Behavioral Economics: Harnessing the Science to Improve the HIV Care Continuum

Sebastian Linnemayr, PhD

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How to get to 90-90-90?

• Outcomes often suboptimal even when ‘structural’ factors resolved

• Traditional, ‘structural’ interventions are hitting a wall

• Behavioral factors (uptake, loss-to-follow up, adherence…) are taking center-stage

• BE offers a comprehensive view of behavior, and a whole intervention toolbox
• Traditional policies are often based on a very simple model of human behavior:
  – People do what is best for them (i.e. take up latest meds/devices)
  – People follow through on their intentions (i.e. remain in care/adherent)
  – If they show unhealthy behaviors information is missing or prices are wrong (see next slide)

• Limited policy options, focusing on structural factors such as lack of appropriate information...
Study That Paid Patients to Take HIV Drugs Fails
Study That Paid Patients to Take H.I.V. Drugs Fails
• ... or ‘wrong’ prices people face when making decisions
Putting taxes on unhealthy products
‘Paying’ for healthy behaviors …(Contingency Management (CM), Conditional Cash Transfers (CCT))

- Pettifor et al. (2006): 16 studies using cash and financial incentives for HIV prevention
- Galárraga (2013): 4 studies for improving ART adherence; 2 cash, 2 vouchers based
- HPTN065: cash incentives did not have (fully) desired effect
Traditional, ‘structural’ view of health behaviors

Prices

Poverty

Information

Access
...what does behavioral economics add?
A BE view of interventions

- Prices
- Poverty
- Information
- Access
A BE view of interventions

Prices

Poverty

Information

Access

Context matters
A BE view of interventions

Prices

Limited self-control

Poverty

Context matters

Information

Access
A BE view of interventions

- Prices
- Poverty
- Information
- Access
- Context matters
- Limited self-control
- Limited rationality

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A BE view of interventions

Social influence

Prices

Limited self-control

Poverty

Context matters

Information

Limited rationality

Access
Focus on behavioral factors

- BE opens up a whole new level of intervention tools
- BE goes beyond the traditional, structural model of behavior, recognizes that
  - We all have good intentions
  - We all struggle with self-control
  - Often we do things we later regret…
Behavioral economics suggests that if we know a person’s decision environment we can infer their behavior and influence it by:

– Altering the decision environment
– Designing incentives using decision-making errors (“biases”) as entry points for interventions and policy
Turning a behavioral economics lens on interventions to change HIV behaviors
Prevention and Testing
The power of contextual factors

Montoy, Dow, and Kaplan (2016)

Base-rate: 38%

Intervention rate: 65.9%
• The difference is whether people are asked / not asked to get tested

• No change in underlying structural factors (information, access, ...)

• ‘Opt-in’ versus ‘opt-out’ of HIV testing, takes human behavior seriously

• Very low cost, endorsed by US guidelines
Nudge-type incentives based on behavioral economics

- Thornton (2008): Vouchers of ~1 USD doubled testing pickup rates
- Thirumurthy et al. (2014): ~8% vs. 2% uptake of male circumcision for food vouchers worth ~10$
- Nyqvist et al. (2016): >20% reduction in HIV incidence using lottery 5 prizes worth 50$ in each village three times a year
Ongoing study: MOTIVES [R34 MH109373]
MOTIVES: reminders & small prizes for HIV testing

• Ongoing study in Los Angeles to increase testing among high-risk Latino MSM and TGW

• Approach participants at testing sites

• Objective: keep participants engaged in care and come back for testing at least once every 90 days
Preliminary results

- Prize drawing with increased chance of winning using the rewards points

- Expected prize value per person per year: $10

- After ~3 months of intervention, retesting rate in both groups >40%

- Compared to (probably) 10-25% base rate (Ostermann et al. 2007)
Adherence
Rewarding Adherence Program (RAP)
Kampala, Uganda
**Intervention groups**

- **Treatment group 1:** Timely clinic appointment according to patient booklet
- **Treatment group 2:** MEMS-caps measured adherence of 90% or higher
- **Eligibility was verified** by drawing the participant’s number out of a bag
Prize value: $1.50 USD per person/year in kind
Incentives combined with SMS reminders increased mean adherence by 7 percentage points compared to Control.
Example of non-monetary incentives: social comparison
• R21 Pilot RCT in two clinics in Kampala and Entebbe, Uganda

• Adolescents aged 15-22 years

• Adherence measurement using wisepill device

• **Disclaimer: data not final**
SITA Study: Peer competition as non-monetary incentive:

• Weekly message, sent to 170 adolescents receiving HIV care in Uganda

• If successful, scalable and almost zero running costs

“Congratulations, you took 70% of your meds this week. Your friends took 85%...”
1. Interventions with BE at its core:
   - Incentive provision
   - Nudging
   - Changing default options
   - Etc.
Applications

1. Interventions with BE at its core:
   - Incentive provision
   - Nudging
   - Changing default options
   - Etc.

2. BE ‘light’ - supporting other interventions:
   - Increasing the effectiveness of information provision & messaging
   - Improving recruitment
   - Increasing retention
Take-home points

• Structural barriers are important

• But ‘on top’ sit behavioral factors

• If we want to get to 90-90-90 (and beyond) we need to address behavioral issues

• Behavioral economics offers a comprehensive framework for thinking about HIV-related behaviors

• Taking people’s behavioral drivers into account allows us to effectively change behavior and leverage motivation and resilience, often at low cost
Areas for future research

• We are starting to find out what drives behavior, and manage to change it in the short run, but still have trouble changing them over the long-run

• Most interventions focus on separate steps in the cascade, few look at the whole

• We are at an early stage re. BE interventions, and many details still to be worked out
Thank you!

slinnema@rand.org

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