A theory-based health literacy intervention for HIV-related medication adherence.

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Medication adherence in HIV

• Adherence needed to suppress viral replication = 80-95%
• Typical adherence = 60-70%
• Viral suppression $\rightarrow$ decreased risk of infecting others
• Viral suppression $\rightarrow$ better clinical outcomes
Health literacy

• Knowledge, abilities, and skills required to attain a desired state of health
• Related to multiple clinical variables
  ◦ Disease control (diabetes)
  ◦ Hospitalization (Medicare data)
  ◦ Death (Medicare data)
  ◦ Medication adherence (HIV)
IMB Model

- **Information**: How meds work, how to cope with side effects
- **Motivation**: Social support, depression
- **Behavioral Skills**: How to remember to take medications, cope with obstacles
Tailored information

- Personalization
- Individualized feedback
- Enhancing perceived relevance
- Increases impact on patient behavior
  - $\rightarrow$ 10%+ increase in dietary intake of fruits
  - $\rightarrow$ 10-15% improvement in adherence in older adults treated for memory problems
The intervention

Health Literacy

Interaction/Tailoring

Information
- Viral Life Cycle, Viral Resistance, How Medicines Work

Motivation
- Awareness of Barriers, Staying Motivated

Behavioral Skills
- Coping with Barriers, How to Get Help, Strategies for Adherence, Coping with Side Effects
• An animation emphasizes specific stages in the viral life cycle
• These stages are later reviewed in discussion of how medications work
A key aspect of the intervention is interactivity.

Participant learning is assessed with questions.

If needed, content is retaught.
The key to staying well if you have HIV is to get the treatment you need.

The doctor can tell you what medicines you need by finding out two things:

1. **The doctor needs to know how many CD4 or T cells you have.**

2. **He or she needs to know how much virus is in your blood.**

You need a blood test to find out these things.
MEMS

- **Medication Event Monitoring System**

- **Adherence indices**
  - Taken (e.g., 30 pills in 30 days)
  - Correct (e.g., 1 pill/24 hours)
  - Scheduled (e.g., +/- 2 hours)
Results: LifeWindows IMB scale

- **Information**
  - $F = 7.141$, $p = 0.001$
  - $f = 0.35$, a medium to large effect size
- **Motivation**
  - $F = 0.75$, $p = 0.48$
- **Behavioral Skills**
  - $F = 5.17$, $p = 0.007$
  - $f = 0.29$, a medium effect
- **Based on completers**
  - 3 drop outs

![Graph showing model-corrected values for Information Subscale]
Results: Self Efficacy, Depression

- **Patient-Provider Interaction**
  - $F = 5.17$, $p = 0.007$; $f = 0.29$, medium effect

- **Healthcare Self-efficacy**
  - $F = 11.71$, $p = 0.001$; $f = 0.39$, medium to large effect

- **Depression and Social Support**
  - Not significant
Results: Adherence

- **Percent Taken**
  - Number of doses / month
  - $F = 4.21$, $p = 0.04$; $f = 0.25$, a medium effect

- **Percent Correct**
  - Number of doses / day
  - $F = 5.31$, $p = 0.02$; $f = 0.27$, a medium effect
Conclusions

- Participation in the intervention is associated with improved
  - Information
  - Behavioral skills
  - Self-reported ability to work with clinicians
  - Healthcare self-efficacy

- Not associated with improved
  - Motivation
  - Social support
  - Mood
Collaborators

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