



# Binge drinking decreases weekend adherence in a RCT from low and middle income countries

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# Adherence

- cART effectiveness relies on adherence
- Different patterns of adherence (not only averages)
  - Consecutive interruptions may have a greater impact on HIV-RNA than the same number of sporadically missed doses
  - Adherence was consistently lower during weekends compared to weekdays
    - Longitudinal study (US, n=116, FU=12m)
  - Method is a limitation
    - Self-reports may not be accurate to detect subtle differences
    - MEMS costs may restrict duration of its use/use in resource limited settings



# Alcohol

- Alcohol use is associated with non-adherence
- Associated with weekend cART gaps
  - exploratory cross-sectional study
- Binge drinking
  - easy to screen, highly prevalent
  - associated with unprotected sex and alcohol dependence

5 or more drinks in a  
single occasion (men)/  
4 or more (women)



# Objectives

- To evaluate
  1. if there is a difference in weekday vs. weekend adherence
  2. the predictors of this difference



# Method

- Secondary analysis of the ACTG 5234 clinical trial
  - Directly observed therapy (mDOT) increase adherence in LMIC
    - Brazil, Botswana, Haiti, Peru, South Africa, Uganda, Zambia, and Zimbabwe
  - 257 HIV-infected switching to a second regimen (emtricitabine /tenofovir 200/300 mg once daily and lopinavir /ritonavir 400/100 mg twice a day)
  - No statistical/clinical differences on virological failure were found between treatment arms



# Study Population

- 255 who have adherence measured through MEMS were included in the present analysis



# Measures and Definitions

- Adherence
  - MEMS (MWV Healthcare) on the bottle
  - MEMS data was summarized
    - % of prescribed doses taken on weekends
    - % of prescribed doses taken on weekdays
      - For each participant, in 4 successive 12-week period (quarters)
- Outcome = differences of % doses taken on weekdays and % doses taken on weekends

Weekend= Friday,  
Saturday and Sunday



# Independent variables

- Measured at baseline
  - Binge drinking 30 days prior study entry
  - Demographics
    - Sex, age, site location
  - Treatment arm
  - Clinical characteristics
    - years on cART before entry, CD4 count (cells/mm<sup>3</sup>), viral load (log<sub>10</sub> copies/ml)
  - Substance use 30 days prior study entry
  - Self-perception of health





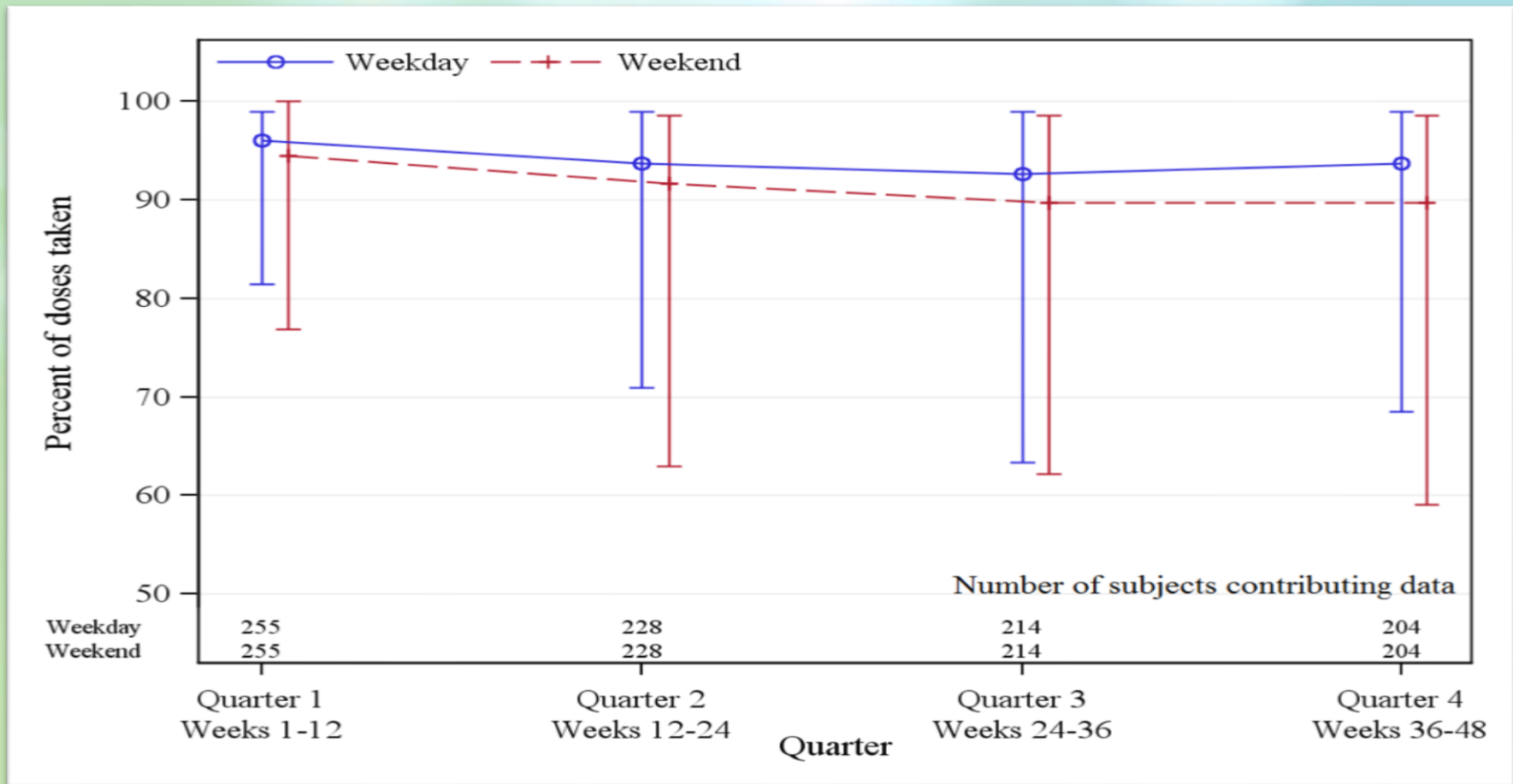
# Statistical Analysis

- Differences between % of doses taken on weekdays and weekends in each quarter
  - Wilcoxon signed rank tests
- Predictors of the differences between % of doses taken on weekdays and weekends
  - Generalized Estimating Equations (GEE) to account for the repeated measures
- SAS 9.2 was used to analyze data



# RESULTS

Median (Q1-Q3): % doses taken on weekdays and weekends within quarters





# Binge drinking

Overall prevalence= 22.3%

		(N=57)	(N=198)	P-Value
<b>Sex</b>	Male	43 (75.4%)	84 (42.4%)	<.001 (a)
<b>Age</b>	Mean (s.d.)	37.54 (8.35)	38.95 (10.44)	0.29 (b)
<b>Site in Haiti</b>	Yes	18 (31.6%)	55 (27.8%)	0.58 (a)
<b>Treatment arm</b>	mDOT	31 (54.4%)	96 (48.5%)	0.43 (a)
<b>Years on ART before entry</b>	Median (Q1, Q3)	2.97 (1.89, 4.56)	3.17 (2.04, 5.08)	0.22 (c)
<b>CD4 Count (cells/mm<sup>3</sup>)</b>	Median (Q1, Q3)	213.50 (112.50, 320.00)	169.5 (89.5, 263.0)	0.16(c)
<b>Viral load (log<sub>10</sub> copies/ml)</b>	Median (Q1, Q3)	4.23 (3.76, 4.84)	4.29 (3.79, 4.92)	0.53 (c)
<b>Any substance use last 30 days</b>	Yes	6 (10.5%)	1 (0.5%)	<.001 (d)
<b>Self-perception of health</b>	Excellent, very good, good	48 (84.2%)	145 (73.2%)	0.09 (a)

(a) Chi-Square Test (b) T-Test with Unequal Variance (c) Wilcoxon Test (d) Fisher's Exact Test

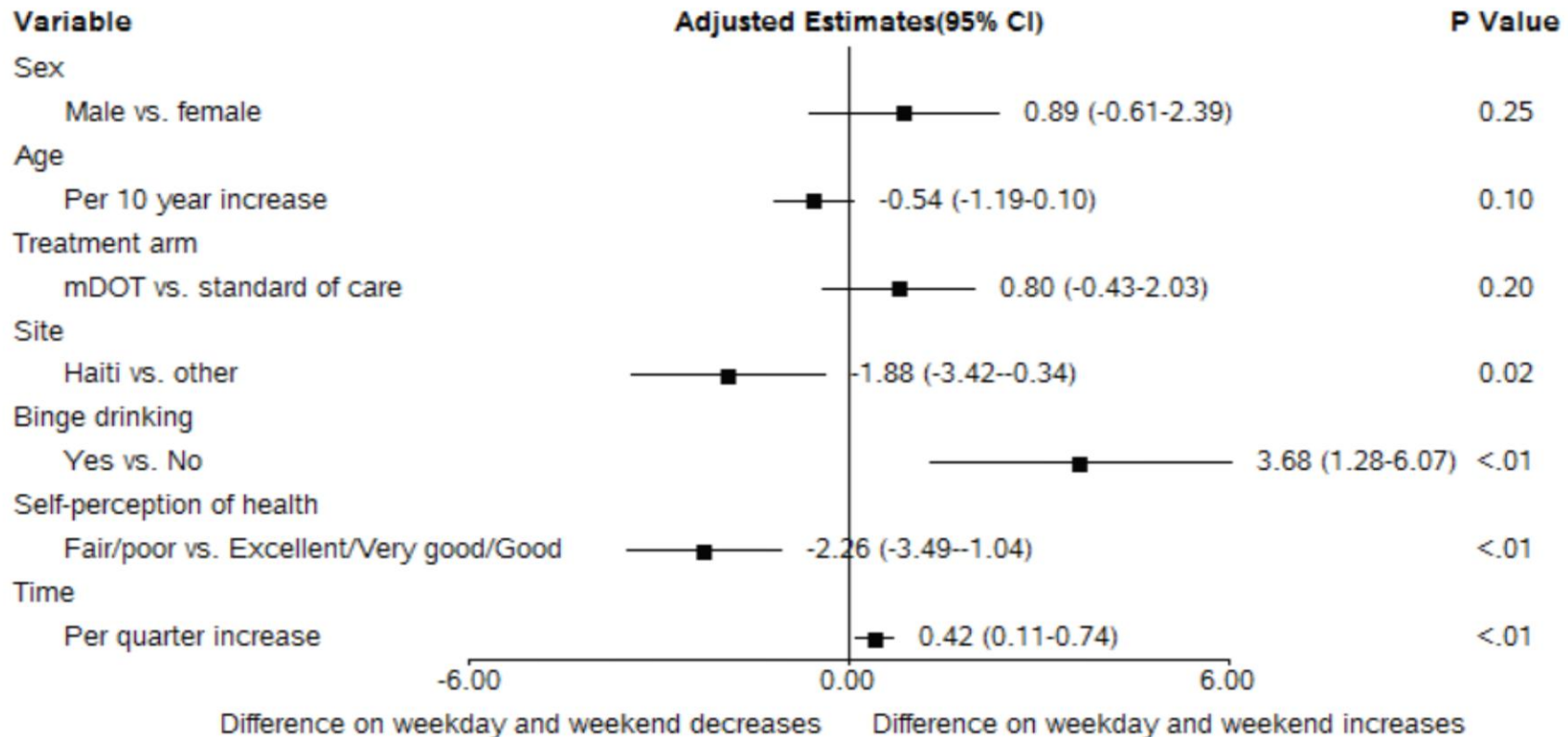


# Univariate analysis

- Variables with statistically significant association with difference in the percent of doses taken during weekdays and weekends:
  - being male
  - binge drinking in the past 30 days
  - self-perception of health
  - later quarter on study



# Adjusted Estimates for predictors of difference on %doses taken on weekdays and weekends using GEE



*Factors with  $p < 0.1$  in the univariate analysis were evaluated in the multivariable models and most parsimonious model was selected. Sex, age and treatment arm were included a priori.*



# Conclusions

- Adherence to cART
  - Worse on weekends compared to weekdays in LMIC sample
  - Difference increased over time
  - Important pattern to consider in the new interventions
- Binge drinking
  - Modifiable determinant of drop-offs in weekend adherence
  - Should be screened among HIV infected individuals



# Acknowledgments

- Study participants
- AIDS Clinical Trials Group (ACTG)
- ACTG sites, study team members, and site personnel
- AbbVie Inc. and Gilead Pharmaceuticals, which provided the medications for the A5234 trial



# Thank you!

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