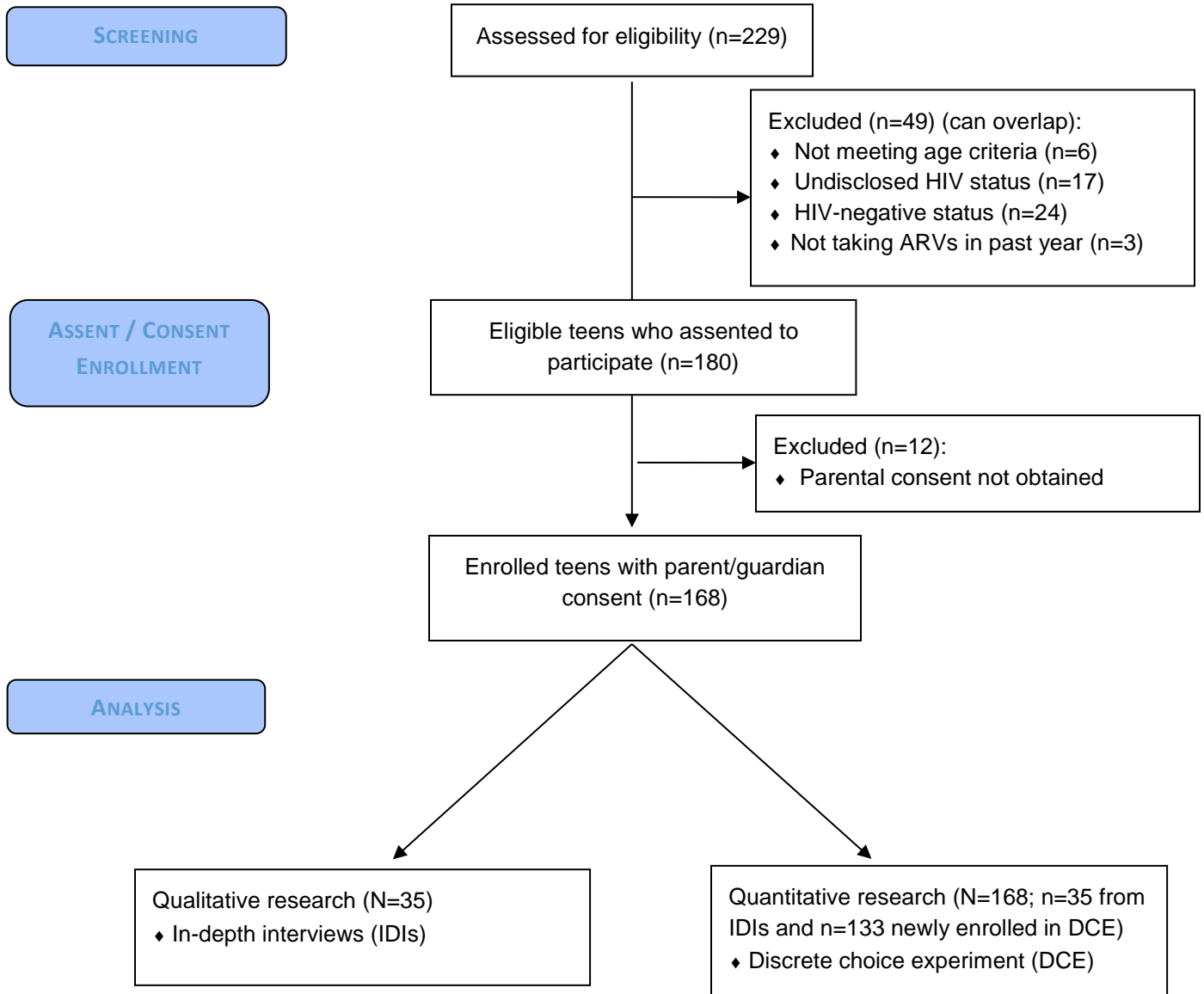


ELECTRONIC SUPPLEMENTARY MATERIAL
for
iSAY (incentives for South African youth):
Stated preferences of young people living with HIV

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APPENDIX A: Participants Flow Diagram



APPENDIX B: Youth Interview Protocol

I. Opening Remarks

The intent of this portion of the agenda is to welcome the participant and make them as comfortable as possible by explaining the purpose of the interview procedures. We orient adolescents to the purpose of interviews, specifically emphasizing that their opinions will help us to understand how to design conditional economic incentives to be acceptable, feasible, and effective in improving antiretroviral adherence among young people living with HIV in South Africa. Their specific opinions on how to design conditional economic incentives (e.g. amount, format, duration, frequency, etc.) will inform a survey that will be used to refine final design of an intervention program for antiretroviral therapy adherence, specifically designed for young people's needs and challenges.

1. Purpose of interviews
 - a. To find out what challenges young people face with adherence to antiretroviral therapy and opinions on whether these challenges are unique to young people (versus adults).
 - b. To find out whether conditional economic incentives would be acceptable as a strategy specifically designed for young people and focused on increasing adherence to antiretroviral therapy. We also explore preferences for amounts, formats, duration, and frequency of conditional economic incentives so that this intervention strategy (alone or in combination) can effectively help young people adhere to antiretroviral therapy.
 - c. To find out how willing young people and participants would be to receive a conditional economic incentive themselves in the context of their own adherence challenges.
 - d. To find out whether young people think receiving a conditional economic incentive would change their medication-taking behaviors and what would facilitate sustainability of adherence behaviors after the incentive period is completed.
2. Housekeeping
 - a. Taking breaks (toilets, other breaks as needed)
 - b. Microphones -- microphones are very sensitive, need to avoid banging or tapping the table, need to turn off cellphones
3. Ground rules
 - a. We will only use the pseudonym that you have provided, never your name.
 - b. I respect your opinions
 - c. Contributions are voluntary, and there are no wrong answers. You are the expert here, not me!

Confidentiality -- we strive for complete confidentiality, and we are doing everything we can to keep your data safe. You are in control of what you say. You can refuse to answer questions or stop the interview completely at any time.
4. Recordings
 - a. We will keep the recordings private and safe -- describe procedures
 - b. When the recordings are transcribed, you will be identified only by a number
 - c. Anonymous quotes might go into reports and publications, but these will never be connected to your name or any other identifying information.

II. ART adherence barriers and facilitators

The intent of this portion of the agenda is to explore adolescents' current or past experience with antiretroviral therapy including barriers and facilitators of adherence including individual level factors; peer, partner, family level factors; clinician and clinical environment factors.

1. **Lead question:** When young people start taking antiretroviral medications (ART) what changes in their lives?
 - a. What would you say the biggest concern is for young people your age when they start taking ART?

2. **Follow-up question:** What are some reasons why a young person might not take their ART as indicated, meaning as often and/or as much as told by medical personnel?
 - a. Are these reasons the same for young people compared to adults?
3. **Follow-up question:** When young people WANT to stay adherent ART, what gets in the way?
 - a. Medication/regimen: How does the medication experience (side effects, schedule, dosing) affect a young person's ability to take ART as prescribed?
 - b. Patient factors:
 - i. Probe: developmental hallmarks such as independence, responsibility
 - ii. Probe: specific challenges relating to mental health
 - c. Peer, partner, family factors
 - i. Probe: Support (or lack of support) from family, friends, clinicians, others
 - ii. Probe: Does HIV stigma affect young people's decision to take ART? How? (explore covert ART use and concerns over inadvertent disclosure)
 - d. Clinician factors
 - i. Probe: positive and negative provider attitudes for clinical needs of young people living with HIV
 - ii. Probe: experience of transition from pediatric to adult services at 13 years of age in South Africa's public sector health system and differences (if any) in their experience of those clinical care environments
 - e. Structural factors: What about living in your community makes it easy or hard for young people to take ART as prescribed?
 - i. Probe: Transport, food security, housing, migration
 - f. **Lead question:** What helps young people STAY adherent to ART? "Adherent" means taking medication as often and/or as much as told by medical personnel.

III. Acceptability of conditional economic incentives for adolescent adherence and design of incentives to maximize acceptability

The intent of this portion is to introduce the idea of conditional economic incentives and explore the acceptability of conditional economic incentives as a strategy for supporting better adherence among adolescents and whether CEIs should be a stand-alone intervention or combined with other interventions for adherence.

1. **Lead question:** What helps young people STAY adherent to ART for HIV? "Adherent" means taking medication as often and/or as much as told by medical personnel.
2. **Lead question:** We want to understand what you think about using conditional incentives to help young people your age improve adherence to ART. By conditional we mean that young people would only receive the incentive upon "proof" of ART adherence. By adherence we mean taking ART as prescribed. Do you think young people your age would like to receive some sort of incentive to take ART as prescribed?
3. **Lead:** Can you tell us about how to design this incentive so that it supports adherence to ART among young people your age?
 - a. What AMOUNT should the incentive be (e.g. South African Rands that would lead to improved adherence behaviors)?
 - b. What TYPE of incentive (e.g., cash, gift card, voucher) would help young people take ART as much and as often as prescribed?
 - c. How should the incentive be DELIVERED to young people (e.g., to individual young people, to their families, to a group of young people trying to adhere)?
 - d. How LONG should young people receive the incentive for?
 - e. How OFTEN should young people receive the incentive (e.g., daily, weekly, during clinic visits)?
 - f. What FORMAT should the incentive be (e.g., fixed incentive vs. lottery)?

- g. WHERE should we provide the incentive (e.g., home, clinic, school)?
- 4. **Followup question:** Would your design of the incentive change if you knew it was to be used for adults rather than young people?
- 5. **Followup question:** To make sure young people have all the support they need to adhere to ART, should we give them the incentive alone, or in combination with other programs (such as motivational support, education on why adherence is important and how to adhere, or group/peer support groups for adherence)?

IV. Willingness to use conditional economic incentives

The intent of this portion of the agenda is to explore willingness to change adherence behaviors due to CEIs. Finally, this portion of the agenda explores possible barriers and facilitators of conditional economic incentives as a strategy for improving adolescent adherence to ART.

1. **Lead question:** Imagine you are a young person on ART. Would you want to use a conditional incentive to take ART as prescribed?
2. **Follow-up question:** Think of all the young people like you who currently take ART. Who needs an incentive the most to stay adherent to ART?
 - a. Probes: Is there anyone who shouldn't get it? Why?
3. **Follow-up question:** Would receiving an incentive to take ART make it easier or harder for a young person your age to take ART as prescribed?
 - a. How would an incentive help young people remember to take ART as prescribed (scheduling, availability of medication)?
 - i. Patient factors
 1. What motivation (if any) would an incentive provide to young people to be adherent to ART?
 - a. Probe: developmental hallmarks such as independence, responsibility
 - ii. Peer, partner, family factors
 1. How can important people in a young person's life help them remember to take ART as prescribed?
 2. Should we also incentive these individuals (separately or with the young person on ART) to support adherence?
 - iii. Clinician factors
 1. How do people working at the clinic (doctors, nursing sisters, counselors, and social workers) help young people take ART as prescribed?
4. **Lead question:** What challenges do you think young people will experience if they receive an incentive to adhere to ART dosage schedules?

V. Predicted effect of conditional economic incentives on behavioral change including durability of change

The intent of this portion of the agenda is to explore the whether a conditional economic incentive would change adolescent ART taking behaviors (either positively or negatively). We want to also understand why incentives would change behaviors. Here we explore the potential durability of behaviors after CEIs are completed.

1. **Lead question:** If young people received an incentive to take ART as prescribed, would this help them take ART as prescribed?
2. **Follow-up question:** Are there any dangers for young people receiving an incentive to take ART as much and as often as prescribed?
3. **Lead question:** Now imagine you received an incentive to take ART as prescribed. How would this change what you do to improve medication-taking behaviors?
 - a. Motivational changes

- b. Attitudinal changes
- c. Behavioral changes (e.g., scheduling, reminders, peer supporters, etc.)
- 4. **Lead question:** What will happen when the incentive ends but young people have to continue to take ART?
- 5. Follow-up question: What can important people in young people's lives do to support adherence, even after the incentive ends?
 - a. Probe: family, friends, partners as needed

VI. Closing procedures

The intent of this portion of the agenda is to thank the participants and to conclude this portion of the study. We also remind participants that if they have consented to participate in the survey, we will schedule a time to meet with them.

- 1. Thank you
 - a. their input is crucial to creating HIV treatment strategies that actually work
 - b. This is exactly the kind of information that scientists need, and they have done a valuable service by being part of this work
- 2. Distribute reimbursements and resource packs

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APPENDIX C: Questionnaire Asset Index and Food Insecurity Items

What is your household's MAIN source of WATER for household use?	<i>1 = Piped water (including in dwelling, yard, or community tap) 0 = No piped water</i>
Does your household own any of the following in working order? Refrigerator	<i>1 = Yes 0 = No</i>
Electric/gas stove	<i>1 = Yes 0 = No</i>
Vacuum cleaner	<i>1 = Yes 0 = No</i>
Washing machine	<i>1 = Yes 0 = No</i>
Computer	<i>1 = Yes 0 = No</i>
Satellite television	<i>1 = Yes 0 = No</i>
DVD player	<i>1 = Yes 0 = No</i>
Motorcar	<i>1 = Yes 0 = No</i>
Television	<i>1 = Yes 0 = No</i>
Radio	<i>1 = Yes 0 = No</i>
Landline/Telephone	<i>1 = Yes 0 = No</i>
Cell phone	<i>1 = Yes 0 = No</i>
Does your household ever run out of money to buy food?	<i>1 = Yes 0 = No</i>
Do you ever rely on a limited number of foods to feed your children because you are running out of money to buy food for a meal?	<i>1 = Yes 0 = No</i>
Do you ever cut the size of meals or skip meals because there is not enough money for food?	<i>1 = Yes 0 = No</i>
Do you ever eat less than you should because there is not enough money for food?	<i>1 = Yes 0 = No</i>

APPENDIX D: Econometric Modeling and Analysis

Discrete choice models are consistent with random utility theory (RUT) whereby Y_a^* is a latent variable, not directly observed (McFadden, 2014). We can only observe a choice $Y=1$ if the participant prefers an option, and $Y=0$ otherwise. Underlying that choice, it is implied that $Y=1$ if $Y_a^* = \max(Y_1^*, Y_2^*, Y_3^*)$ and alternative a is chosen by decision maker i in scenario task t if and only if:

$$U_{iat} > U_{ikt} \quad \forall a \neq k \quad (\text{Eq. D1})$$

where the alternatives are $a=1,2,3$; the YPLWH decision makers are $i=1,2,\dots,N$; and the choice scenario tasks are $t=1,2,\dots,16$.

A representative utility can be characterized as $V_{iat} = V(X_{iat}, Z_i)$ where vector X refers to the attributes of the alternatives, and vector Z refers to the characteristics of the decision maker. The unobservable utility has an observable representative utility and a random component as follows: $U_{iat} = V_{iat} + \varepsilon_{iat}$. Under this general theoretical framework, we can test various hypotheses using a linear specification:

$$V_{iat} = \alpha_a + X'_{iat}\delta + Z'_i\gamma_a \quad (\text{Eq. D2})$$

where α_a , δ , γ_a are parameters to be estimated. The probability P that utility U is maximized by choosing alternative k in choice task t is given by:

$$\begin{aligned} P_{ikt} &= P(U_{ikt} > U_{iat}) \\ &= P(V_{ikt} + \varepsilon_{ikt} > V_{iat} + \varepsilon_{iat}) \\ &= P(V_{ikt} - V_{iat} > \varepsilon_{iat} - \varepsilon_{ikt}), \quad \forall a \neq k \end{aligned} \quad (\text{Eq. D3})$$

Assuming independence of ε_{iat} (over i , a , and t) and identically type-I extreme value distributions, the conditional logit specification for the probabilities is given by:

$$P_{ikt} = \frac{e^{V_{ikt}}}{\sum_a^3 e^{V_{iat}}}, \quad a = 1,2,3 \quad (\text{Eq. D4})$$

We elicited first-best and second-best alternatives in each choice-set task, thus providing complete rankings over all alternatives. We used the “exploded” or rank-ordered logit model, which is an extension of the conditional logit that takes account ranked choices (Ghijben et al., 2014; Lancsar et al., 2017), and can be expressed as the product of logit formulas:

$$P[U_{ia_{At}} > U_{ia_{Bt}} > U_{ia_{Ct}}] = \frac{e^{V_{ia_{At}}}}{\sum_{a=A,B,C} e^{V_{iat}}} * \frac{e^{V_{ia_{Bt}}}}{\sum_{j=B,C} e^{V_{ijt}}} \quad (\text{Eq. D5})$$

The first ratio in eq. D5 models the first-best choice and the second ratio models the second-best choice from the remaining alternatives after the first-best alternative was eliminated. We used a mixed or random parameter logit model to allow more flexibility, preference heterogeneity and correlation of errors over choice situations. Because β_i is unknown, the unconditional probability is given by the integral of the product over the density of β as follows:

$$P[U_{ia_{At}} > U_{ia_{Bt}} > U_{ia_{Ct}}] = \int \left(\frac{e^{V_{ia_{At}}}}{\sum_{j=A,B,C} e^{V_{iat}}} * \frac{e^{V_{ia_{Bt}}}}{\sum_{j=B,C} e^{V_{ijt}}} \right) * f(\beta|\theta) d\beta \quad (\text{Eq. D6}).$$

We used a mixed rank-ordered logit (MROL) model including a normally distributed random parameter on the model intercept to allow for unobserved heterogeneity in underlying preferences for a chosen *Program* compared to ‘*No Program*’. To ensure identification we used ‘*No Program*’ as the base. The main model included all the attributes ($X'_{iat} = \text{yearly offer in R100s, CEI format is cash, CEI format is food voucher, CEI recipients are YPLWH only, program participants are adherent \& non-adherent, CEI is delivered at the clinic}$) as independent variables and a constant for ‘*No program*’ (ASC_{Optout}). Additionally, the model allowed for observed heterogeneity by including participant characteristics interacted with the intercept ($ASC_{Optout} \cdot Z_i$) and selected treatment attributes ($X'_{iat} \cdot Z_i$) to investigate the effect of participant characteristics on preferences. The MROL model can be specified as:

$$U_{iat} = \begin{cases} X'_{iat}\delta_i + \varepsilon_{iat}; & a = 1,2 \\ \alpha_a + Z'_i\gamma_a + \varepsilon_{iat}; & a = 3 = \text{optout} \end{cases} \quad (\text{Eq. D7})$$

where the necessary normalizations on α and γ can be imposed and random parameters are specified for the program attributes (δ_i) and the ASC (α_{ai}) for the opt-out alternative.

For robustness tests, and specification checks, in addition to the rank-ordered logit model presented in the main analysis, we used a rank ordered logit (ROL) [estimated via a conditional logit regression (CLR), also known as multinomial logit model (MNL)] (McFadden, 1974) to estimate utilities for CEI intervention attributes. The empirical model was estimated assuming that the error terms were distributed independently and identically with type-I extreme values such that the probability of choosing the a^{th} alternative is defined by the MNL form as follows:

$$P_{iat} = \frac{\exp(\lambda V_{iat})}{\sum_{l=1}^3 \exp(\lambda V_{ial})} \quad (\text{Eq. D8})$$

where λ is a scale parameter defined as the inverse of the deviation of the disturbance (Maddala, 1983).

For additional specification tests, we used the conditional and the generalized multinomial logit (Gu et al., 2013). We generated pseudo-panel data with random coefficients on the alternative-specific variables that vary across alternatives, and vary over individuals and choice sets. Thus, the correlation of choices across alternatives relaxes the independence of irrelevant alternatives (IIA) assumption, which is required by the conventional multinomial logit model. This approach is equivalent to Train and McFadden's mixed multinomial model (McFadden and Train, 2000).

Because we included the incentive level as an attribute, we were able to estimate willingness to accept. The marginal willingness to accept (mWTA) for an attribute is the ratio of

the attribute's coefficient to the incentive coefficient. The willingness-to-accept the X^{kth} attribute was defined as the marginal rate of substitution between attribute X^k and the incentive offer, as follows:

$$mWTA_{X^k} = -\frac{MU_{X^k}}{MU_{CEI}} \quad (\text{Eq. D9})$$

where MU_{X^k} and MU_{CEI} are the marginal utilities of X^k and the CEI respectively.

For implementation, we used Stata 16 (Choice Model) routines for conditional fixed effects logistic regression (`cmclogit`), mixed logit (`cmxtmixlogit`) (Hole, 2007), generalized multinomial logit (`gmnl`) (Gu et al., 2013). The preferred specification was the mix (rank-ordered) logit model based on Bayesian and Akaike information criteria (Appendix E).

Finally, we double-checked to ensure that the data were exploded correctly. We ran a MNL (via the `clogit`) on the exploded data, and confirmed that it was identical in all decimal places to the rank ordered logit (ROL) in the un-exploded data (using the `rollogit` command).

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APPENDIX E: Estimates of discrete choice models using complete ranking data from best–best choices of respondents

Variables^	Model A: ROL			Model B: MROL				Model C: GMNL	
	ROL choice coeff.	ROL Program A coeff.‡	ROL Opt-out coeff.‡	MROL choice coeff.§	MROL SD¶	MROL Program A coeff.‡	MROL Opt-out coeff.‡	GMNL choice coeff.‡	GMNL scale heterogeneity
<i>Alternative-specific variables</i>									
Yearly offer (R100s)	0.118*** (0.00956)			0.147*** (0.0119)				0.345*** (0.0305)	
CEI format is cash (=1)	0.169** (0.0745)			0.185** (0.0916)	0.674*** (0.130)			0.603*** (0.0971)	
CEI format is food voucher (=1)	0.111 (0.0699)			0.104 (0.0849)	0.700*** (0.196)			0.785*** (0.0975)	
CEI recipients are YPLWH only (=1)	-0.0140 (0.0648)			-0.00621 (0.0797)	0.615*** (0.108)			0.547*** (0.0833)	
Program participants are adherent & non-adherent (=1)	0.313*** (0.0649)			0.401*** (0.0919)	0.722*** (0.107)			0.685*** (0.0770)	
CEI is delivered at the clinic (=1)	0.0829 (0.0544)			0.134* (0.0698)	0.605*** (0.154)			0.273*** (0.0670)	
<i>Case-specific (individual) variables</i>									
Age (in years)		-0.0103 (0.0386)	0.475*** (0.181)			-0.0248 (0.0473)	0.556*** (0.208)		
Female (=1)		0.0563 (0.104)	-0.00574 (0.465)			0.108 (0.125)	0.00363 (0.468)		
Years of formal education		0.0283 (0.0376)	-0.108 (0.156)			0.0350 (0.0460)	-0.121 (0.182)		
Index of assets owned in HH		0.0365 (0.0375)	0.0679 (0.187)			0.0493 (0.0408)	0.0646 (0.194)		
Any food insecurity (=1)		-0.0406 (0.117)	0.643 (0.619)			-0.0515 (0.142)	0.687 (0.630)		
Travel time to clinic		-0.0499 (0.0701)	-0.576** (0.263)			-0.0560 (0.0874)	-0.661** (0.288)		
Ease of taking ART		0.0192 (0.0495)	0.512** (0.220)			0.0291 (0.0561)	0.552** (0.222)		
<i>Other explanatory variables</i>									
Quarterly (=1)		-0.165* (0.0892)	-0.144 (0.176)			-0.200* (0.112)	-0.170 (0.196)		
Random block		-0.0543 (0.0332)	0.0132 (0.143)			-0.0614 (0.0400)	0.0632 (0.160)		
Order of presentation is first (=1)		0.00897 (0.0856)	0.0460 (0.179)			0.00469 (0.107)	0.0558 (0.194)		
Constant		0.190 (0.514)	-10.05*** (2.092)			0.345 (0.617)	-11.58*** (2.409)		
Observations#	13,440	13,440	13,440	13,440				13,440	
Cases	5376			5376				5376	
Log-likelihood	-2184			-2093				-2315	
Number of parameters	28			33				7	
Akaike information criterion (AIC)	4423			4251				4644	

Bayesian information criterion (BIC)	4607	4468	4696	0.887***
τ				(0.0662)

Notes: Unless otherwise stated, table presents coefficients and robust standard errors clustered at individual level in (parentheses): *** p<0.01, ** p<0.05, * p<0.1

ROL=rank ordered logit (estimated via conditional logit regression [McFadden's choice model]); MROL=mixed rank-ordered logit; GMNL=generalized multinomial logit; SD=standard deviation

§ Means of random coefficients for alternative-specific variables.

¶ Standard deviation (SD) of the random coefficients for alternative-specific variables.

‡ Using Program B as reference. A positive (negative) sign for an attribute means that level impacted positively (negatively) on utility and thus increased (reduced) the probability of choosing an alternative with that level.

Number of participants=168; number of observations=13,440 [i.e., exploded dataset observations: $168*(16*2+16*3) = 13,440$]

^ In the estimation, yearly offer (R100s), age, years of formal education, asset index, travel time, difficulty taking ART, and random block were modelled as continuous; other attributes are dummy coded (=1).

CEI=conditional economic incentive; R100s=South African Rand in 100s; YPLWH=young person living with HIV.

APPENDIX F: Marginal willingness to accept for all DCE models presented in Appendix E

Attribute	Improvement in the attribute	Model A: ROL mWTA/year (R100s, 95% CI) [‡]	Model B: MROL mWTA/year (R100s, 95% CI) [‡]	Model C: GMNL mWTA/year (R100s, 95% CI) [‡]
CEI format is in cash	CEI format is in cash instead of fashion voucher	-1.43** (-2.69 to -0.17)	-1.26* (-2.52 to -.003)	-1.75*** (-2.31 to -1.19)
CEI format is food voucher	CEI format is as food voucher instead of fashion voucher	-0.94 (-2.12 to 0.25)	-0.71 (-1.87 to 0.45)	-2.27*** (-2.77 to -1.78)
CEI recipients are YPLWH only	CEI recipients are YPLWH only instead of YPLWH and parents/caregivers	0.11 (-0.96 to 1.19)	0.04 (-1.02 to 1.11)	1.59*** (-2.02 to -1.16)
Program participants are adherent & non-adherent	Participants are adherent & non-adherent instead of non-adherent only	-2.65*** (-3.91 to -1.40)	-2.74*** (-4.08 to -1.40)	-1.99*** (-2.39 to -1.58)
CEI is delivered at the clinic	CEI is delivered at the clinic instead of virtually or electronically	-0.70 (-1.62 to 0.22)	-0.91* (-1.85 to 0.03)	-0.79*** (-1.16 to -0.42)

Notes:

Significant at the level of: *** $p \leq 0.01$, ** $p \leq 0.05$, * $p \leq 0.1$

[‡]Computed using robust standard errors from respective models presented in Appendix E.

ROL=rank ordered logit (estimated via conditional logit regression [McFadden's choice model]); MROL=mixed rank-ordered logit; GMNL=generalized multinomial logit.

A negative coefficient indicates the incentive amount that a respondent is willing to forego to ensure a given attribute.

CEI=conditional economic incentive; YPLWH=young person living with HIV; mWTA=marginal willingness to accept; R100s=South African Rand in 100s; CI=confidence interval.

APPENDIX G: Correlation Matrix

Variables	Yearly offer (R100s)	CEI format is cash (=1)	CEI format is food voucher (=1)	CEI recipients are YPLWH only (=1)	Program participants are adherent & non-adherent (=1)	CEI is delivered at the clinic (=1)	Age (in years)	Female (=1)	Years of formal education	Index of assets owned in HH	Any food insecurity (=1)	Travel time to clinic	Ease of taking ART	Quarterly (=1)	Random block	Order of presentation is first (=1)
Yearly offer (R100s)	1															
CEI format is cash (=1)	0.275***	1														
CEI format is food voucher (=1)	0.256***	-0.244***	1													
CEI recipients are YPLWH only (=1)	0.341***	0.223***	0.213***	1												
Program participants are adherent & non-adherent (=1)	0.324***	0.220***	0.200***	0.288***	1											
CEI is delivered at the clinic (=1)	0.351***	0.239***	0.186***	0.270***	0.294***	1										
Age (in years)	0.00570	0.00404	-0.00857	-0.000773	-0.00401	0.00260	1									
Female (=1)	-0.0002	-0.00113	0.00298	-0.000324	-0.00377	-0.00424	0.00759	1								
Years of formal education	0.00874	0.00637	-0.00597	-0.00107	-0.00964	0.00424	0.847***	0.0253**	1							
Index of assets owned in HH	-0.0114	0.0119	-0.00150	0.00585	0.00227	0.00798	-0.00088	-0.144***	0.0409***	1						
Any food insecurity (=1)	0.00119	0.00605	-0.00219	-0.00853	0.00485	-0.00561	0.0280**	0.0255**	0.0311***	-0.316***	1					
Travel time to clinic	-0.00607	0.0252**	-0.0115	0.00300	-0.00293	-0.0106	0.0713***	0.0737***	0.0727***	0.0571***	0.0541***	1				
Ease of taking ART	-0.00781	0.0142	-0.00228	0.00140	0.000668	-0.00407	0.0254**	-0.088***	0.0406***	-0.0304***	-0.137***	0.0029	1			
Quarterly (=1)	0.00925	-0.000753	0.0186*	-0.00032	0.00803	0.00130	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1		
Random block	0.0496***	-0.0217*	-0.0204*	0.0271**	-0.00999	-0.00489	0.0477***	-0.0123	0.0283**	-0.202***	0.0572***	0.0102	-0.041***	0.00	1	
Order of presentation is first (=1)	0.00218	0.00113	-0.00149	-0.00584	-0.00246	0.00326	0.0000	0.0000	0.0000	-0.0000	0.0000	0.0000	-0.0000	-0.04***	-0.00	1

Notes: Significant at * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

CEI=conditional economic incentive; R=South African Rand; YPLWH=young person living with HIV; HH=household; ART=antiretroviral treatment

APPENDIX H: Level Balance

<i>Attribute & levels</i>	Number of appearances	Percentage
<i>Incentive amount per year (in Rand)</i>		
0	5,370	39.96
240	2,391	17.79
480	2,063	15.35
960	1,909	14.2
1920	1,707	12.7
Total	13,440	100
<i>Program incentive format</i>		
0. n/a	5,370	39.96
1. Cash	2,604	19.38
2. Food Voucher	2,674	19.9
3. Fashion Voucher	2,792	20.77
Total	13,440	100
<i>Program incentive recipient</i>		
0. n/a	5,370	39.96
1. Caregiver & youth	4,018	29.9
2. Youth only	4,052	30.15
Total	13,440	100
<i>Program participants</i>		
0. n/a	5,370	39.96
1. Adherent & non-adherent	3,907	29.07
2. Non-adherent only	4,163	30.97
Total	13,440	100
<i>Program delivery mode</i>		
0. n/a	5,370	39.96
1. Virtual	4,088	30.42
2. Clinic	3,982	29.63
Total	13,440	100