Is interview length associated with propensity to consent to blood draw?

Evidence from the Zambia and Swaziland population-based HIV impact assessment (PHIA) surveys

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Outline

- Motivation
- Research Question
- Population-based HIV impact assessments (PHIAs)
- Methods
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- Discussion
- Conclusions

Motivation

- Primary goal of population-based HIV surveys is to measure HIV prevalence through biomarker testing
  - Consent for biomarker testing is crucial
- Low participation and differential consent are known issues resulting in increased variance and potential for bias
- How does the length of the accompanying survey interview influence willingness to participate in subsequent biomarker tests?
  - Ultimate goal of informing future survey design

Evidence

Effect of interview length

- Sharp and Frankel (1983), Dillman (1993), Deutskens (2002) saw an association between long interviews and:
  - partially complete surveys
  - higher item nonresponse
  - willingness to participate in future surveys
- Lopez and Walsh (2012) found that in an interview of multiple persons within a household, the length of the first person's interview accounted for some person non-response for subsequent household members.

Differential consent to blood draw in HIV surveys

- Reniers and Eaton (2009) and Larmange et. al (2015) found evidence that people with prior knowledge of their HIV positive status were less likely to participate in future surveys

Research Question

Does experiencing a long interview make respondents more or less likely to consent to blood draw?

Long interviews may result in…

- respondent fatigue
- respondent becoming unavailable
+ increased topic salience for respondent
+ interviewer rapport

Population-based HIV Impact Assessments (PHIAs)

- Historically, national HIV incidence and viral load suppression indicators have been based on modeling and facility level data
- Direct measures of indicators are needed to fully understand the epidemic and make sure that PEPFAR funding is being used to the greatest impact
- PHIAs measure the reach and impact of national HIV programs in PEPFAR supported countries
  - HIV prevalence
  - HIV incidence
  - Prevalence of HIV viral load suppression
- Cross-sectional, household-based, nationally representative surveys of adults 15+ and children 0-14 in 14 countries
  - Started fieldwork in the first PHIA in 2015
  - Fieldwork for PHIAs in 11 countries has been completed
  - Preliminary results have been released for 7 countries

PHIA Interview

- CAPI interview using tablets and teams of interviewers
  - Household Interview
  - Adult interview
  - Adolescent Interview
- Adult Interview: age 15-59 in Zambia (ZamPHIA), 15+ in Swaziland (SHIMS 2)

Respondent Background
Marriage
Reproduction
Children
Male Circumcision
HIV Testing

HIV Status, Care, and Treatment*
Tuberculosis and other Health Issues
Alcohol Use
Gender Norms
Physical and Sexual Violence

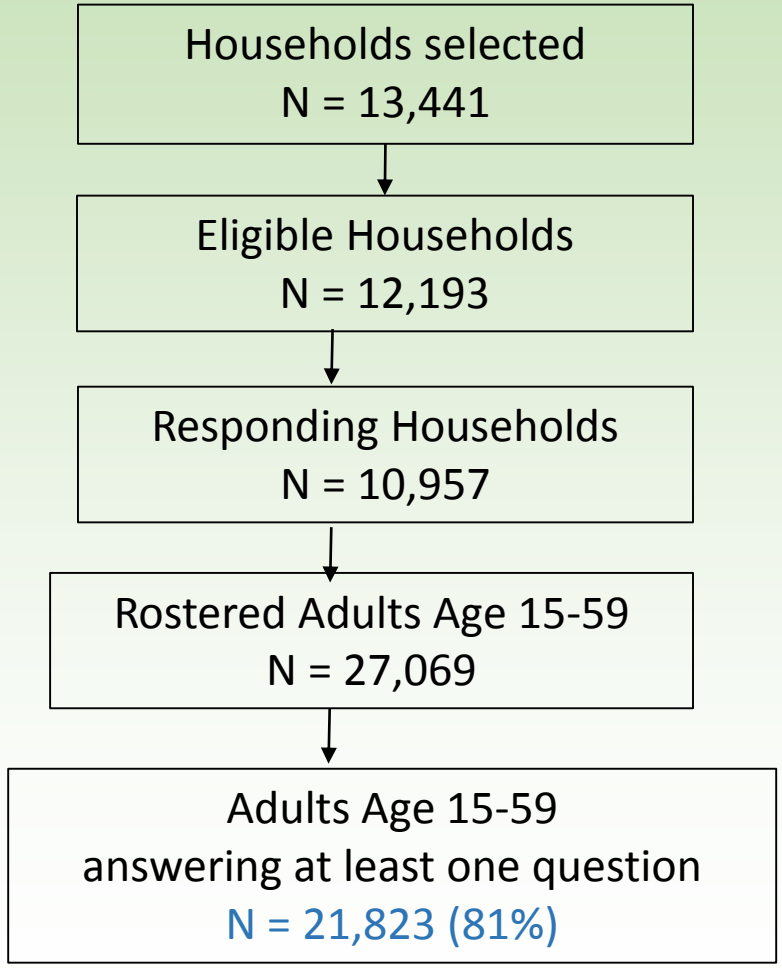
- After interview there is biomarker collection for adults and children

Study Design

- Focus on Zambia (ZamPHIA)
  - Data collection occurred March – August 2016
  - Blood draw consent occurred after the interview
- Measuring interview length as number of questions
  - Considered and examined length in minutes
- Blood consent is consent among those asked at least one question
  - Nonrespondents who did not begin the interview are excluded
- Both blood consent and interview length are influenced by respondent characteristics
  - The ability to gain consent for blood draw varies by interviewer teams
  - Use same approach on a country with blood consent before the interview (Swaziland, SHIMS 2)

Universe and Response Rates

ZAMPHIA



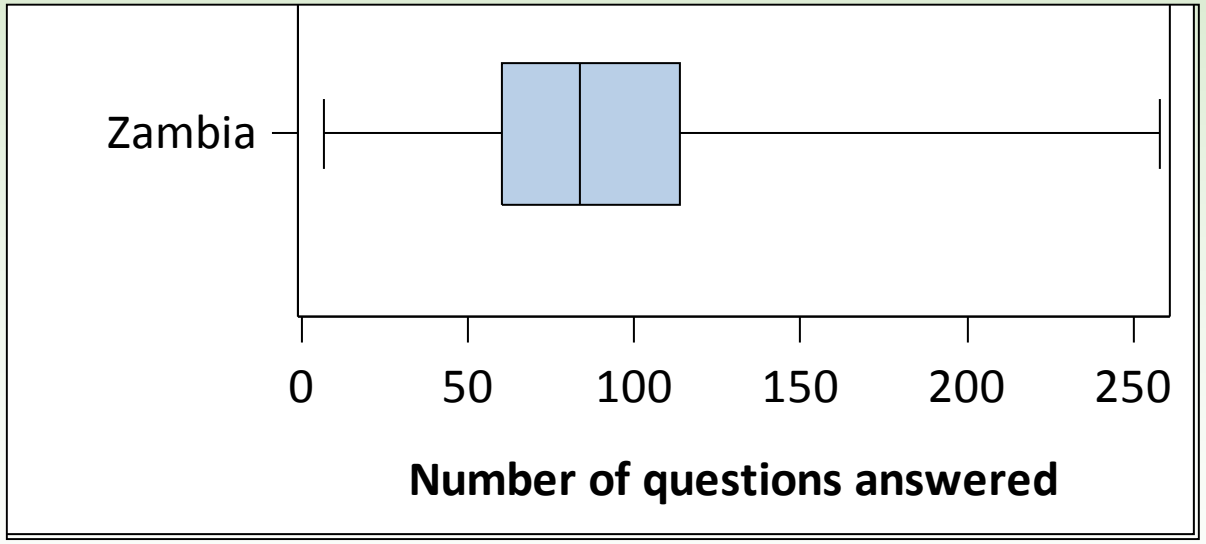
Weighted response rates

- Household response rate 89.4%
- Interview response rate:
  - 80.4% for men
  - 90.8% for women
- Blood draw response rate (of interviewed):
  - 88.5% for men
  - 90.3% for women

Data (1)

- **Blood draw consent**:
  - Of those who answered at least one question, 90.1% consented to blood draw

- **Interview Length as Number of Questions Answered**



Data (2)

- Self-reported HIV Status
  - Self-report positive, self-report negative, never tested, other/missing
- Number of children for which they provided information (0, 1-3, 4+)
- Household Size (1-2, 3-5, 6+)
- Age (15-24, 25-34, 35-44, 45-59)
- Gender
- Whether they've had sex (Yes, No, Missing)
- Province
- Urban
- Teams of Interviewers (random effect)

Methods

- Start with bivariate associations
  - Evidence of confounding
- Generalized Linear Mixed Model (GLMM) of Blood Draw Consent
  - Backward selection in using proc logistic to determine significant fixed effects
  - Add random intercept to account for interviewer team variance
  - GLMM fit using proc glimmix
    - Maximum Likelihood with Laplace Approximation (method = laplace)
    - Binary model with logit link function (dist = BINARY)
    - Simple diagonal covariance structure for interviewer team (type = VC)

Bivariate Association

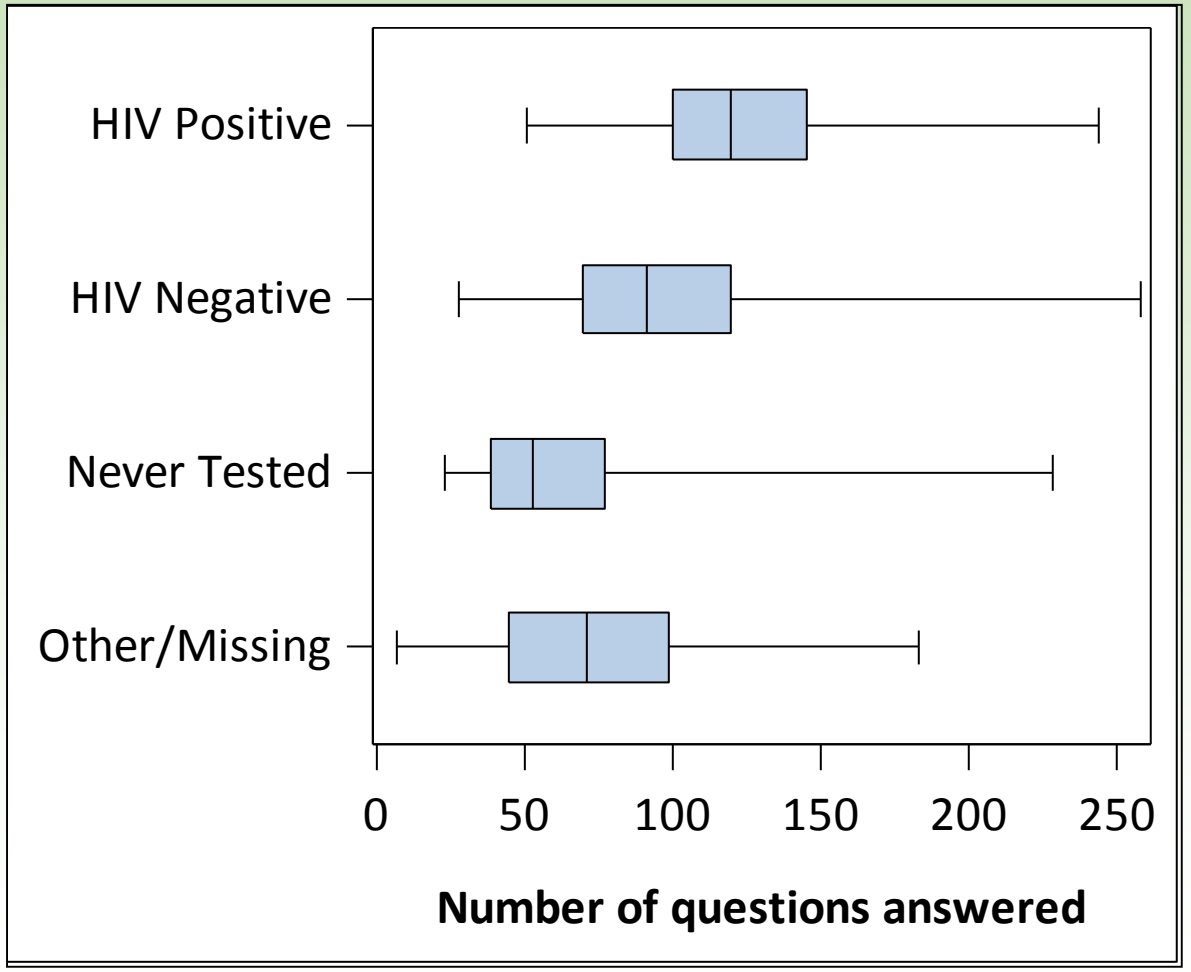
Number of Questions Answered	Consented to Blood Draw (%)	N
Less than 40	88.9	2,012
40-59	88.2	3,352
60-79	88.6	4,383
80-99	90.4	4,251
100-119	91.8	3,169
120-139	91.6	2,581
140-159	92.8	1,409
More than 160	92.2	666

$\chi^2 = 60.94$ $p < 0.0001$

Confounding by Self-Reported HIV Status

	ZamPHIA Consented to Blood Draw (%)	N
HIV Positive	97.4	1,795
HIV Negative	89.3	14,135
Never Tested	90.2	5,615
Other/Missing	83.5	278

$\chi^2 = 131.67$ p <0.0001



Modeling Results

Number of Questions asked	Odds Ratio for consent for biomarker testing	95% Confidence Interval	N
Less than 40	Reference category		2,012
40-59	1.008	0.816-**1.245**	3,352
60-79	1.085	0.835-**1.410**	4,383
80-99	1.375	1.037-**1.824**	4,251
100-119	1.700	1.245-**2.323**	3,169
120-139	1.733	1.241-**2.419**	2,581
140-159	2.183	1.480-**3.219**	1,409
More than 160	1.705	1.056-**2.753**	666

F value 5.73, p<0.0001

Controlling for

- Self-reported HIV status
  Positives more likely to consent
- Age
- Gender
- Household Size
- Number of children on which they reported
- Province
- Whether someone had sex
- Self-Reported HIV status by age

ICC for Team ID: 8.8%

Swaziland (Shims 2)

- Interview length cannot influence blood consent because all consents are asked before the interview
- If one were to still find a relationship using the same methods then there would be cause for concern regarding residual confounding in the Zambia analysis
- In Swaziland, 93.6% of people answering at least one question consented to blood draw
- Swaziland showed a similar relationship between interview length and blood consent in the bivariate analyses ($\chi 2 = 45.92$ $p < 0.0001$)
- After fitting the GLMM
  - There was no significant effect of number of questions asked on blood consent ($F = 1.39$, $p = 0.2230$)
  - Otherwise the model was similar to Zambia

Conclusions

- We found that long interview length was associated with higher consent for biomarker testing. This finding persisted after controlling for a number of demographic and health characteristics.
- We took the same approach in Swaziland where consent for biomarker testing was obtained before the interview – as expected, the association disappeared
- Strong evidence that self-reported HIV positive people are more likely to consent to blood draw
  - At first glance may seem contradictory to the literature
  - Distinction between having a positive test in the past (longitudinal) and disclosing to an interviewer that one has tested positive, specifically regarding stigma
  - Differential incentive for HIV positive people
    - The PHIAs provide CD4 test results immediately during interview and HIV viral load results within eight weeks to participants testing HIV-positive.
    - These test results are often not available at local health facilities.

Limitations

- This isn’t an experiment (observed data)
- Universe
  - Missing those who did not respond to the household interview
  - Missing those who did not respond to the individual interview
- Swaziland acts as a good check that we’re controlling for important factors but it’s not perfect
- So many factors: personal, situational, cultural go in to a persons decision to consent or not for biomarker testing

Reasons for refusing to give blood

- Over 60% (N= 1,214) of those who refused blood draw in ZamPHIA gave one or more reasons
- Most common reasons (check-all-that-apply)
  - Already know I am HIV negative (N = 492)
  - Do not want to get tested for HIV (N=172)
  - Superstition/traditional or religious beliefs or objections about HIV testing or giving blood (N=105)
  - Am scared to have someone draw my blood (N = 93)
  - Do not have time to test for HIV/Blood Draw (N = 89)
  - Uncomfortable having my blood stored (N = 77)
  - Need partner permission (N = 75)

Next Steps

Applicability outside of this Context: additional requests

- Longitudinal surveys (additional follow-up)
- Record linkage
- Diary survey to be completed before/after interview

Opportunities for Future Research:

- Additional PHIA countries
- Similar surveys that collect biomarkers (e.g. DHS)

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