The Role of Alcohol Behavioral Research in the Design of Secondary Prevention Interventions in the Era of ART: Agenda for the Next 5 Years

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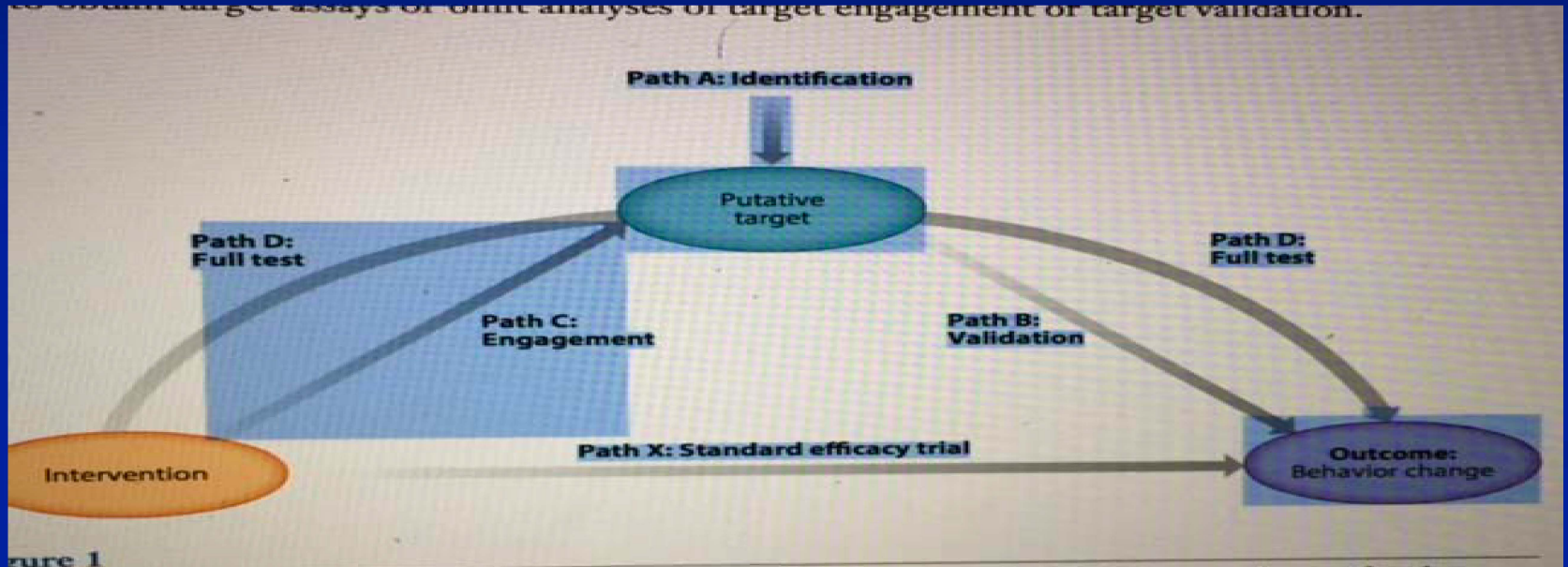
Discussion: Alcohol Research Implications for Secondary Prevention

- What do we know NEED TO know about alcohol's role in secondary prevention interventions?
  - Expand our understanding the role of alcohol as a risk factor for PLWH
    - Identifying what drinking patterns represent risk for PLWH [e.g., amounts x contexts x populations]
    - Clarifying and integrating the role of individual differences in alcohol effects [e.g., personality, executive functioning, development]

Discussion: Alcohol Research Implications for Secondary Prevention

- What do we NEED TO know about alcohol's role in secondary prevention interventions?
  - Expand our understanding how alcohol is a risk factor for PLWH
    - Specifying different paths from alcohol to HIV-related risk by subpopulation [mediating behaviors, psychological processes]
      - MSM
      - Substance use [IDU]
      - International populations

Experimental Medicine Approach in Health Behavior Change: Applications to Understanding The Behavioral Effects of Alcohol



gure 1
e experimental medicine (EM) approach to health behavior change. The EM approach specifies that earch on health behavior change should proceed along four paths. Path A identifies putative targets, which modifiable factors that may cause the behavior. Path B validates those targets by developing assays (i.e., asures) and testing the extent to which change in behavior accrues from manipulating the targets. Path C esses the impact of different manipulations on the extent to which the target changes to discover how best

- **Identifying modifiable targets**
- **Determining when, how and to what extent they elicit behavior change**
- **Are changes related to changes in outcomes….multivariate perspectives**

(from: Sheeran, Klein, & Rothman, 2017):

What do we need to know about alcohol's role in secondary prevention interventions?

- Expand our understanding the influence of alcohol on psychological processes related to behavioral outcomes
  - Value of traditional models of behavior change
    - Guide intervention development
    - Guide laboratory research on causal mechanisms
  - Role of distal vs. proximal psychological processes
    (e.g., Temporal Self-regulation Theory, Hall & Fong, 2007)
  - Role of automatic appetitive processes: dual system theories
    (e.g., Reflective vs. Impulsive Systems; Hofmann et al., 2009)
  - Links to neuroscience models of self-control/decision making

What do we need to know about alcohol's role in secondary prevention interventions?

- Distal versus proximal processes underlying risk behavior among PLWH
  - Condomless Sex
    - Buying condoms, forming plans to promote safe sex
    - Negotiating condom use, implementing condoms in context
  - HIV cascade
    - Setting appointments, scheduling, planning & organizing, executing plans
    - ART adherence behavior, following through on appointments at time

What do we need to know about alcohol's role in secondary prevention interventions?

- **How does alcohol influence distal processes related to condomless sex and ART adherence?**

(e.g., planning, scheduling, organizing, valuing, distal decision making processes)

  - **Same day use**
  - **Day after use** (Schensul et al., 2017)
  - **Chronic levels of use**
  - **Individual differences as the third variable**
  - **Interactions w/ stage of HIV**

What do we need to know about alcohol's role in secondary prevention interventions?

- How does alcohol influence proximal processes related to condomless sex and ART adherence?
  - Limits of intention-behavior association (Sheeran & Webb, 2012)
  - Dual process models and spontaneous decision making (Hofmann et al., 2008; implicit cognition, EF, standards)
  - Effects of alcohol on motivation, capacity, and processing strategies in context
  - Multivariate models

What do we need to know about alcohol's role in secondary prevention interventions?

- How might these questions be addressed?

What type of alcohol behavioral research do we need to improve the secondary prevention interventions?

- **Utilizing Technological Advances in Monitoring and Assessment** (e.g., experience sampling, biosensors, etc.)
  - Providing assessment of temporal features of risk factors and processes
  - Measuring processes in context
  - Identification of self-reported versus indirect factors/processes [geolocation, frequency of behavior, speech patterns]

What type of alcohol behavioral research do we need to improve the secondary prevention interventions?

- Laboratory experimental behavioral research
  - Modeling the influence of alcohol on "heat of the moment" processes in the lab
    - Using technology to better approximate "real world" decision making
    - Broaden understanding of alcohol effects (intoxication, low dose, descending limb) on a broader range of HIV-related decision making processes (e.g., EF, implicit cognition, motivation)
    - Linking processes in lab to "real world" outcomes [importance, predictive value in multivariate models]

What type of alcohol behavioral research do we need to improve the secondary prevention interventions?

- **Laboratory experimental behavioral research**
  - **Modeling the influence of intervention processes in the lab**
    - **Examining the influence of micro-interventions on change targets**
      (Strauman et al., 2015)
    - **Examining the influence of process change on behavioral outcomes**
    - **Examining the influence of alcohol on use of intervention content**

Addressing alcohol in the context of secondary prevention: Where do we go from here?

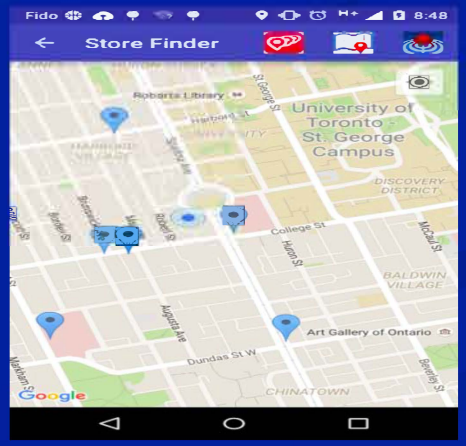
- **Technology and Interventions: Delivery in novel contexts**
  - **Expand capacity to deliver interventions in novel contexts**
    - **mobile, web-applications**
  - **Expand novel and opportunistic contexts**
    - **apps, social media, online peer supports (e.g., Horvath et al., 2013)**

Addressing alcohol in the context of secondary prevention: Where do we go from here?

- **Technology and Interventions: Assessment**
  - **Ongoing monitoring**
    - **mhealth applications, pill monitoring technology, location-based sensing**
  - **Verification**
    - **Contingency management**

Addressing alcohol in the context of secondary prevention: Where do we go from here?

- **Technology & Interventions: Addressing "heat of the moment" processes**
  - **Interventions in high-risk times**
    - **Text messaging and SMS (Cooms et al., 2012)**
    - **mHealth advances for ART medication adherence (Muessig et al., 2017)**
  - **Event-elicited interventions**



+ Use of indirect data voice, activity, sleep bio-sensor, etc.

Addressing alcohol in the context of secondary prevention: Where do we go from here?

- **Technology & Interventions: Addressing "heat of the moment" processes**

- **Open questions**

  - **Content, interactive vs. static, frequency of reminders**

  (e.g. Pop-Eleches et al., 2011)

  - **Sustainability: how to maintain engagement with technology components**

  - **Role of providers in technology-based & enhanced interventions**

Addressing alcohol in the context of secondary prevention: Where do we go from here?

- Alcohol-reduction interventions for PLWH
  - Brevity, sub-population/culturally specific, implementation +…
  - Improving efficacy…magnitude and sustainabiity
  - Understanding influence of easily measured individual differences as moderators of intervention efficacy (moderated mediation, precision medicine)
  - Co-morbidity (substance use, pain, depression)

Interventions to address "heat of the moment" processes

- Expand use of interventions to modulate the impact of automatic impulsive processes in high risk contexts
  - Cognitive Bias Modification
  - Context-activated skills training: reducing the role of control processes
    - Virtual reality
    - Imagery-based training
    - Implementation intentions
  - Disconnecting impulsive>>behavior link
    - Mindfulness

Summary

- Focus on processes of change
  - Intervention level
  - Contributions of laboratory behavioral research
- Expand use of conceptual models to address wider view of underlying processes
- Use technology to improve research methods, assessment, and intervention delivery

Thank you