

Both dose frequency and modality drive treatment preferences among people living with HIV in the United States

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Background

People living with HIV (PLWH) require lifelong treatment to suppress viral replication. Modality and frequency of long-term medication administration may impact adherence, quality of life, and effectiveness. Product development informed by preference will inform potential impact on uptake and reduction of unmet need. Because PLWH are not a homogenous group and can only use accessible product options, methods should assess for subgroups of individuals with similar preference patterns. Demographic or sociobehavioral characteristics associated with subgroups will support value and access.

Methods

An online discrete choice survey was developed based on a literature review and interviews with PLWH and healthcare providers (HCP) and conducted in the US between 2021-22 among adult PLWH to assess preference for treatment modality and dosing frequency. Participants responded to 13 best-worst scaling choice cards generated by Balanced Incomplete Block Design and questions regarding sociodemographic characteristics and reasons for treatment preference. The treatment options included oral pills 1x a day or week, self-injections once every 1, 3, or 6 months, injections by an HCP every 1, 3, or 6 months, and an implant once a year. Participants were recruited from an HIV patient database, an outpatient clinic, and a national online panel.

Results were analyzed using best-worst scores to assess overall preference and a latent class logit model to analyze preference heterogeneity. Sociodemographic characteristics were assessed for associations with class membership using linear regression models.

Results

There were 829 participants in the final study population: 127 were recruited from a database; 379 from an outpatient clinic; and 323 from a national online panel.

A subset of participant demographic characteristics are described in Table 1, with additional characteristics described below.

Participants had a mean age of 43.5 years, 585 (70.6%) were assigned male sex at birth, and 541 (65.3%) identified as male.

The majority of participants lived in the Southern part of the US (n=603, 72.7%), 91 lived in the Northeast (11.0%), 84 in the West (10.1%) and 51 in the Midwest (6.2%).

466 (56.2%) were single and had never been married, 148 (17.9%) were married, and 93 (11.2%) were in a domestic partnership.

Table 1. Participant Characteristics, n=829

Age (years)	
Median (range)	41 (19, 78)
Age groups, n (%)	
<40	361 (43.5%)
40+	468 (56.5%)
Gender identity, n (%)	
Male	541 (65.3%)
Female	229 (27.6%)
Transgender man	9 (1.1%)
Transgender woman	28 (3.4%)
Other	8 (1.0%)
Prefer not to answer	14 (1.7%)
Sexual orientation, n (%)	
Heterosexual	359 (43.3%)
Gay/Homosexual	341 (41.1%)
Bisexual	83 (10.0%)
Other/Unknown	22 (2.6%)
Prefer not to answer	24 (2.9%)
Race ¹ , n (%)	
White or Caucasian	389 (46.9%)
Black / African American	364 (43.9%)
Asian or Pacific Islander	22 (2.7%)
Native American	29 (3.5%)
Multiple races/Other	11 (1.3%)
Prefer not to answer	34 (4.1%)
Ethnicity, n (%)	
Not Hispanic	631 (76.1%)
Hispanic	120 (14.5%)
Prefer not to answer	78 (9.4%)

¹Participants could select multiple choices

Results: Best-worst scaling

Injection by an HCP every 6 months was the most favored treatment option based on best-worst scores, followed by weekly oral pills (Table 2). Convenience was cited by 48.1% of respondents as one of the key drivers for their choices (Figure 1), 43.1% of patients were tired of taking pills, and 37.2% of patients did not like implants. Figure 1 presents reported drivers of preference overall and stratified by most preferred product. Being tired of taking pills was ranked as a top-3 driver of preference among individuals who preferred options other than oral pills with convenience also a common top driver. Other drivers included treatment serving as a reminder of the participant's HIV status and the likelihood of others knowing their HIV status.

Table 2. Treatment preference of overall study population, n=829

Treatment options	Most Preferred (n ₁)	Least Preferred (n ₂)	Best-worst Scores (n ₁ -n ₂)
HCP-inj. 1x / 6 mos	1564	384	1180
Oral pills 1x / wk	1324	721	603
HCP-inj. 1x / 3 mos	917	505	412
Self-injections 1x / 6 mos	1007	613	394
Implant 1x / yr	1015	687	328
Oral pills 1x / day	1144	990	154
HCP-inj. 1x 6 mos AND implant 1x / yr	888	778	110
Self-inj. once every 3 mos	629	871	(242)
Self-inj. 1x / 6 mos AND implant 1x / yr	571	968	(397)
HCP-inj. 1x / mo	386	821	(435)
HCP-inj. 1x / 3 mos AND implant 1x / yr	567	1020	(453)
Self-inj. 1x / mo	402	1181	(779)
Self-inj. 1x / 3 mos AND implant 1x / yr	363	1238	(875)

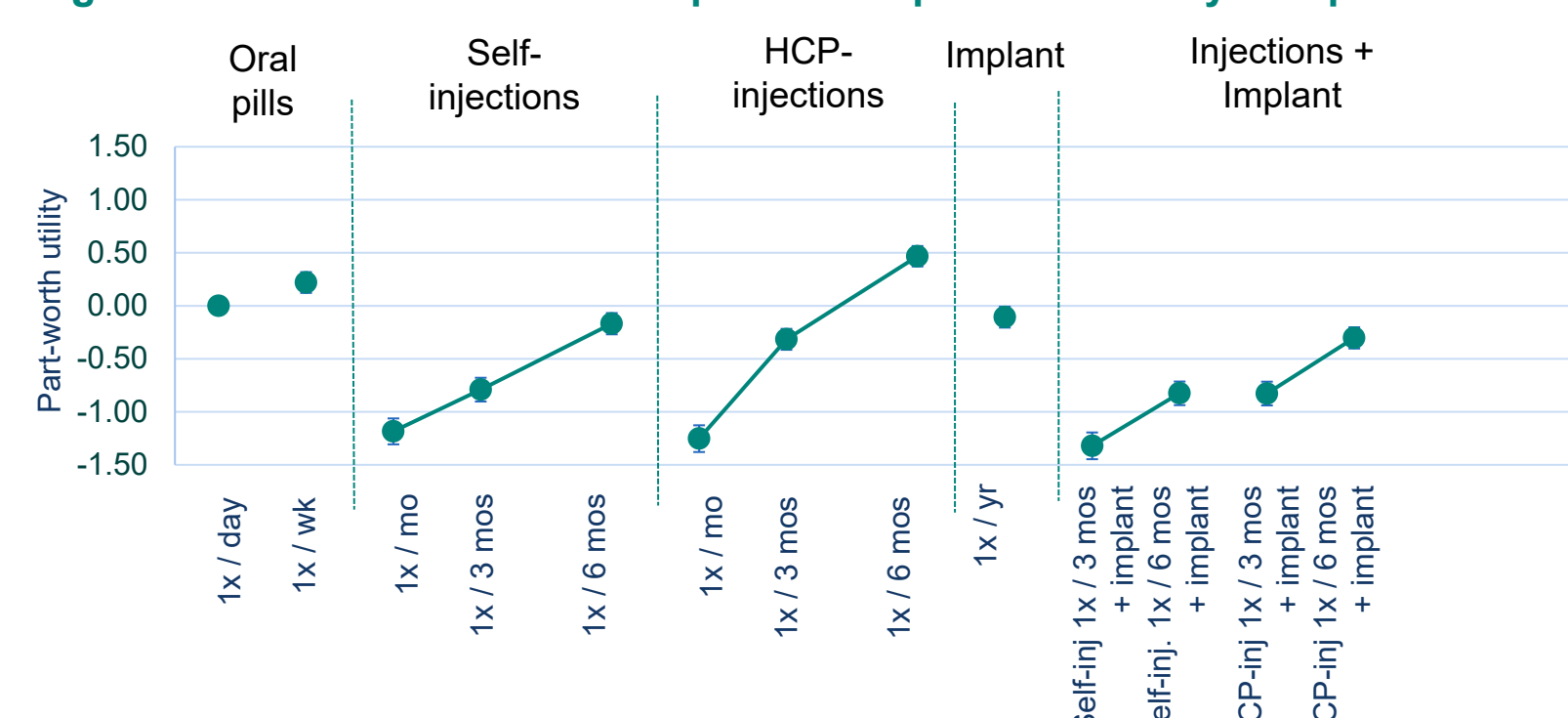
Abbreviation: HCP: healthcare professional

Notes: 1) Most and least preferred scores are the total number of times each treatment option was selected as most or least preferred across all 13 choice cards. 2) Best-worst score is the difference between most and least preferred scores.

Results: Part-worth utility

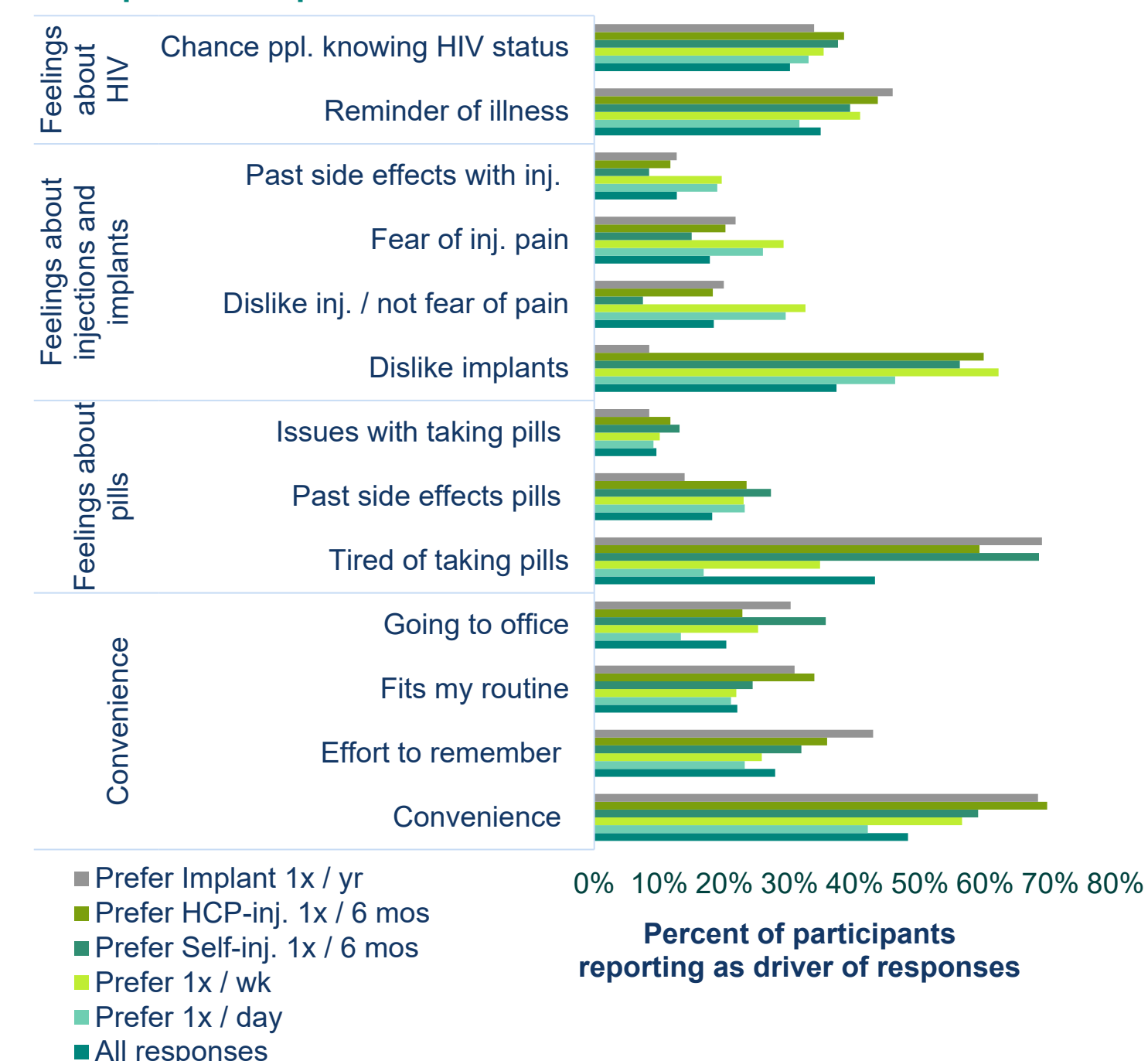
Daily oral pills were the referent for all comparisons. The conditional logit model demonstrated a strong preference for the longer-acting option within any modality (Figure 2), with weekly oral pills and 6-monthly HCP-injections significantly preferred to daily oral pills.

Figure 2. Part-worth utilities for options compared with daily oral pills



Note: A positive part-worth utility indicates that patients prefer a profile over the reference profile, while a negative part-worth utility indicates that patients prefer the reference profile over this profile. The magnitude of the part-worth utility indicates the strength of the preference.

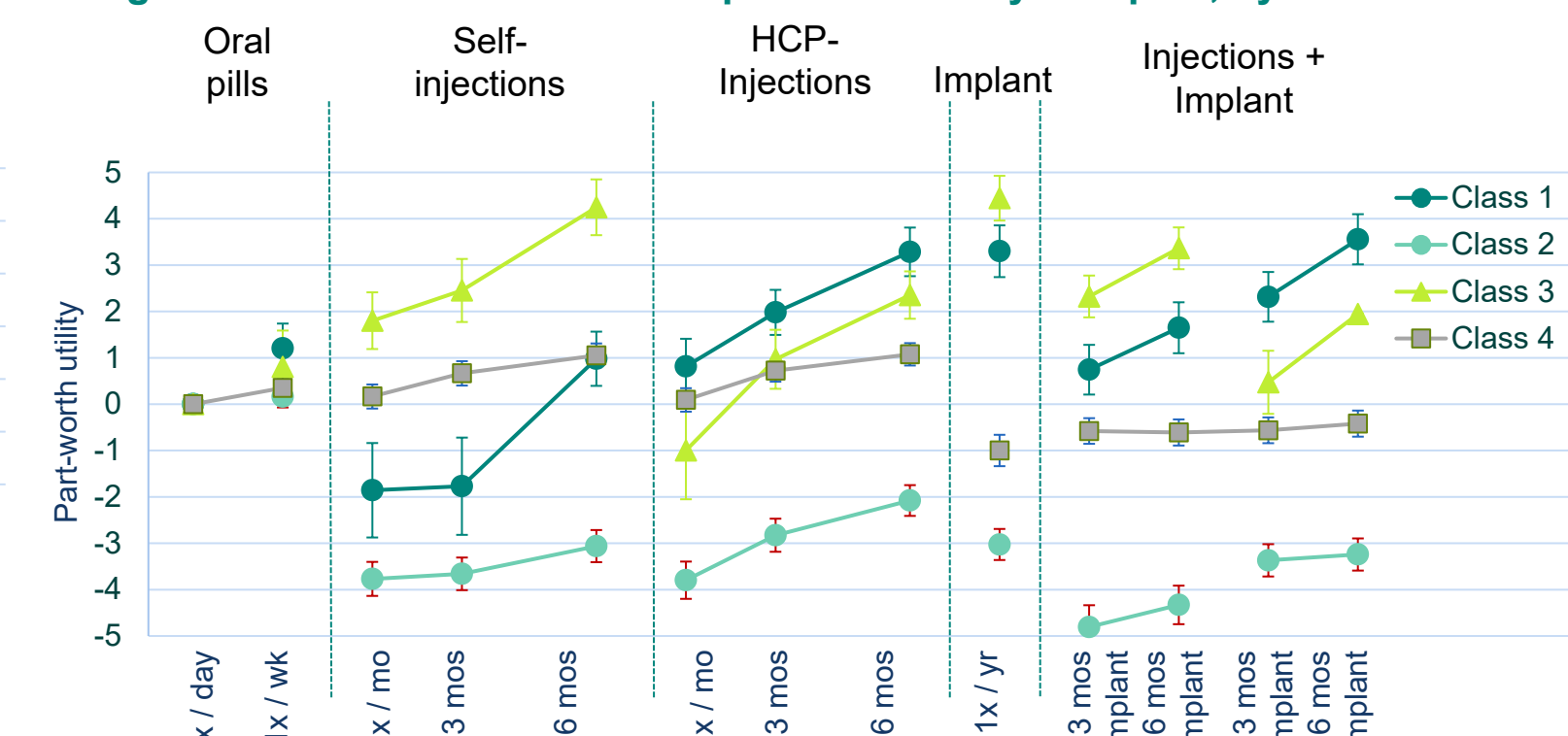
Figure 1. Reported drivers of treatment preference overall, stratified by most preferred option



Results: Latent class analysis

The latent class model identified 4 classes based on similar patterns of preference responses (Figure 3). Classes 1-4 included 25%, 33%, 12%, and 30% of participants, respectively.

Figure 3. Part-worth utilities compared with daily oral pills, by latent class



Key Messages

- Longer-acting products were generally preferred over shorter-acting products within each modality.
- Healthcare provider-administered injections every 6 months and weekly pills were the most preferred options among the full study population.
- People living with HIV do not have homogeneous preferences – 4 groups with distinct patterns of preferences were described.
- Identifying preferences among individuals with unmet need can provide guidance for future product development.

Latent class size (% of respondents), product preference, and associated participant characteristics are described below.

- Class 1 (25%): Prefer most options other than self-injections over daily oral pills. Participants reporting lower adherence to their HIV regimen and participants who received injections by an HCP for other disease were more likely to be in this class.
- Class 2 (33%): Prefer oral pills over all other modalities. Older respondents and those uncomfortable with injections were more likely to be in this class.
- Class 3 (12%): Prefer most options, except frequent HCP-injections, over oral pills. Transgender participants were more likely, and individuals not comfortable with injections less likely, to be in this class.
- Class 4 (30%): Low strength of preference compared with other groups for any option. Participants with trouble swallowing pills and with issues accessing food in the past 12 months were more likely to be in this group.

Conclusions

Less frequent dosing of HIV treatment was generally preferred, and modality type was a notable driver of preference.

PLWH are heterogeneous with varied medication preferences that are associated with sociodemographic and behavioral characteristics.

Continued comprehensive preference research should drive HIV treatment development and access planning to increase uptake and improve patient outcomes.

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