

# Reported Church Attendance at the Time of Entry into HIV Care is Associated with Viral Load Suppression at 12 Months

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## Introduction

- The Southeastern United States (U.S.) is disproportionately affected by the HIV epidemic, having nearly half of all new infections and the nation's lowest 3-year HIV survival rates.<sup>1,2</sup>
- The Southern U.S is also the nation's most intensely religious region.<sup>3</sup>
- Spirituality and religion are thought to play potentially conflicting roles in health and health-seeking behaviors for persons living with HIV.<sup>4</sup>
- We previously showed that men who have sex with men (MSM) reporting church attendance from a cohort in the Southeastern U.S were more likely to present to care with advanced HIV infection.<sup>5</sup>
- We now evaluated the relationship between reported church attendance at time of entry into HIV care and control of HIV viremia at 12 months after initiation of HIV care among persons attending an HIV Clinic in the Southeastern U.S.

## Results

### Population Characteristics:

- 382 patients entered HIV care for the first time and had a HIV viral load available 12 months ± 90 days from entry into care
  - Mean age was 33 (26-44), 60% African American, 84% Male, 74% had undetectable viral loads at 12 months, 57% reported church attendance

### Factors Associated with Viral Load Suppression:

- Church attendance, initiation of ART, more education, and CD4 counts 200-350

### Factors Associated with Sustained HIV Viremia:

- Black race, living with family, and disclosure to only 1 group (i.e. selective disclosure)
  - 5-Level Analysis: Disclosure to family only and friends only

## Methods

### Study Design:

- 12-month longitudinal analysis of retrospective data

### Population:

- A cohort of HIV-infected patients at a university-based HIV clinic
  - Entering care from 2007 – 2012
  - > 19 years old
  - Viral Load at 12 months ± 90 days from initiation into care

### Outcomes:

- Sustained HIV viremia (viral load ≥ 200 copies/ml) 12 months ± 90 days from time of initial entry into HIV care

### Independent Variables:

- Church Attendance, age, gender, sexual orientation (defined by behavior), CD4 + T lymphocyte count (CD4 count), education, insurance status, living arrangement, initiation of ART, consistent care (no gap in care > 180 days) and disclosure status
  - Disclosure Status: nondisclosure (disclosure to no one), selective disclosure (disclosure to 1 group: family only, friends only, significant other only), disclosure to more than one group<sup>6</sup>

### Data Analysis:

- Pearson's  $\chi^2$  and Wilcoxon rank sum tests were performed.
- Univariate and multivariable modeling to identify predictors of poor retention in care and viremia (results shown as adjusted odds ratios).

## Discussion

- For patients newly establishing care, church attendance is associated with successful viral load suppression.
- Analyses, also showed an association between patterns of disclosure of HIV status to others and sustained viremia at 12 months.
  - Potentially reflecting increased distress after disclosure leading to less social support.
- Limitations: Church attendance not a perfect measure of religion and spirituality.

**Table 1.** Population Characteristics (N = 382) by Viremic Status with Multivariable Logistic Regression Analyses

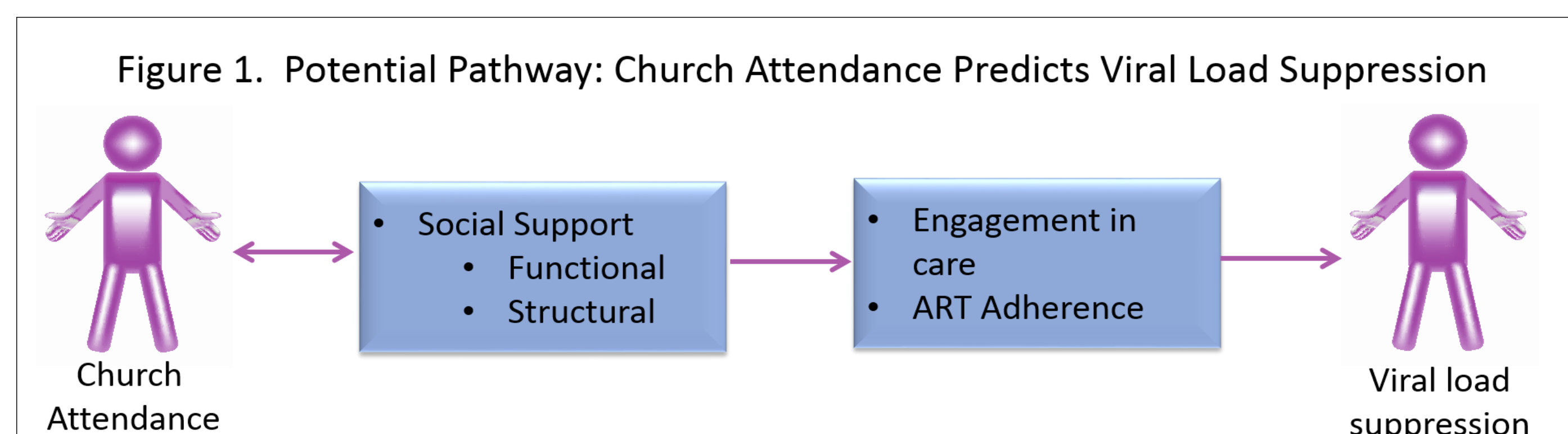
Characteristics		Total = 382 N (%)	Sustained Viremia (VL >200) N (%)	Undetectable (VL < 200) N (%)	aOR [95%CI]
Race	White	144 (38)	26 (18)	118 (82)	ref
	Black	231 (60)	71 (31)	160 (69)	<b>3.2 (1.4, 7.4)*</b>
	Other	7 (2)	1 (14)	6 (86)	2.0 (0.2, 25.0)
Gender /Sexual Behavior	MSM	249 (65)	62 (25)	187 (75)	ref
	MSW	72 (19)	15 (21)	57 (79)	0.5 (0.2, 1.3)
	WSM	61 (16)	21 (34)	40 (66)	0.7 (0.3, 1.9)
Church Attendance	No	166 (43)	49 (30)	117 (70)	ref
	Yes	216 (57)	49 (23)	167 (77)	<b>0.5 (0.2, 0.9)**</b>
Education <sup>a</sup>	Diploma/GED or less	147 (40)	44 (30)	103 (70)	ref
	Some college or more	225 (60)	53 (24)	172 (76)	<b>0.5 (0.2, 0.9)**</b>
Disclosure <sup>b</sup> Status	More than 1 Group	143 (39)	33 (23)	110 (77)	ref
	1 Group	184 (50)	54 (29)	130 (71)	<b>2.7 (1.2, 5.6)**</b>
	No one	41 (11)	9 (22)	32 (78)	1.3 (0.4, 4.0)
CD4 count <sup>c</sup>	> 350	163 (43)	63 (39)	100 (61)	ref
	200-350	82 (22)	7 (9)	75 (91)	<b>0.3 (0.1, 0.9)**</b>
	<200	131 (35)	27 (21)	104 (79)	1.1 (0.5, 2.4)
Initiation of ART	No	51 (13)	44 (86)	7 (14)	ref
	Yes	331 (87)	54 (16)	277 (84)	<b>0.01 (0.004, 0.04)*</b>
Consistent Care (no gap > 180 days)	No	74 (19)	26 (35)	48 (65)	ref
	Yes	308 (81)	72 (23)	236 (77)	0.6 (0.3, 1.3)
Insurance Status	Private	155 (41)	34 (22)	121 (78)	ref
	None/Public	227 (59)	64 (28)	163 (72)	1.2 (0.6, 2.4)
Living Arrangement <sup>a</sup>	Alone	90(24)	20 (22)	70 (78)	ref
	Family	132 (35)	40 (30)	92 (70)	<b>2.7 (1.0, 6.9)**</b>
	Partner/Spouse/SO	100 (27)	20 (20)	80 (80)	1.2 (0.4, 3.3)
	Friends/Other	50 (13)	16 (32)	34 (68)	2.2 (0.7, 7.0)

a. Frequency missing = 10 \* p-value < 0.01  
b. Frequency missing = 14 \*\* p-value < 0.05  
c. Frequency missing = 6

**Table 2.** Factors Associated with Viremia 12 months from Initiation into Care (5-Level Disclosure Variable)<sup>a</sup>

Disclosure	Viremia AOR (95% CI) N = 382
More than one group	ref
Family only	<b>3.0 (1.2, 7.7)**</b>
Spouse/Partner/Significant other only	1.9 (0.5, 7.5)
Friends only	<b>2.6 (1.1, 6.7)**</b>
No one	1.4 (0.5, 4.2)

a. Multivariable logistic regression model included all independent variables listed in Table 1. However, instead of using the 3-level disclosure variable, a five level variable was created. AOR's and significance were similar to those observed with the 3-level disclosure model. Referents were the same as those shown in Table 1.  
\* p-value < 0.01  
\*\* p-value < 0.05



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