

# Understanding Factors Associated with Polypharmacy and Differential Medication Adherence in People with HIV

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Grant Acknowledgment: Funding for this study was provided by Gilead Sciences, Inc: CO-US-311-4269

## BACKGROUND

For people with HIV (PWH), number of chronic medications (meds) used to treat comorbidities may impact:

- Quality of life (QoL)
- Perceptions about illness/medications
- Barriers to medication adherence
- Experiences of side effects
- Adherence (overall, ARV-specific, non-ARV)
- Clinical outcomes

Factors associated with adherence to antiretrovirals (ARVs) may differ from adherence to other chronic meds.

## OBJECTIVE

This study aims to:

1. assess differences in medication-related factors and clinical outcomes between PLH who take 4 or fewer chronic medications and those who take 5 or more
2. understand potential factors affecting adherence among those with more than one chronic medication, including:
  - a) overall adherence; b) ARV adherence; c) non-ARV adherence.

## METHODS

174 participants were enrolled from an HIV program in a large NY health system.

### Inclusion criteria:

- Age > 18 years
- English speaking
- Prescribed ARVs
- Having > 1 comorbidity requiring a chronic med (non-ARV)

### Measures included validated scales of:

- Quality of life (WHOQoL-BREF)
- Beliefs about medications (BMQ)
- HIV symptoms (HIVSIQ)
- Number of adherence barriers: (e.g., forgot, too many pills, avoiding side effects); (ACTG)
- Past 6-month emergency department (ED) use and hospitalization
- Medication adherence (using ACTG adherence measures for ARVs, and non-ARVs)

## STATISTICAL ANALYSIS

- Generalized linear models, ANOVA, and Wilcoxon sum rank tests assessed associations between number of chronic meds (< 4 vs > 5) and outcomes.
- Multivariable logistic regression models using backwards elimination were used to assess factors associated with adherence (overall, HIV-meds, and non-HIV meds).

## RESULTS

Complete data from 160 pts were analyzed.

- 50% male
- 84% US-born
- 46% taking ≥ 5 chronic meds

**Table 1:**  
Differences between PLH by Number of Chronic Medications<sup>a</sup>

	≤4 Chronic Medications (n=87)	≥ 5 Chronic Medications (n=73)
<b>Gender (%)<sup>b</sup></b>	Male: 58% Female: 40%	Male: 58% Female: 43%
<b>Age (mean, SD)</b>	52.30, 14.47	59.68, 12.56
<b>US Born<sup>b</sup></b>	No: 22% Yes: 78%	No: 8% Yes: 90%
<b>Education</b>	Any post high school: 61%	Any post high school: 67%
<b>Marital status (%)</b>	Has partner: 35%	Has partner: 30%
<b>Employment (%)</b>	Employed: 52%	Employed: 32%
<b>Quality of life (mean, SD)<sup>c</sup></b>	100.30, 14.84	95.07, 17.42
<b>Medication side effects (mean, SD)<sup>c</sup></b>	36.13, 15.32	41.11, 17.07
<b>Beliefs about medications (mean, SD)</b>	56.54, 8.86	55.81, 10.27
<b>Barriers to medication adherence (mean, SD)</b>	5.85, 7.83	5.90, .29
<b>ED visits- past 6 mos. (mean, SD)<sup>c</sup></b>	.26, .57	.77, 1.41
<b>Hospitalizations (past 6 mos.)</b>	None: 79% ≥ 1: 21%	None: 88% ≥ 1: 12%

<sup>a</sup> Significance testing only conducted for outcomes of interest (i.e., QoL, Med side effects, Beliefs about meds, Barriers to adherence, ED visits and hospitalizations)

<sup>b</sup> percentages may not add up to 100 due to missing values

<sup>c</sup> significant at p<.05

### Objective 1: Participants taking ≥ 5 meds had (Table 1):

- significantly lower QoL (mean difference=5.23, 95%CI=0.19-10.27, p<.05)
- significantly higher med side effects (mean ranks=88.51 vs 73.77, p<.05)
- 3-fold greater ED visits (mean estimate=2.99, 95%CI= 1.52- 5.89, p<.05)

**Objective 2:** Regression models indicated that **number of adherence barriers** (but not other predictors) was consistently associated with lower adherence after controlling for demographics (p<.05):

- **Overall adherence** OR=0.85, 95%CI=0.79-0.91)
- **HIV med adherence** (OR=0.88, 95% CI=0.81-0.94)
- **Non-HIV med adherence** (OR=0.86, 95%CI=0.80-0.92)

## CONCLUSION

Adverse events (i.e., ED use, poor QoL, med side effects) are associated with number of chronic meds.

Number of adherence barriers is associated with poor adherence across med type, highlighting the importance of interventions to address polypharmacy and the complexities of managing HIV and comorbidities.

Assessment of barriers can contribute to the promotion of adherence for both HIV and non-HIV meds.



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