Alcohol use and antiretroviral treatment in rural Central Uganda

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Introduction

- Uganda faces a generalized HIV epidemic[1]
  - 5.8% national prevalence
- Universal Test and Treat (UTT) took effect in 2017[2]
  - Achieved 90-90-90 goals nationally[3]
  - Sub-national gaps continue
- UNAIDS suggests addressing underlying factors fueling the epidemic, such as alcohol use[4]
- Although most people don't drink in Uganda, alcohol use per capita is among the highest in the world[5]
- Alcohol use is associated with reduced access to the HIV care cascade:[6-8]
  - Initiating care & ART uptake
  - ART adherence
  - Viral suppression
- This study assessed the relationships between levels of alcohol use and the HIV care cascade in the UTT era among people living with HIV in rural Central Uganda

Fig 1: Map and location of study

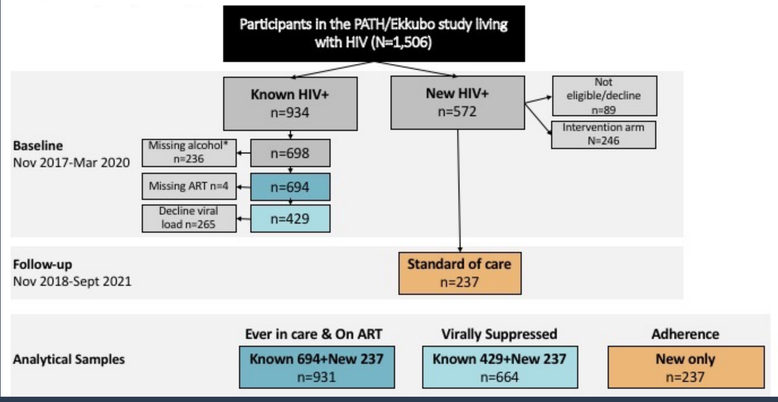
Methodology

- Cross-sectional study among people living with HIV in the PATH/Ekkubo study (November 2017-Sept 2021) (**Figure 1**)
- Alcohol use assessed with AUDIT-C:
  - None (AUDIT-C 0)
  - Low (AUDIT-C 1-3 men/1-2 women)
  - Medium (AUDIT-C 4-5 men/3-5 women)
  - High (AUDIT-C 6-7)
  - Very High (AUDIT-C 8-12)

Outcomes
- Ever in HIV care or treatment
- On ART at time of interview
- Undetectable viral load
- 90% ART adherence in past 4 days

- Modified Poisson regression with robust error variances
- Adjusted predicted prevalence by alcohol level

Figure 1: PATH/Ekkubo flow chart and analytical samples



Results

- Participant characteristics: 75% had been previously diagnosed at baseline, 51% were 35 years of age or older, 74% were women, 54% did not drink, 24% drank at low levels, 13% medium, 4% high, and 4% drank at very high levels
- Compared to no alcohol use, medium, high, and very high use were associated with decreased likelihood of ever being in care and on ART and linear trends were significant (Table 1)
- Only very high alcohol use was associated with being virally suppressed
- Alcohol use was not associated with being on ART among those ever in care nor associated with viral load suppression among those on ART
- In a subsample, low levels of alcohol use were associated with ART adherence

Table 1. Associations between level of alcohol use and three measures of the HIV care cascade

	Multivariable Poisson model		
	RR [95% CI]	**p-value**	**Test for linear trend**
Ever received HIV care or treatment (n=931)			
None	Referent		<0.004
Low	0.98 [0.94-1.03]	0.446	
Medium	0.90 [0.84-0.97]	0.008	
High	0.90 [0.81-0.99]	0.048	
Very High	0.80 [0.67-0.95]	0.013	
On ART (n=931)			
None	Referent		<0.0001
Low	0.98 [0.92-1.04]	0.439	
Medium	0.90 [0.82-0.97]	0.010	
High	0.85 [0.71-0.96]	0.015	
Very High	0.72 [0.58-0.91]	0.006	
Virally Suppressed (n=664)			
None	Referent		<0.098
Low	0.93 [0.79-1.08]	0.362	
Medium	0.86 [0.71-1.04]	0.124	
High	1.03 [0.83-1.28]	0.774	
Very High	0.66 [0.44-1.00]	0.050	

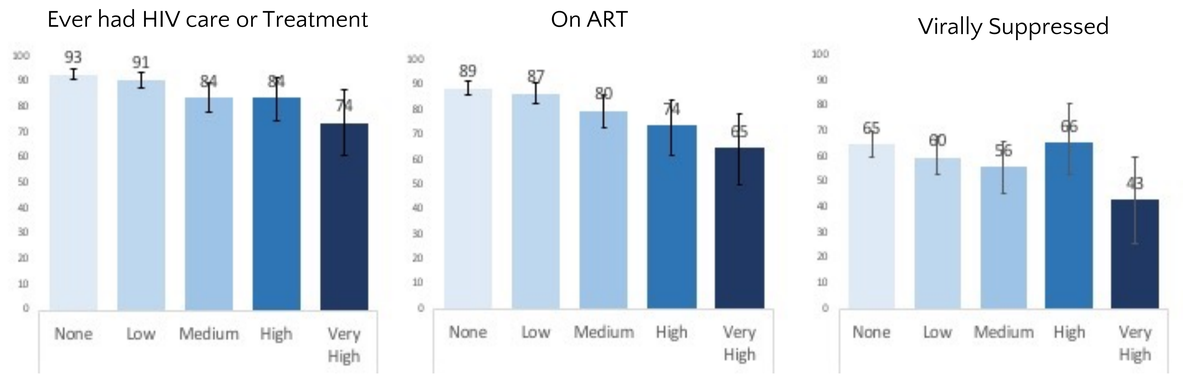
Models were adjusted for age, gender, marital status, education, religion, wealth index, depression risk.

Table 2. Associations between levels of alcohol use and HIV care cascade measures among those eligible

	Multivariable Poisson model		
	RR [95% CI]	**p-value**	**Test for linear trend**
On ART, among those ever in HIV care (n=839)			
None	Referent		<0.08
Low	0.99 [0.96-1.03]	0.678	
Medium	0.98 [0.93-1.03]	0.501	
High	0.91 [0.81-1.03]	0.135	
Very High	0.91 [0.79-1.04]	0.195	
Virally Suppressed, among those on treatment (n=577)			
None	Referent		<0.325
Low	0.91 [0.79-1.04]	0.175	
Medium	0.96 [0.81-1.13]	0.639	
High	1.14 [0.95-1.37]	0.168	
Very High	0.73 [0.49-1.08]	0.114	

Models were adjusted for age, gender, marital status, education, religion, wealth index, depression risk.

Figure 2: Predicted prevalence of ever in HIV care, on ART, and virally suppressed by level of alcohol use



Conclusion

- Medium to very high levels of alcohol use were associated with reduced likelihoods of achieving HIV care cascade goals
  - Low levels of alcohol use were not associated
- Interventions to increase access to HIV care and ART are needed among people living with HIV who consume more than low levels of alcohol use

Limitations

- Alcohol use, HIV care and ART receipt measures were self-reported
- Non-standard drink sizes
- Time point mismatch
- Viral load sample included those who agreed to have viral load monitored
- Confounding
  - Delayed reward discounting

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