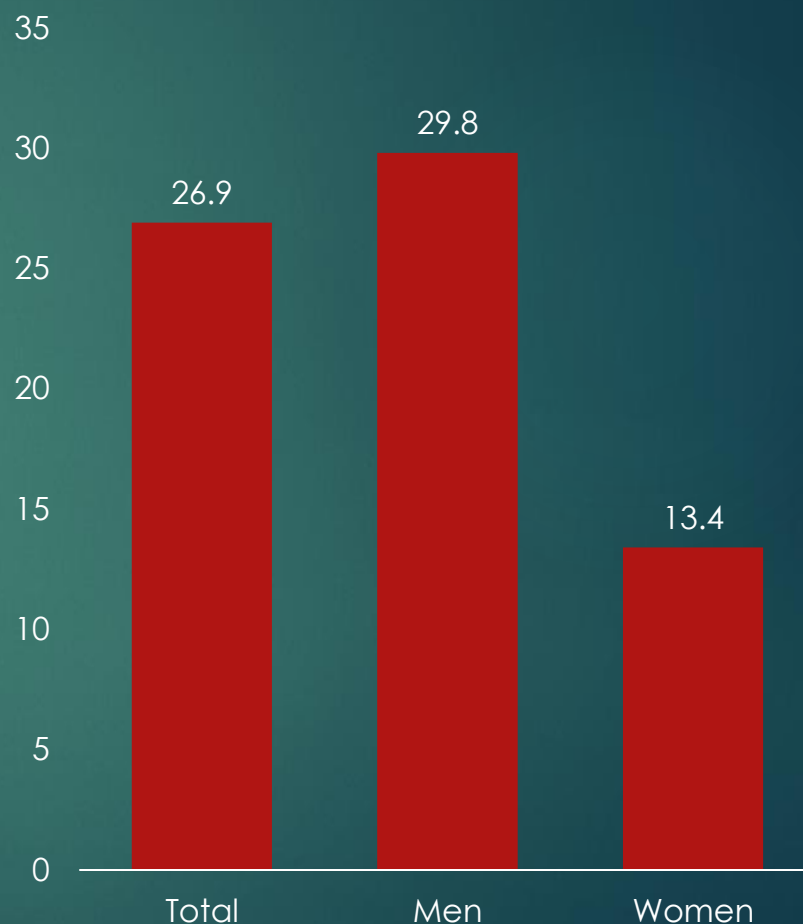


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Prevalence of alcohol use disorders (AUDs) among people who are living with HIV

- ▶ Systematic review of 25 studies with 25,154 participants (Duko et al., 2019)
- ▶ Pooled prevalence of AUD:
 - ▶ Developed countries: 42.09%
 - ▶ Developing countries: 24.52%

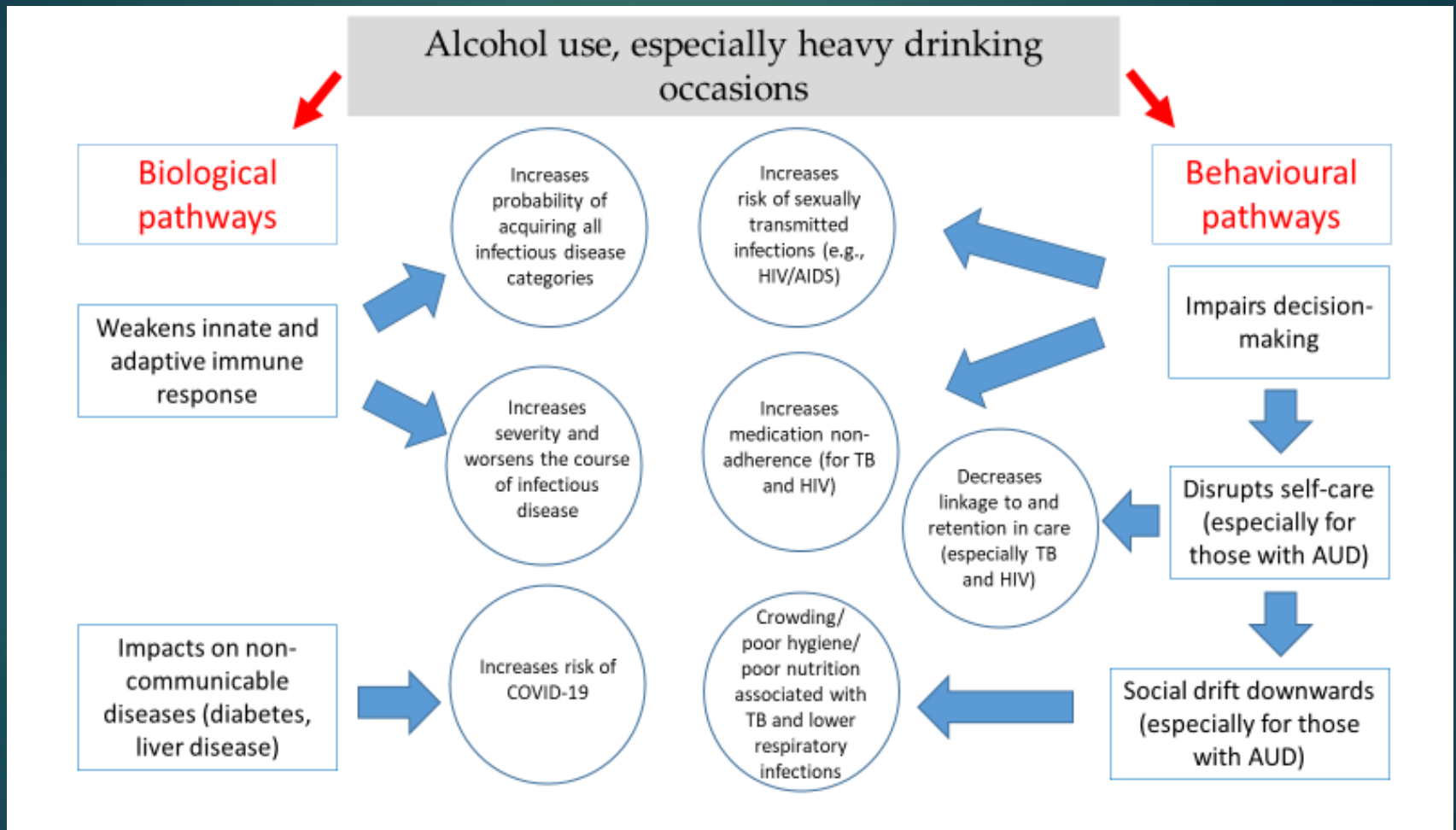
SA AUD rates: 7.0% (men) and 2.4% (women) – general population



How does alcohol contribute to HIV?

- ▶ Alcohol consumption associated with HIV infection
- ▶ Among people living with HIV, alcohol consumption is associated with:
 - ▶ ART non-adherence
 - ▶ Disease progression

Key biological and behavioural mechanisms through which alcohol use is associated with communicable diseases





ALCOHOL AND ART ADHERENCE

Findings of a study conducted in ART Clinics in Tshwane,
South Africa (Morojele et al., 2014)

AIM

To determine whether alcohol use predicts ART adherence
over and beyond structural and psychosocial factors

METHODS

- ▶ Two ART hospital-based clinics in the Tshwane Metropolitan area, Gauteng province
- ▶ Participants: Male and female PLHIV
- ▶ Eligibility:
 - ▶ Age: 18 years and above
 - ▶ A diagnosis of HIV
 - ▶ Being on ART for at least 4 months
 - ▶ Ability to speak English or SeTswana/SeSotho or isiZulu
- ▶ Face-to-face interviews
- ▶ Structured questionnaires

STRUCTURED QUESTIONNAIRE

Domain	Scale (No. of items)	Sample item
Demographic	Age (1)	How old are you?
	Gender (1)	N/A – coded by observation
	Marital status (1)	What is your marital status?
	Education (1)	What is your highest level of education?
	Employment status (1)	Which of the following describes your current employment status? (Employed/unemployed)
Structural	SES (8)	Does your house have electricity?
	Living situation (1)	How would you describe your current living situation? (Stable/unstable)
	Food insecurity (1)	How often do the people in (your) household go hungry or have no food to eat?
	Time to doctor (1)	How long does it usually take to get to the doctor's office?
	Difficulty picking up ART (1)	Usually, how difficult is it for you to get to the doctor to pick up your ARV medicines?
Psycho-social	Stigma (4)	I worry about people treating me badly because of HIV.
	Disclosure (2)	How many of (the people who are important to you) have you told that you have been diagnosed with HIV?
Alcohol	AUDIT: Alcohol involvement (10)	How often during the last year have you failed to do what was normally expected from you because of drinking?

DEPENDENT VARIABLE: ART ADHERENCE

CASE Adherence Index (Mannheimer et al., 2006)

- ▶ 3-item measure of adherence

- ▶ Assesses three distinct aspects of adherence:
 - 1) Difficulty taking ART on time
 - 2) Frequency of missed doses
 - 3) Time since the most recent missed dose

DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

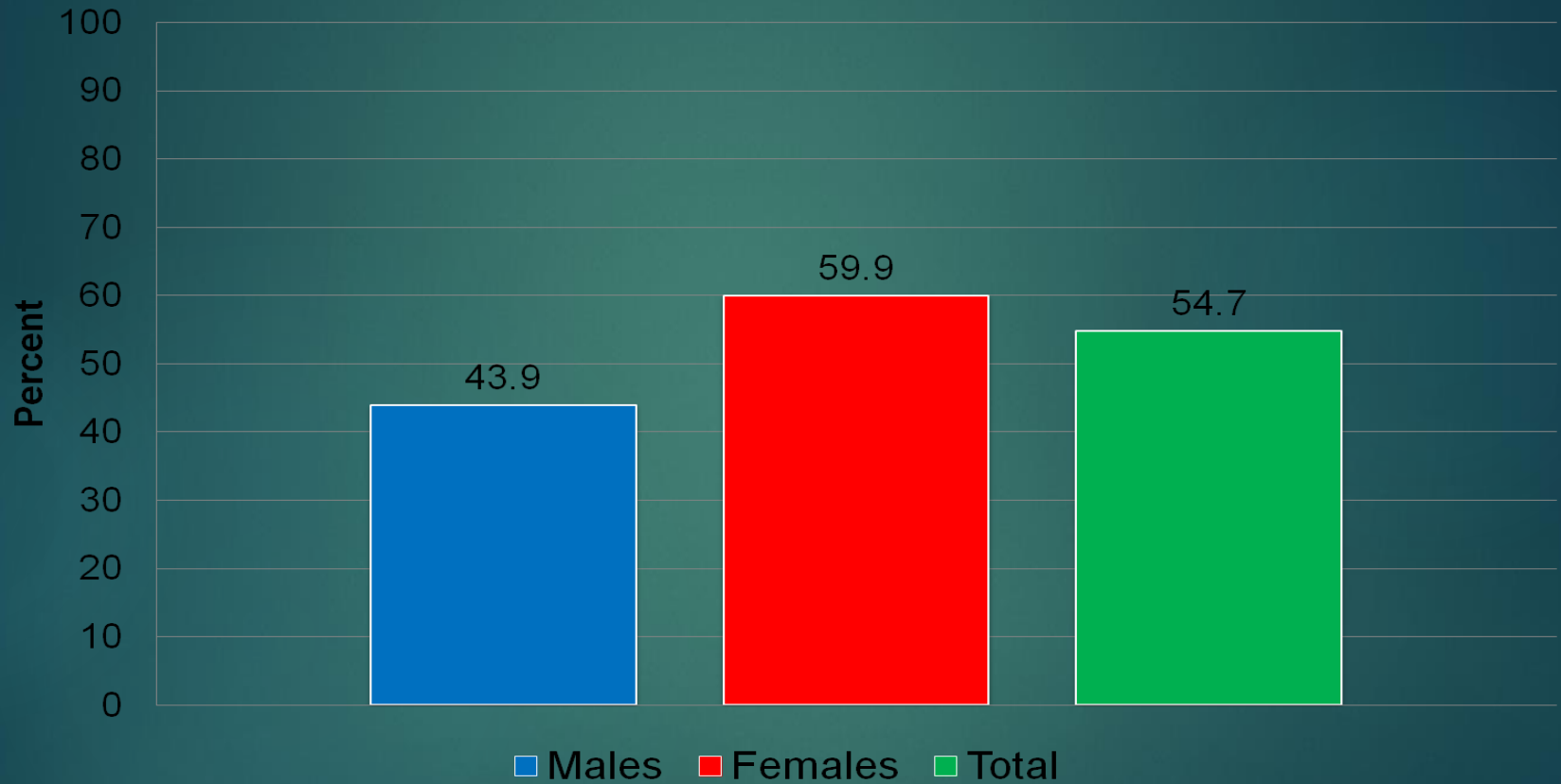
		MALES (N=98)	FEMALES (N=205)
Age	Mean (SD)	37.29 (7.77)	35.19 (8.14)
	Range	18-63	21-68
Age range	18-29	14 (14.3)	51 (25.0)
	30-34	25 (25.5)	53 (26.0)
	35-39	30 (30.6)	49 (24.0)
	40-44	11 (11.2)	27 (13.2)
	>44	18 (18.4)	24 (11.8)
Marital status	Married	20 (20.4)	42 (20.5)
	Cohabiting	6 (6.1)	10 (4.9)
	Single	63 (64.3)	127 (62.0)
	Other	9 (9.2)	26 (12.7)
Employment	Employed*	26 (26.5)	60 (29.3)*
Education	< Grade 8	19 (19.4)	34 (16.6)
	Grade 8-12	71 (73.5)	157 (76.6)
	> Grade 12	7 (7.1)	14 (6.8)
SES	≥5/8 household amenities	17 (17.3)	45 (22.1)

*Includes part-time, full-time and self-employed

ALCOHOL CONSUMPTION

	Males (N=98)	Females (N=205)	TOTAL
	N (%)	N (%)	N (%)
Lifetime alcohol use	51 (52.0)	71 (34.8)	123 (40.6)
Past month alcohol use	49 (50.0)	62 (30.2)	111 (36.6)
AUDIT scores (<i>drinkers only</i>)			
Level 1 (<8)	13 (25.5)	44 (62.0)	57 (46.7)
Level 2 (8-15)	17 (33.3)	20 (28.2)	37 (30.3)
Level 3 (16-19)	8 (15.7)	5 (7.0)	13 (10.7)
Level 4 (≥20)	13 (25.5)	2 (2.8)	15 (12.3)

**PARTICIPANTS WITH *GOOD ADHERENCE* (%): SCORE > 10 ON
CASE ADHERENCE INDEX**



RESULTS

Domain	Variable	<i>beta</i>	<i>t</i>	<i>p</i>
Demographic factors	Age	-0.01	-0.02	0.983
	Education	-0.04	-0.57	0.567
	Gender	0.08	1.39	0.166
	Employed	-0.08	-1.44	0.151
	Marital status (married)	0.05	0.98	0.329
Structural factors	SES	0.10	1.71	0.089
	Stable living situation	0.02	0.42	0.674
	Food insecurity	-0.13	-2.22	0.027
	Time to doctor (more than one hour)	-0.17	-2.99	0.003
	Difficulty picking up ART	0.07	1.17	0.242
Psycho-social factors	HIV Stigma	-0.18	-3.22	0.001
	HIV non-disclosure	-0.13	-2.42	0.016
Alcohol use	AUDIT Score	-0.28	-4.96	<.001

$R^2 = 0.275$; R^2 -change = 0.067; F-change = 24.634; $p <.001$

RESULTS

GOOD ADHERENCE TO ART WAS NEGATIVELY ASSOCIATED WITH:

- Food insecurity
- Distance from health service/clinic
- HIV stigma
- HIV non-disclosure
- Alcohol consumption (AUDIT Score)

Some reasons why PLHIV continue to drink alcohol after HIV diagnosis

Alcohol may be used to cope with psychosocial impacts (depression) after HIV diagnosis

Depression is worst for those with:

- ▶ Low social support
- ▶ Stigma
- ▶ Engage in avoidant coping
- ▶ More overt symptoms

Depression can give rise to:

- ▶ Reduced receptivity to interventions
- ▶ Lower quality of life
- ▶ Self-medication (alcohol and drug use)

Psycho-social support for people living with hiv

Interventions for helping people to adjust to HIV diagnosis, thereby minimizing alcohol consumption:

1. Reducing depression
2. Coping skills training
3. Support or self-help interventions (e.g. adherence clubs)
4. CBT Interventions, with focus on stress management and health risk behaviours (e.g. alcohol). Effective in:
 - Reducing risky sexual behaviour
 - Maintaining ART adherence
 - Reducing viral load

A Brief Alcohol Reduction Intervention for Patients on Antiretroviral Therapy for HIV in Tshwane, South Africa: A Randomized Controlled Trial

Charles DH Parry, Bronwyn Myers, Mukhethwa Londani, Paul A Shuper, Charl Janse van Rensburg, Samuel O Manda, Sebenzile Nkosi, Connie T Kekwaletswe, Judith A. Hahn, Jürgen Rehm, Katherine Sorsdahl, Neo K Morojele

This work was supported by a grant from the South African Medical Research Council Competitive Flagships Awards Project: SAMRC-RFA-IFSP-01-2013/AlcoholHIV





Goal of the Study

To assess the efficacy of a brief alcohol-focused psychological intervention delivered by non-specialists providers relative to treatment as usual (TAU), for:

- a) Reducing the average volume of alcohol consumed in the last 30 days (primary outcome)
- b) Improving ART adherence (secondary outcome)
- c) Slowing HIV disease progression (secondary outcome).

Methods

- ▶ Two-arm parallel, individual, randomized controlled trial (RCT)
- ▶ Intervention – problem solving therapy/motivational interviewing
- ▶ Outcomes measured at baseline (BL) and three- and six-months post-randomization
- ▶ Eligibility criteria:
 - ▶ On ART for HIV for at least three months
 - ▶ Not being treated for tuberculosis
 - ▶ ≥18 years old
 - ▶ Meet criteria for current (past year) harmful/hazardous drinking (AUDIT-C score ≥4 for men and ≥3 for women)
 - ▶ Not alcohol dependent (total AUDIT score <23 out of possible 40)
 - ▶ Resident in/around Tshwane Metro
 - ▶ Not enrolled in another trial
 - ▶ Do not have an extremely poor general health/functional status (Karnofsky clinical score >50)

Questionnaire

- ▶ Demographic characteristics
 - ▶ Age, gender, income, education, employment status, housing status, relationship status, sources of income, food insecurity and duration of being on ART as well as
- ▶ ART adherence
- ▶ Alcohol measures

Outcomes

Primary Outcome

- ▶ The number of standard drinks (15 ml pure alcohol) consumed over the past 30 days

Secondary Outcomes

- ▶ Alcohol outcomes:
 1. Total score on the Alcohol Use Disorders Identification Test (AUDIT)¹⁰,
 2. Total score on the 3-item AUDIT-C
 3. PEth ng/mL (50% sample only)
- ▶ Adherence outcomes:
 1. The AIDS Clinical Trials Group (ACTG) adherence questionnaire which assesses patients' current ART medications, dosing schedule, and medication doses missed over the past four days
 2. The Visual Analog Scale (VAS), which assesses general levels of adherence over a 30-day timeframe
 3. The CASE Adherence Index
 4. The Self-Rating Scale Item (SRSI)
- ▶ HIV viral load:
 - ▶ 50 copies/ml was the cut-off for detectable viral load

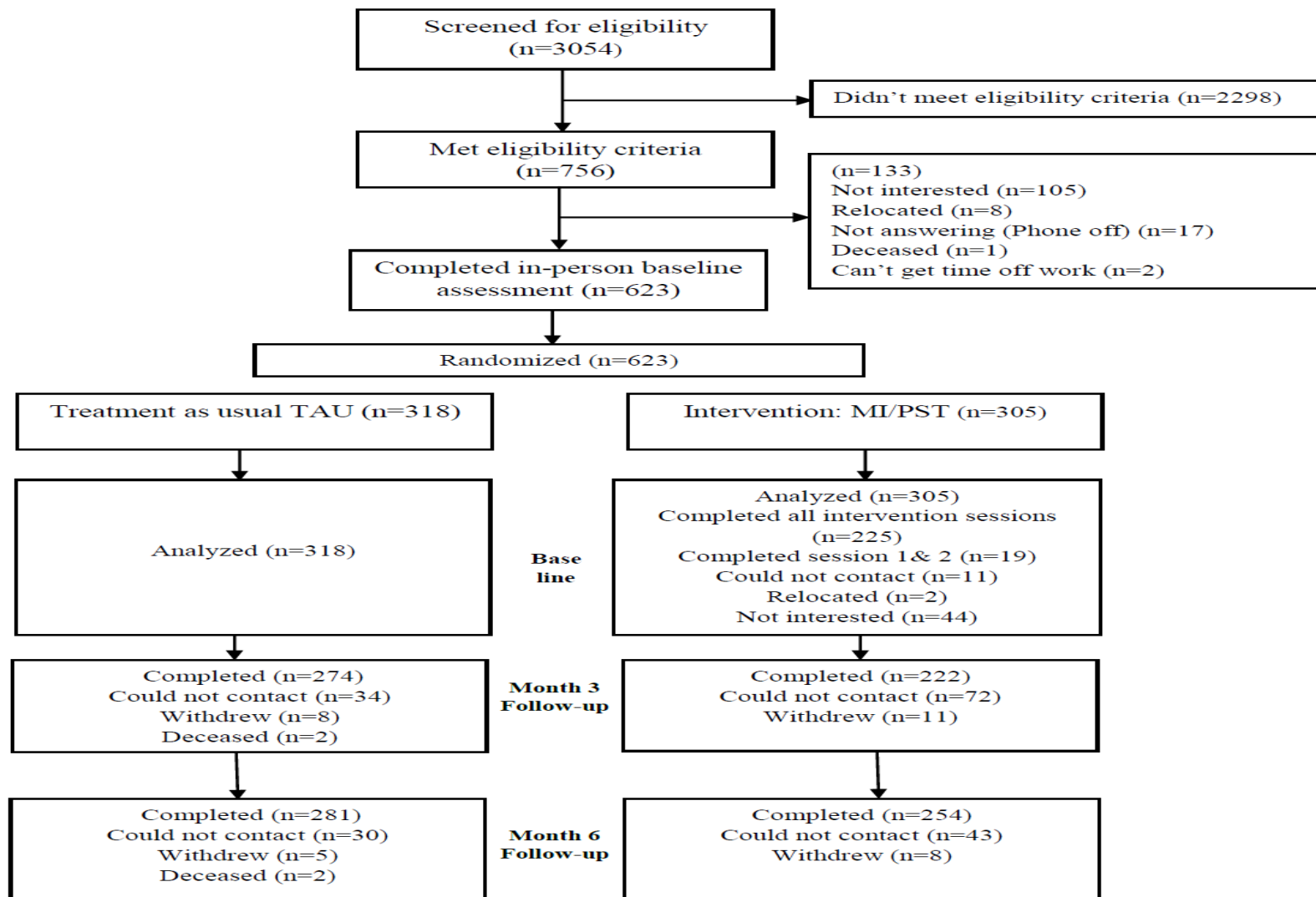


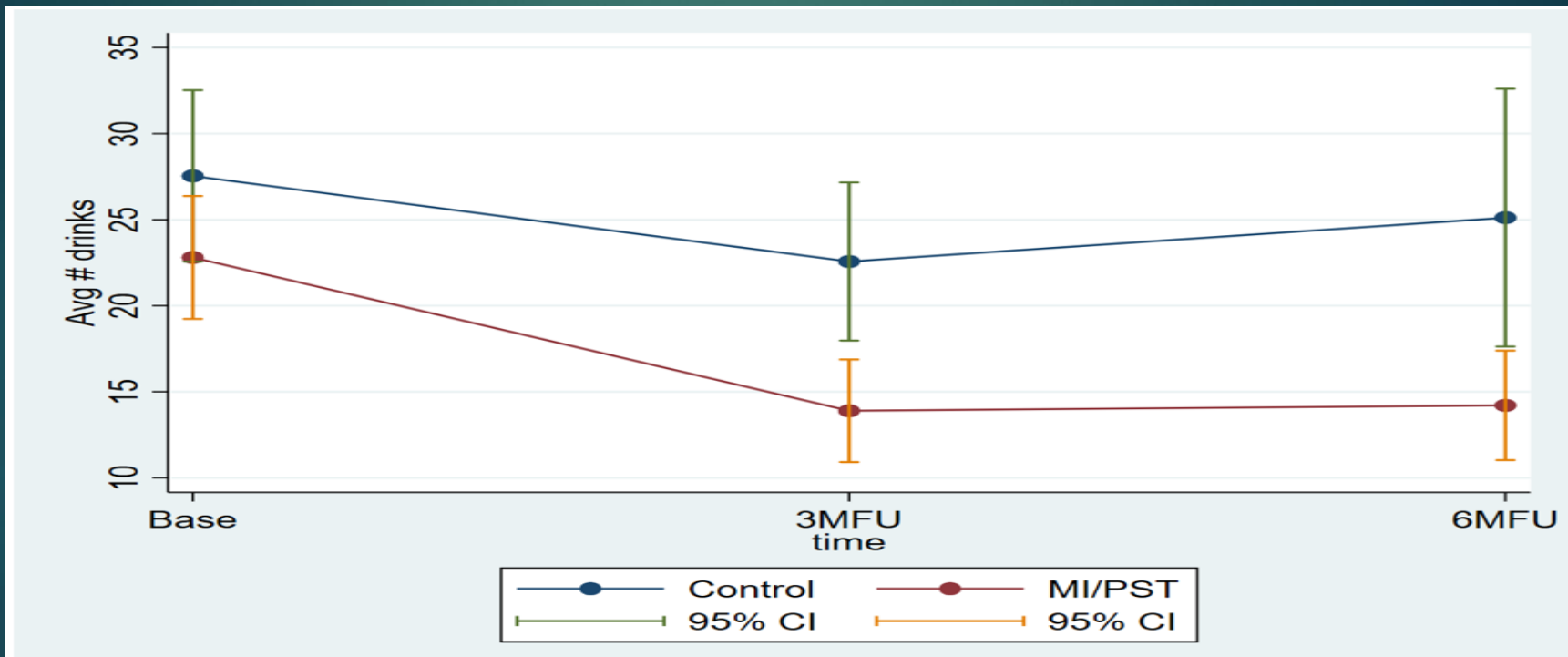
Figure 1. Consolidated Standards of Reporting Trials (CONSORT) flow diagram showing participant flow

Table 2: Sample demographic characteristics, years on ARVs, outcome variables (baseline, unadjusted)

Variable	TOTAL (n=623)	TAU (n=318)	MI/PST (n=305)	P-value
Age: M (SD)	(40.78; 9.07)	(41.82; 9.14)	(39.70; 8.89)	0.0035
Gender: n (%)				0.0170
Female	358 (57.5%)	168 (52.8%)	190 (62.3%)	
Education: n (%)				0.6762
≤Primary school	79 (12.7%)	43 (13.5%)	36 (11.8%)	
Some high school	304 (48.8%)	154 (48.4%)	150 (49.2%)	
High school or equivalent	159 (25.5%)	80 (15.2%)	79 (25.9%)	
Some post-graduate	81 (13.0%)	41 (12.9%)	40 (13.1%)	
Marital status: n (%)				0.5747
Married/living with someone	228 (36.6%)	113 (35.5%)	115 (37.7%)	
Single, divorced, separated, widowed	395 (63.4%)	205 (64.5%)	190 (62.3%)	
Employment status: n (%)				0.1314
Unemployed	264 (42.4%)	126 (39.6%)	138 (45.3%)	
Employed part-time	110 (17.7%)	58 (18.2%)	52 (17.1%)	
Employed full-time	185 (29.7%)	97 (30.5%)	88 (28.9%)	
Self-employed	64 (10.3%)	37 (11.6%)	27 (8.9%)	
Own income past 30 days: n (%)				0.3588
R0 – R400	108 (17.3%)	53 (16.7%)	55 (18.0%)	
R401 – R1600	217 (34.8%)	106 (33.3%)	111 (36.4%)	
R1600 – R6400	245 (39.3%)	131 (41.2%)	114 (37.4%)	
R6400 or more	53 (8.5%)	28 (8.8%)	25 (8.2%)	
Years on ARVs: n (%)				0.1723
0 to ≤ 4	148 (24.0%)	69 (22.0%)	79 (26.1%)	
4 to ≤ 7	175 (28.4%)	88 (28.1%)	87 (28.7%)	
7 to ≤ 9	131 (21.3%)	68 (21.7%)	63 (20.8%)	
9 or more	162 (26.3%)	88 (28.1%)	74 (24.4%)	
Number of drinks consumed on a typical drinking day past 3 months: M (SD)	25.22 (38.33)	27.54 (44.14)	22.80 (31.07)	0.1333
Number of drinks consumed on a typical drinking day past 3 months: n (%)	7.10 (2.71)	7.19 (2.75)	7.01 (2.66)	0.4046
1 or 2	31 (5.0%)	18 (5.7%)	13 (4.3%)	
3 or 4	75 (12.0%)	37 (11.6%)	38 (12.5%)	
5 or 6	243 (39.0%)	117 (36.8%)	126 (41.3%)	
7 to 9	168 (27.0%)	89 (28.0%)	79 (25.9%)	
10 or more	106 (17.0%)	57 (17.9%)	49 (16.1%)	
Weekly or daily (almost daily) drinking of 5 or more drinks per occasion: n (%)	61 (10.3%)	33 (10.9%)	28 (9.6%)	
AUDIT total score: M (SD)	8.86 (4.74)	8.95 (4.67)	8.77 (4.82)	0.6505
PEth scores (for 50% of participants)				0.0633
Peth ≥ 50 mg/ml: n (%)	142 (46.0%)	64 (39.5%)	78 (53.1%)	
Peth < 50 mg/ml: n (%)	167 (54.1%)	98 (60.5%)	69 (46.9%)	
Viral load: n (% <50 copies/ml)	448 (76.6%)	233 (78.5%)	215 (74.7%)	0.2789
Adherence measures				
Visual Analogue Scale – Overall: M (SD)	(92.41; 13.49)	(92.14; 14.11)	(92.70; 12.82)	0.6068
Total Adherence Ratio (ACTG): M (SD)	(0.95; 0.15)	(0.95; 0.15)	(0.95; 0.14)	0.8102
CASE Adherence Index: M (SD)	(13.18; 2.93)	(13.22; 2.94)	(13.14; 2.93)	0.7451
Self Rating Scale Item (SRSI): M (SD)	(4.07; 1.05)	(4.08; 1.01)	(4.06; 1.09)	0.8756

Note. TAU = treatment as usual; MI = motivational interviewing; PT = problem solving therapy; ART = antiretroviral therapy; AUDIT = Alcohol Use Disorders Identification Test

Primary outcome at baseline, 3- and 6-month follow up: Average number of drinks/month



Secondary outcomes at baseline, 3- and 6-month follow-up: AUDIT and AUDIT-C scores

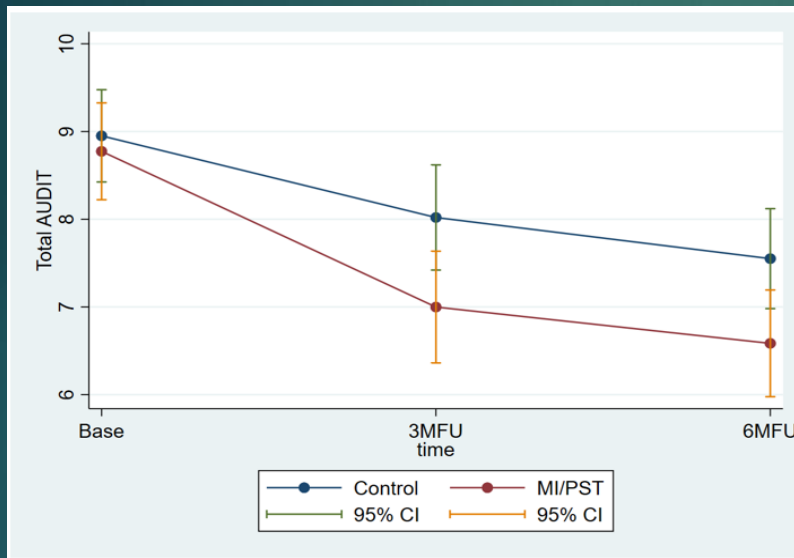


Figure 2b. Total AUDIT scores

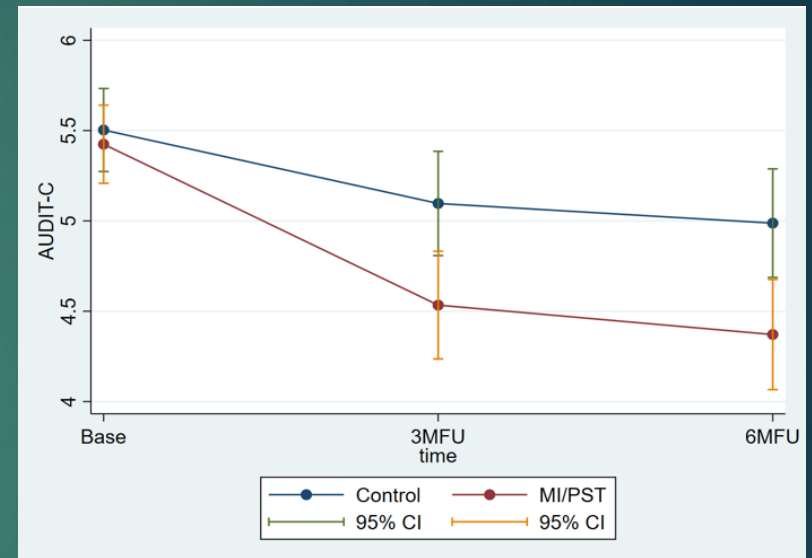


Figure 2i. Average AUDIT-C

Secondary outcome at baseline, 3- and 6-month follow-up: PEth Scores

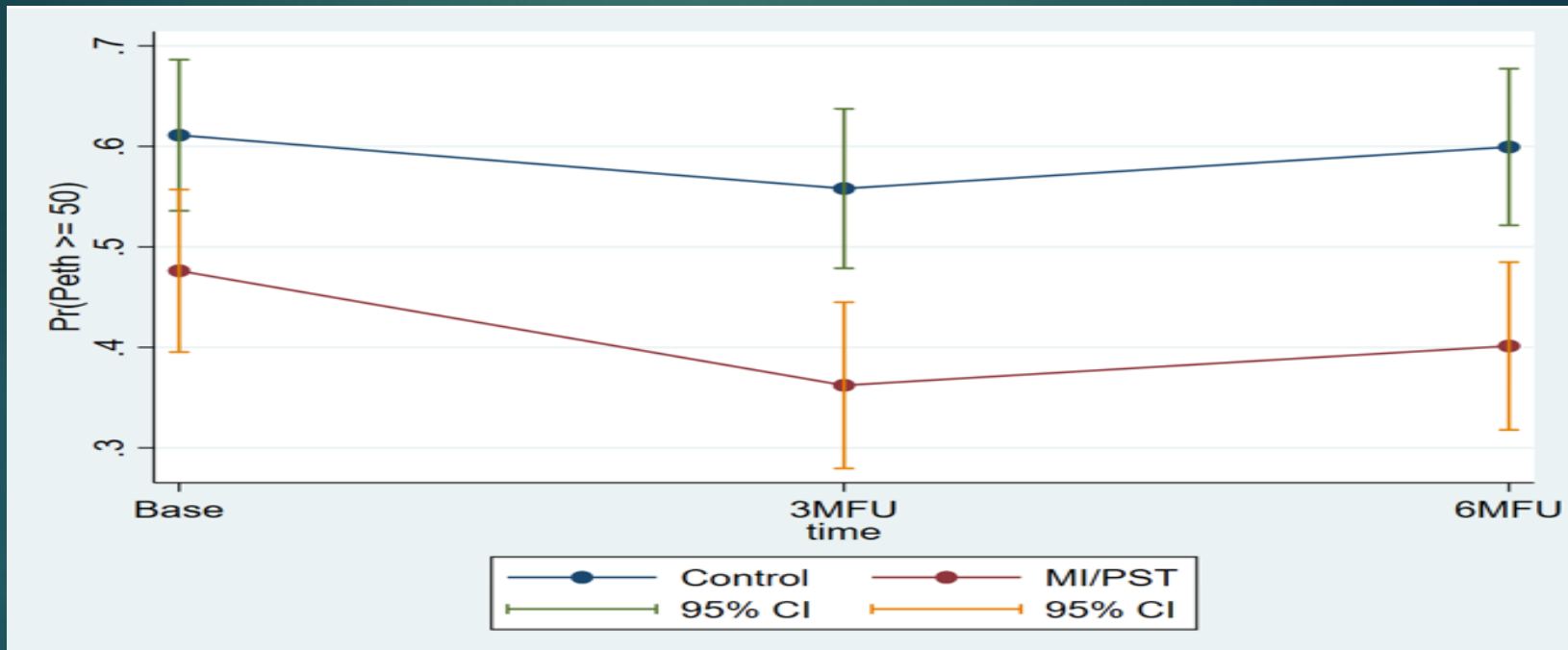


Figure 2c. Proportion PETH ≥ 50

Discussion

- ▶ The brief alcohol-focused intervention significantly:
 - ▶ Reduced average number of drinks consumed per month at the 6MFU by over a third in comparison with TAU
 - ▶ Reduced total AUDIT scores in the intervention arm at both 3MFU and 6MFU
 - ▶ Reduced total AUDIT-C scores in the intervention arm at both 3MFU and 6MFU
 - ▶ Increased ART adherence as measured by the SRSI measure at the 3MFU
- ▶ There were no intervention effects in terms of improvements in:
 - ▶ ART adherence (3 measures)
 - ▶ HIV viral suppression
 - ▶ PEth scores

Limitations

- ▶ Majority of participants were virally suppressed at baseline
- ▶ The statistical evaluation of the alcohol biomarker was underpowered
- ▶ Possible low generalisability to other regions
- ▶ Six-month follow-up period

Conclusion

- ▶ A low cost, easy to administer, evidence-based brief intervention can have a significant and clinically meaningful impact on drinking volumes among PLHIV on ART
- ▶ Implementing this intervention across a range of resource-constrained, HIV treatment settings could markedly reduce the elevated rates of alcohol consumption among PLHIV on a broad scale

Final Conclusion/ Recommendations

- ▶ Alcohol and depression can have a major impact on HIV
- ▶ Screening for alcohol and depression, using validated screening tools, should be conducted on a routine basis
- ▶ Interventions focusing on reduction of alcohol AND depression AND ART adherence are recommended

THANK YOU