

Lack of Understanding of Undetectable Equals Untransmittable (U=U) Is High Among People Living With HIV in the United States

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Background

- Clinical evidence has established that people living with HIV (PLHIV) who maintain undetectable HIV viral load (VL) cannot transmit the virus to sexual partners
- Undetectable equals Untransmittable (U=U) is aligned with "treatment as a prevention" in HIV prevention policies
- A 2023 WHO policy brief confirming zero risk of HIV sexual transmission associated with U=U¹ offers an opportunity to influence U=U uptake
- PLHIV understanding of U=U is critical to destigmatize HIV diagnoses and encourage ART adherence. However, knowledge gaps and misconceptions remain prevalent,² highlighting the need to urgently address this gap³

Objectives

- To assess PLHIV understanding of U=U and identify factors associated with lack of understanding of U=U among PLHIV

Methods and Analysis

- A cross-sectional, online, self-reported survey was fielded to PLHIV in the United States (US) from February 21, 2022, to June 2, 2022
- Participants were recruited via Profiles Panel members; natural fallout (no quotas put in place) followed by boost sample at end of March 2022, where only participants who were <25 years or 65+ years of age were permitted to complete the study survey. Study participants were ≥18 years of age, had tested positive for HIV, and were currently taking ART (for at least 6 months)
- Sociodemographic, clinical, and HIV-related factors were explored
- Lack of understanding of U=U was defined based on the question, "What does the phrase undetectable mean to you related to HIV?" Participants selecting at least one of "I cannot transmit the virus sexually" and "I can't pass HIV on to others" with or without also selecting "I am virally suppressed" and without selecting any other responses were considered to understand U=U. Any other selection was defined as lack of understanding of U=U
- Descriptive and bivariate analyses were conducted to describe variables in relation to the understanding of U=U and to examine factors associated with the lack of understanding of U=U, using independent samples t tests for continuous variables and chi-square tests for categorical variables
- Multivariable logistic regression was fit to identify factors associated with lack of understanding of U=U, while adjusting for covariates. Multicollinearity was assessed

Results

Characteristics of the study participants (Table 1)

- Analyses included 781 PLHIV: mean age 43.7 years; 56.2% cisgender male; 51.5% non-Hispanic White; 24.5% non-Hispanic Black or African American
- Most (85.5%) had undetectable VL; 55.3% have been living with HIV ≥5 years

Table 1. Factors associated with lack of understanding of U=U among PLHIV

Covariates	Total N=781	Lack of understanding of U=U		P value
		No N=355, 45.5%	Yes N=426, 54.5%	
Age, n (%)				<0.001*
<50 years	523 (67.0)	191 (53.8)	332 (77.9)	
≥50 years	258 (33.0)	164 (46.2)	94 (22.1)	
Gender identity, n (%)				0.010*
Cisgender female	286 (36.6)	115 (32.4)	171 (40.1)	
Cisgender male	439 (56.2)	220 (62.0)	219 (51.4)	
Other gender category ^a	56 (7.2)	20 (5.6)	36 (8.5)	
Sexual orientation				<0.001*
Heterosexual	356 (45.6)	141 (39.7)	215 (50.5)	
Homosexual (gay, lesbian, or same-gender loving)	282 (36.1)	164 (46.2)	118 (27.7)	
Bisexual	115 (14.7)	38 (10.7)	77 (18.1)	
Other ^b	28 (3.6)	12 (3.4)	16 (3.8)	
Race/ethnicity, n (%)				<0.001*
Non-Hispanic White	402 (51.5)	174 (49.0)	228 (53.5)	
Non-Hispanic Black or African American	191 (24.5)	117 (33.0)	74 (17.4)	
Hispanic or Latinx	155 (19.8)	50 (14.1)	105 (24.6)	
Another race	30 (3.8)	13 (3.7)	17 (4.0)	
Prefer not to say	3 (0.4)	1 (0.3)	2 (0.5)	
Education, n (%)				0.004*
High school graduate or less	152 (19.5)	75 (21.1)	77 (18.1)	
Some college or associate degree	326 (41.7)	165 (46.5)	161 (37.8)	
College degree or higher	303 (38.8)	115 (32.4)	188 (44.1)	
Duration of HIV, n (%)				<0.001*
6 months to <1 year	104 (13.3)	24 (6.8)	80 (18.8)	
1 to 5 years	245 (31.4)	79 (22.3)	166 (39.0)	
5 or more years	432 (55.3)	252 (71.0)	180 (42.3)	
Viral load status (at time of survey completion), n (%)				<0.001*
Undetectable (selected undetectable or <200 copies/mL)	668 (85.5)	320 (90.1)	348 (81.7)	
Detectable (≥200 copies/mL)	17 (2.2)	9 (2.5)	8 (1.9)	
Unaware	96 (12.3)	26 (7.3)	70 (16.4)	
Suboptimal HIV medication adherence, yes, ^c n (%)	327 (41.9)	78 (22.0)	249 (58.5)	<0.001*
Difficulty of verbalizing health concerns, yes, ^d n (%)	261 (33.4)	83 (23.4)	178 (41.8)	<0.001*
PAM score, ^e mean (SD)	69.9 (13.3)	71.2 (14.8)	68.7 (11.7)	0.011*
HCP lack of communication about undetectable				<0.001*
No, communication present, HCP talked about what undetectable means	374 (47.9)	215 (60.6)	159 (37.3)	
Yes, lack of communication, heard about undetectable from HCP but not told what undetectable means	135 (17.3)	61 (17.2)	74 (17.4)	
Yes, lack of communication, did not hear about undetectable from clinician, HCP, or physician	272 (34.8)	79 (23.3)	193 (45.3)	
Has depression, yes, n (%)	241 (30.9)	123 (34.6)	118 (27.7)	0.044

^aIncludes transgender male (n=14), transgender female (n=15), gender nonconforming (n=14), and additional gender category (n=13).

^bIncludes categories of asexual (n=16), pansexual (n=11), and other (n=1).

^cDefined as sometimes, often, or always intentionally or purposefully skipping doses of any medications used to treat your HIV.

^dDefined as rating of extremely difficult or somewhat difficult to at least 1 of the health concern areas (general wellness, non-HIV-related illness, sexual health, and HIV health).

^eThe Patient Activation Measure (PAM) is a 13-item measure that assesses an individual's knowledge, skill, and confidence for managing their health and health care. Scores range from 0 to 100; higher scores represent greater patient activation.

^fDefined based on the survey questions, "How did you hear about 'undetectable' in regard to HIV?" and "What did your clinician talk about regarding 'undetectable' in regard to HIV?" (asked of those who heard about undetectable from a doctor, clinician, or healthcare provider). No, communication present, HCP talked about what undetectable means = selected hearing about "undetectable" from a doctor, clinician, or HCP and selected "I talked about what undetectable means"; Yes, lack of communication, heard about undetectable from HCP but not told what undetectable means = selected hearing about "undetectable" from a doctor, clinician, or HCP but did not select "I talked about what undetectable means"; Yes, lack of communication, did not hear about undetectable from either clinician, HCP, or physician = did not select hearing about "undetectable" from a doctor, clinician, or HCP.

HCP, healthcare provider; PAM, Patient Activation Measure; SD, standard deviation; VL, viral load.

Factors associated with the lack of understanding of U=U (Figure 1)

- More than half of participants (54.5%) have lack of understanding of U=U
- Among the PLHIV with lack of understanding of U=U, 45.3% had never heard about U=U from a healthcare provider (HCP) and 58.5% had suboptimal ART adherence
- About 69.0% (78/113) of respondents with detectable or who were unaware of their viral load have lack of understanding of U=U

Figure 1. Over half of respondents (54.5%) did not understand U=U

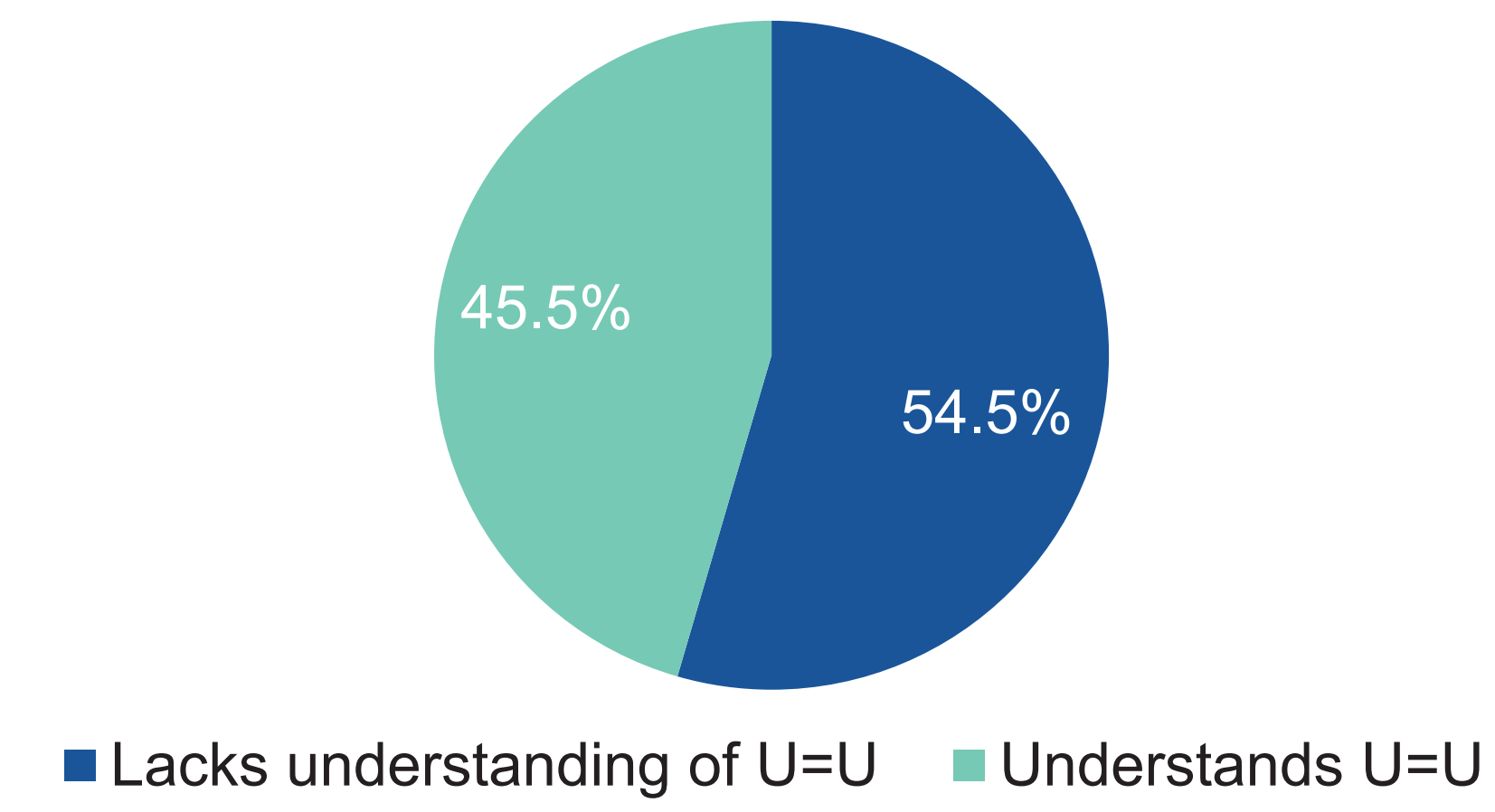


Figure 2. Lack of HCP communication about U=U with PLHIV and understanding of U=U

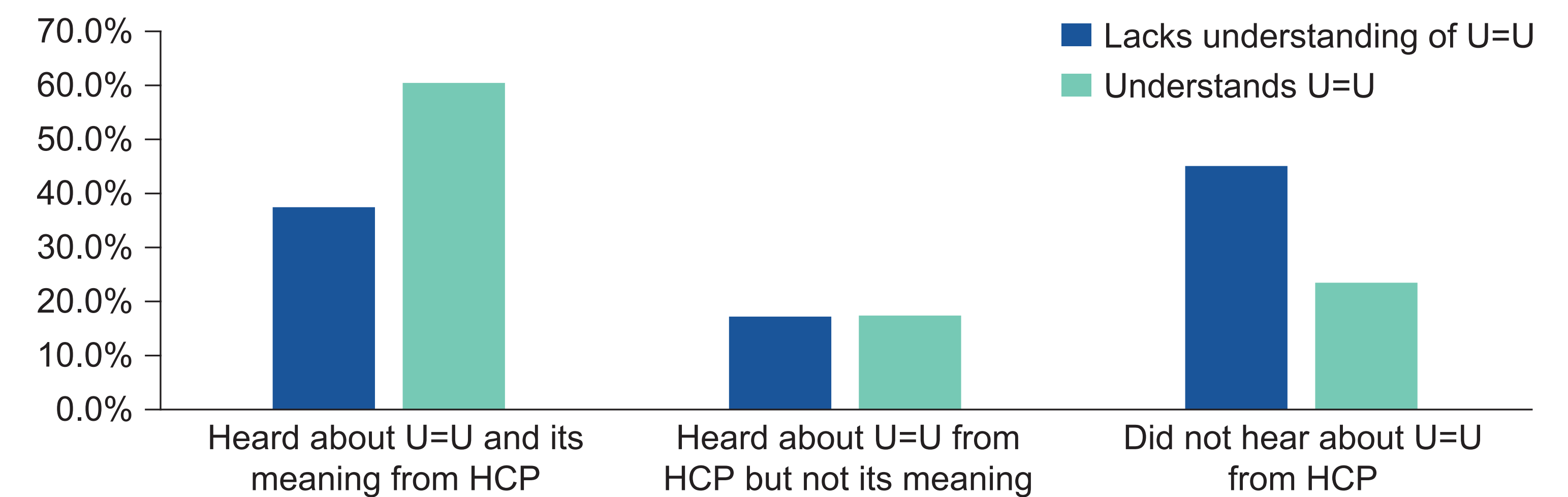


Figure 3. Patient source of information about the meaning of "undetectable"

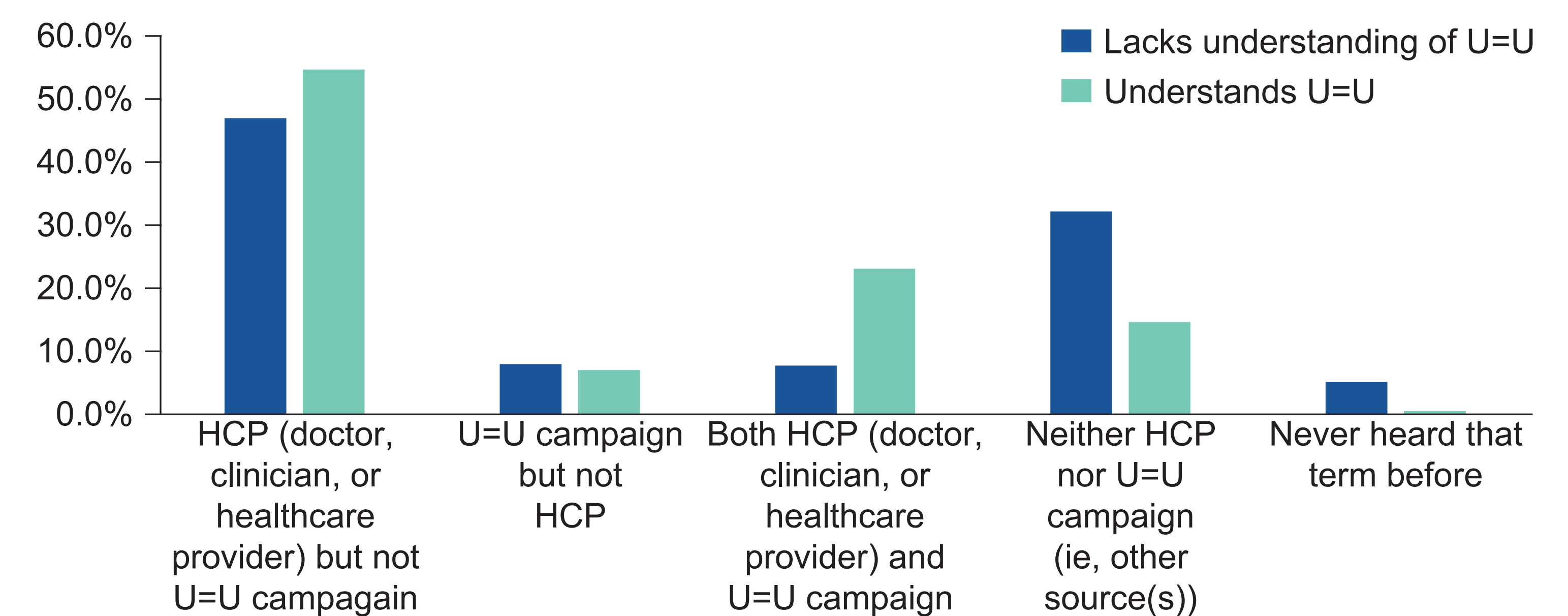
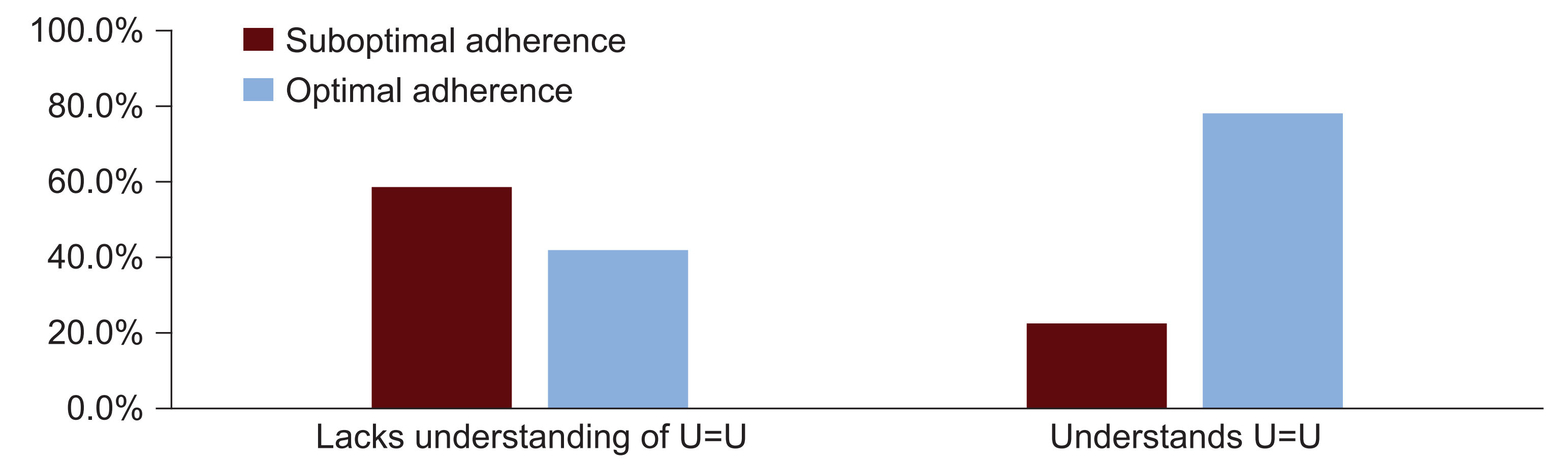


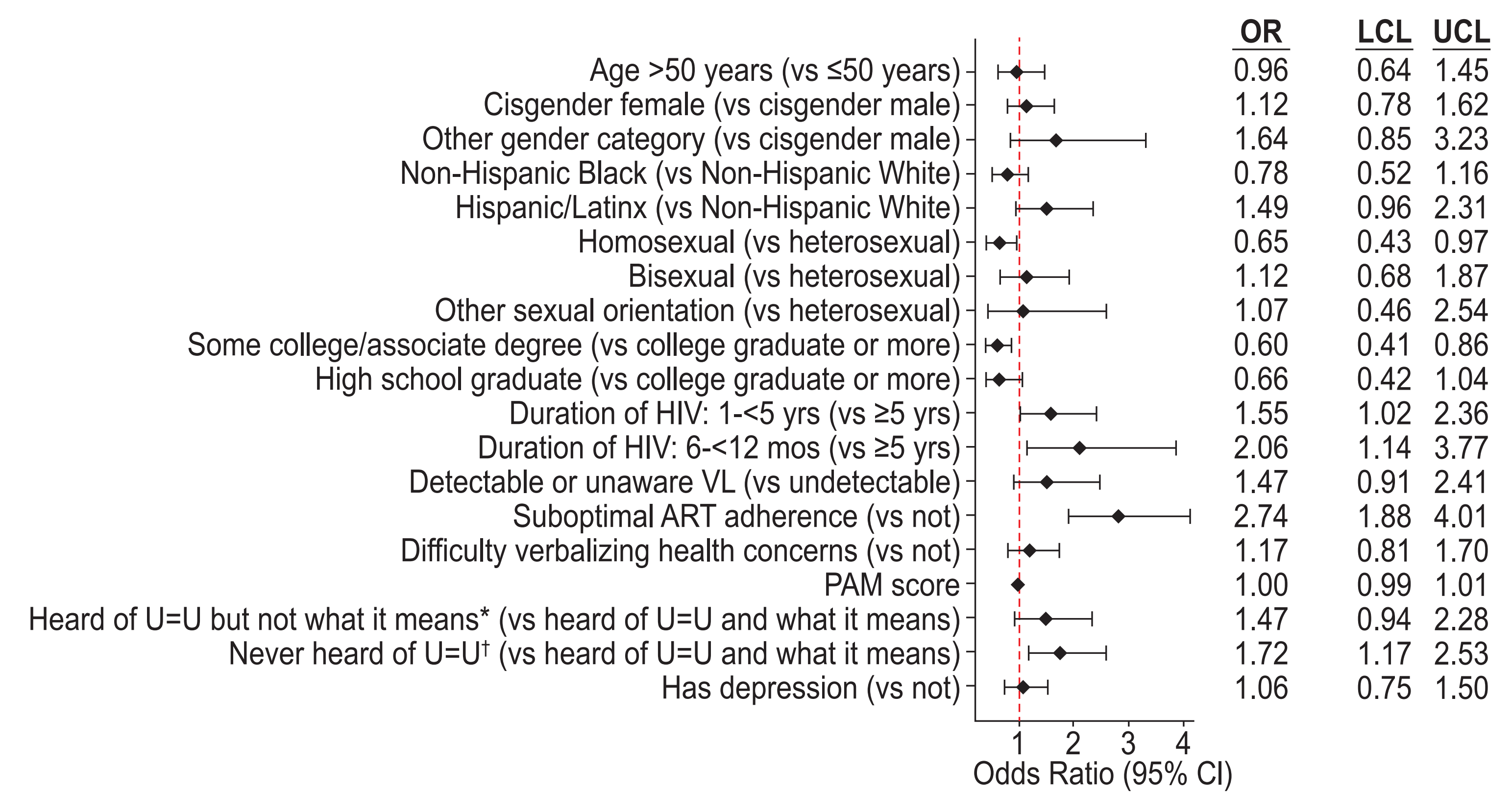
Figure 4. HIV medication adherence and understanding of U=U



Factors associated with lack of understanding of U=U among PLHIV (Figure 5)

- After adjusting for covariates, lack of understanding of U=U was significantly associated with suboptimal ART adherence, shorter HIV duration (6-12 months and <5 years vs ≥5 years), HCP lack of communication about U=U, and sexual orientation (PLHIV who identified as gay, lesbian, or same-gender loving were less likely to have lack of knowledge of U=U vs those identifying as heterosexual)

Figure 5. Multivariable model showing factors associated with lack of understanding of U=U among PLHIV



Odds ratios (OR) and 95% confidence intervals from a binary logistic generalized linear model examining factors that are associated with the lack of understanding of U=U are shown. References: Age, ≤50 years; gender identity, cisgender male; race/ethnicity, non-Hispanic white; sexual orientation, heterosexual; education, college degree or higher; duration of HIV, 5 or more years; undetectable viral load, not suboptimal adherence, without difficulty verbalizing health concerns; No, communication present, HCP talked about what undetectable means. *P<0.05.

^aHeard of undetectable from a clinician, HCP, or physician but clinician did not talk about what undetectable means. ^bDid not hear about undetectable from a clinician, HCP, or physician. HCP, healthcare provider; mos, months; PAM, Patient Activation Measure; PLHIV, people living with HIV; U=U, Undetectable equals Untransmittable; VL, viral load; yrs, years.

Limitations

- Data were self-reported and may be subject to recall bias; clinical variables were not confirmed
- Self-selection bias may also influence the results, with participants comfortable discussing their HIV status overrepresented
- As this was a cross-sectional study design, no causal inferences can be made
- Results may not generalize to PLHIV outside of the US

Conclusions

- The study highlights substantial gaps in understanding of U=U among PLHIV and provider-patient communication regarding U=U in the US
- These findings emphasize the need for targeted patient and clinician education about the clinical evidence supporting and benefits of U=U in destigmatizing HIV diagnoses, generating ART demand, and encouraging ART adherence to achieve an undetectable viral load

References

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Disclosures

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