

Biology Is Not Destiny

- Intuitive appeal to the idea that one can thwart biological vulnerability through a positive attitude or sheer determination
 - Empirical evidence to support this notion
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Cognitive Adaptation Theory

- Psychological resources enable individuals to deal effectively with negative life events -- *including major illness* – and may ultimately result in better longevity and other positive health outcomes
 - Positive affect
 - Positive expectancy
 - Ability to find meaning

Study Objectives

- Among women with HIV, to determine whether psychological resources protect against:
 - HIV-related mortality
 - decline in CD4+ cell counts
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METHODS

HIV Epidemiologic Research Study

- Prospective, longitudinal cohort study of biological, social, and psychological manifestations of HIV among women from 4 US cities (N=773):
 - New York, Baltimore, Detroit, Providence
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Procedures

- Recruitment: 1993 - 1995
 - Follow up: up to 7.5 years
 - Core visits (every 6 months): interview, physical exam, specimen collection
 - Centrally-trained staff: common data collection procedures and forms
 - Laboratory: central repository for processing/storage
 - Medical record abstraction
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Outcomes

- HIV-related mortality
 - CD4+ lymphocyte count and slope decline
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Psychological Resources

■ Measures

- Positive Affect: mood, past 6 months
 - 6 items: joyful, happy, cheerful, content, peaceful, hopeful
- HIV Expectancy: expectations about disease outcomes
 - 7 items: e.g., can have HIV and never get sick, cure for AIDS
- Finding Meaning: meaning/positive changes with HIV
 - 5 items: e.g., spending more time with family, closer to God

■ Index

- Created using median splits
- “1 point” scored at/above median for each psychological resource (range = 0-3)

Covariates

■ Clinical Features

- CD4+, viral load, antiretroviral use, HIV-related symptoms, depression

■ Substance Use

- IDU/cocaine, alcohol, cigarettes

■ Sociodemographic Characteristics

- Age, race/ethnicity, socioeconomic disadvantage
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RESULTS



Description of Study Participants

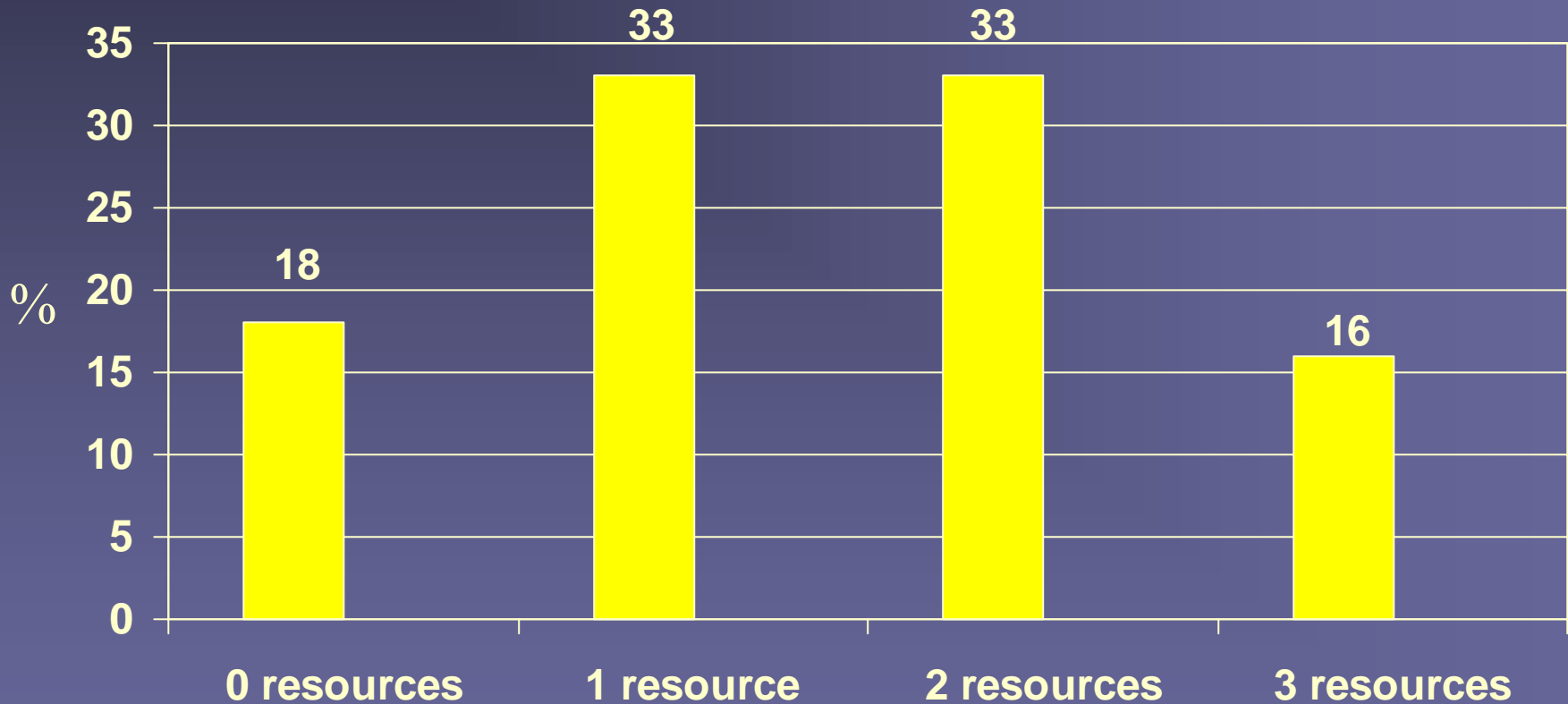
Description of Study Cohort: 773 women with HIV

- Age: 19-55 ($M = 35.5$, $SD = 6.7$)
 - Race/Ethnicity: 60% Black, 20% White, 16% Latina
 - Socioeconomic Disadvantage:
 - 45% did not complete high school
 - 82% unemployed
 - 65% public assistance
 - 72% <\$1000/month (household)
 - Drug Use (past 6 months): 37% cocaine/heroin
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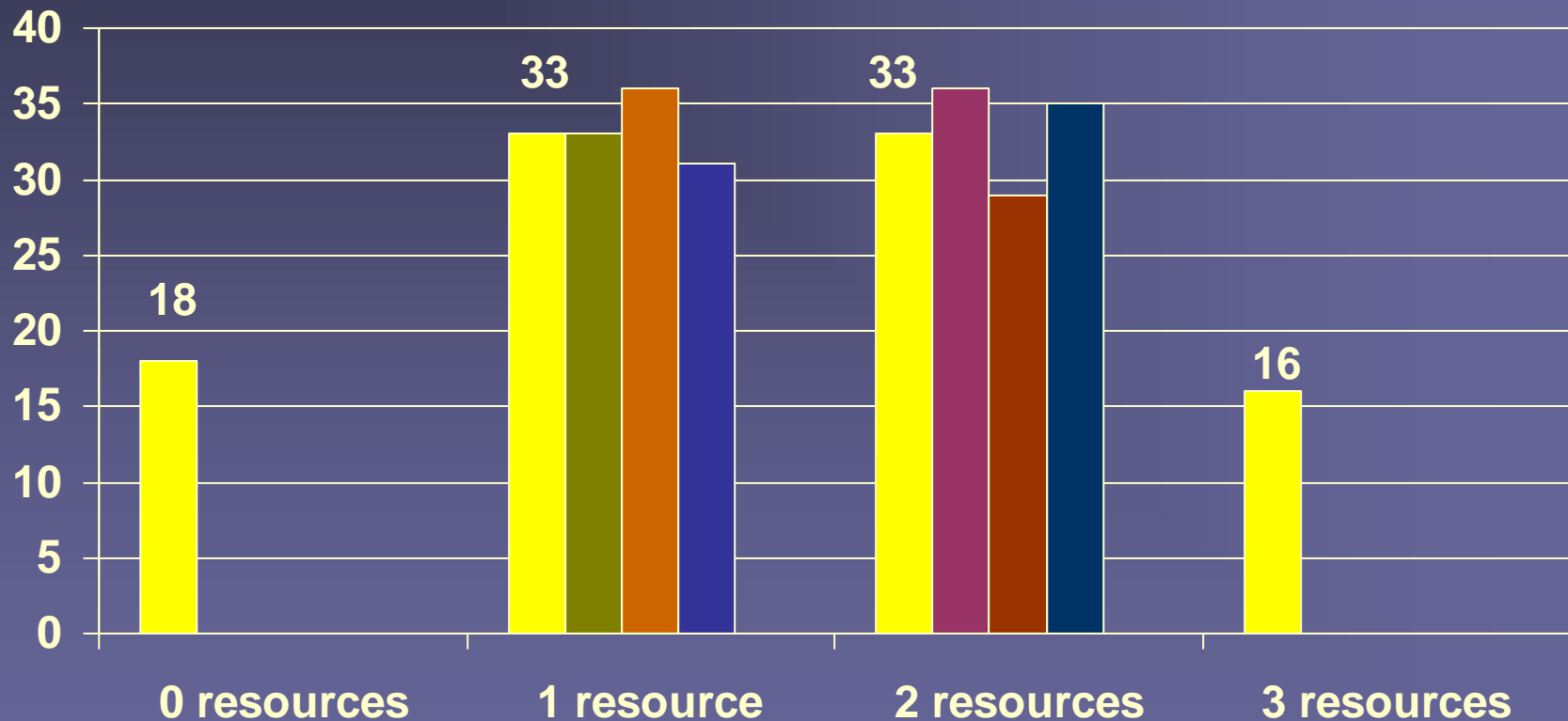
Baseline Clinical Features

- CD4+ lymphocyte count: M=431 cells/ml
 - Viral load: 25% undetectable
 - HIV-related symptoms: 56% asymptomatic
 - Antiretroviral Therapy (ART): 49% on HAART during study period
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Psychological Resource Index



Psychological Resources Index, and Within Group Distribution



33%: + affect
36%: + expect
31%: meaning

36%: + af/exp
29%: + af/mean
35%: +ex/mean



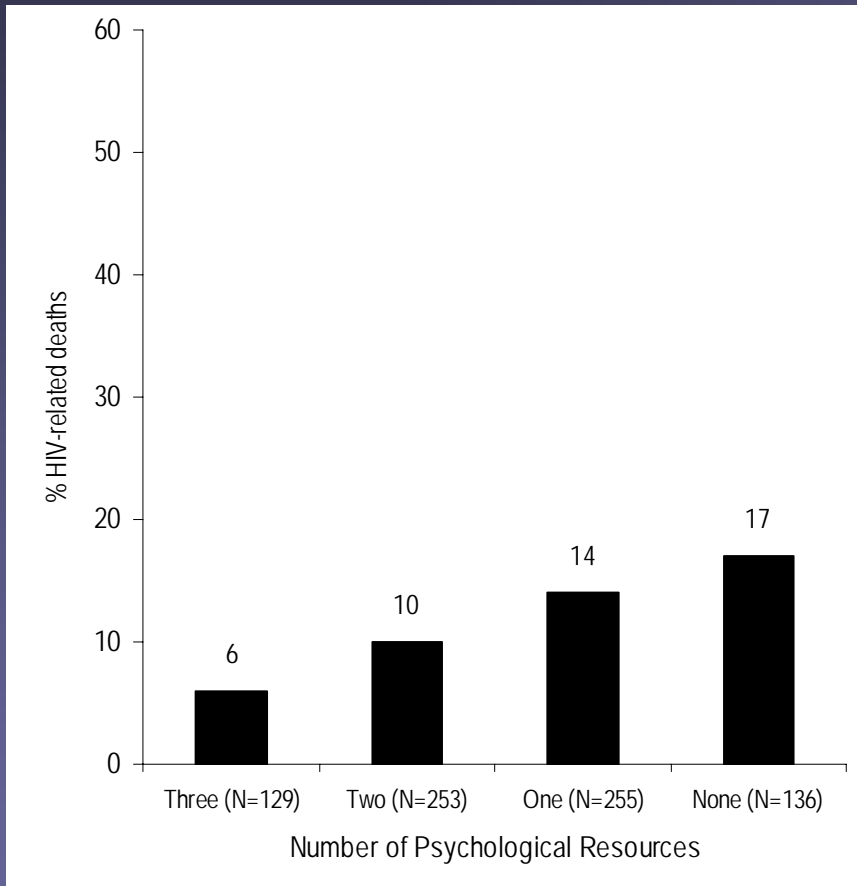
RESULTS



Psychological Resources
Associated with Mortality and
CD4+ Cell Decline

HIV-Related Deaths During Study Period in Women Stratified by Baseline Psychological Resources

A. All Participants

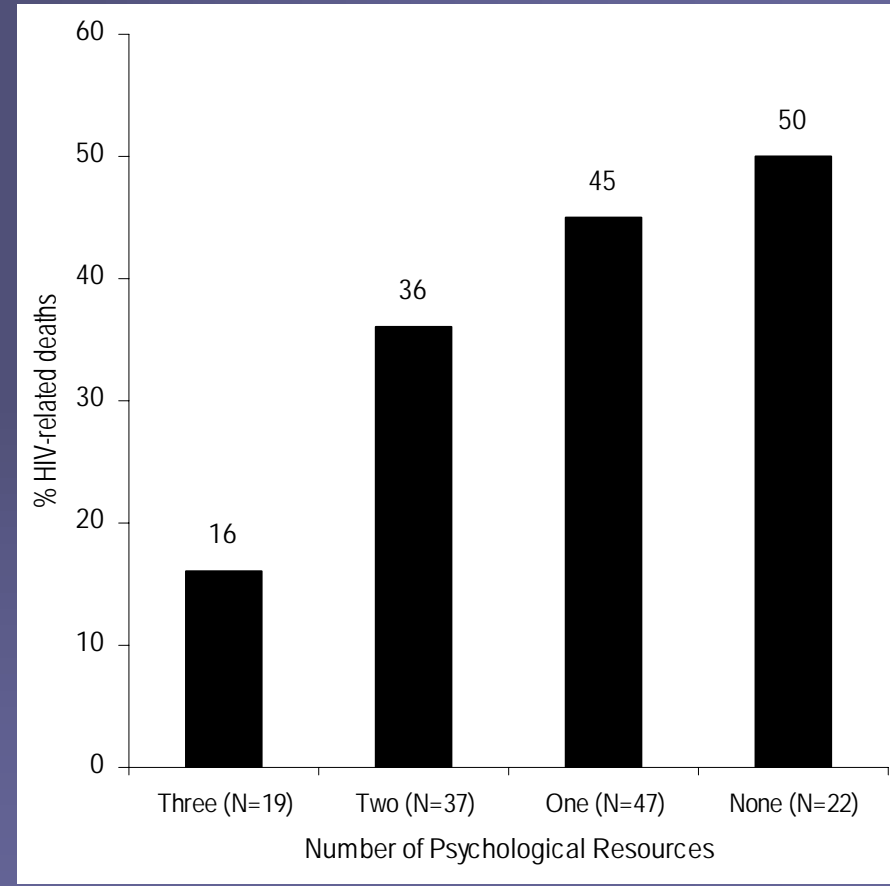


Linear trend, $\chi^2 = 8.93$, $p = .003$

OR (95% CI) [+1 each level] = 1.3 (1.1-1.7)

OR (95% CI) [0 vs 3 resources] = 2.7 (1.2-6.4)

B. Women with CD4 < 200 at baseline



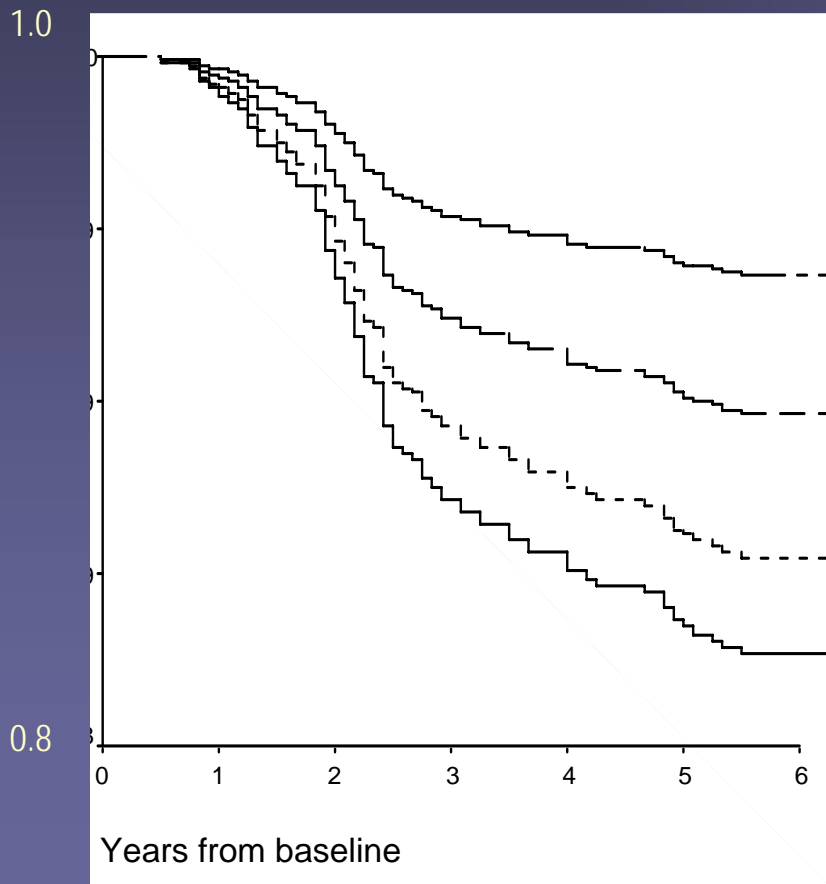
Linear trend, $\chi^2 = 5.48$, $p = .02$

OR (95% CI) [+1 each level] = 1.7 (1.1-2.8)

OR (95% CI) [0 vs 3 resources] = 4.8 (1.1-21.8).

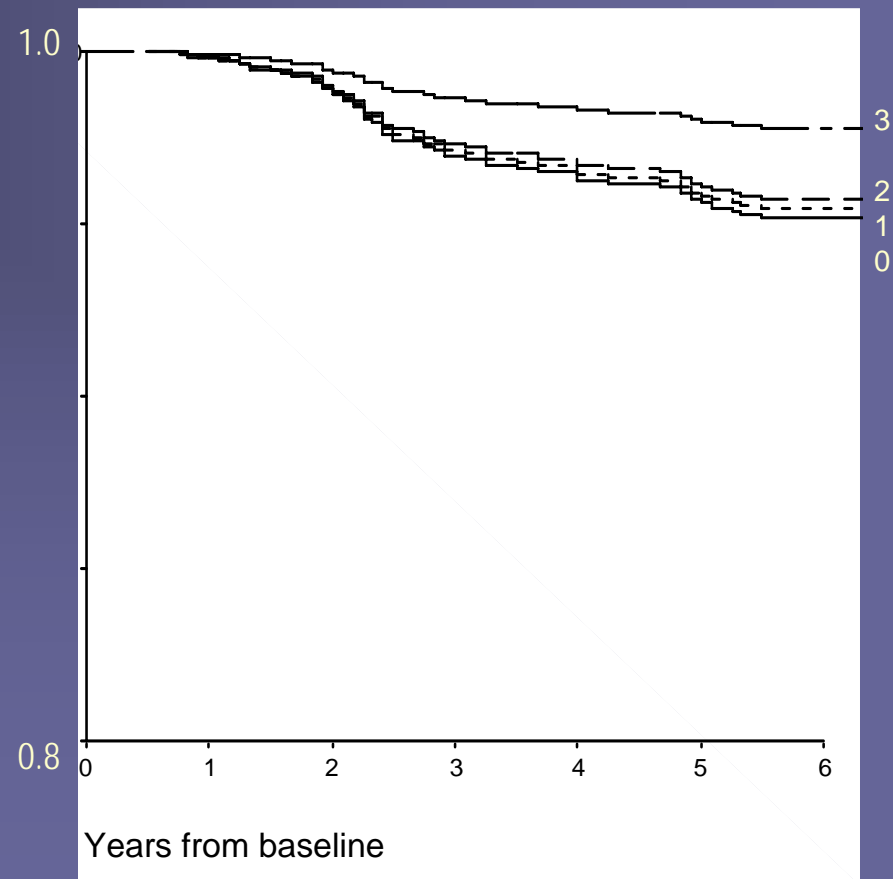
Cox Regression Survival Curves Stratified by Psychological Resources at Baseline

A. Unadjusted



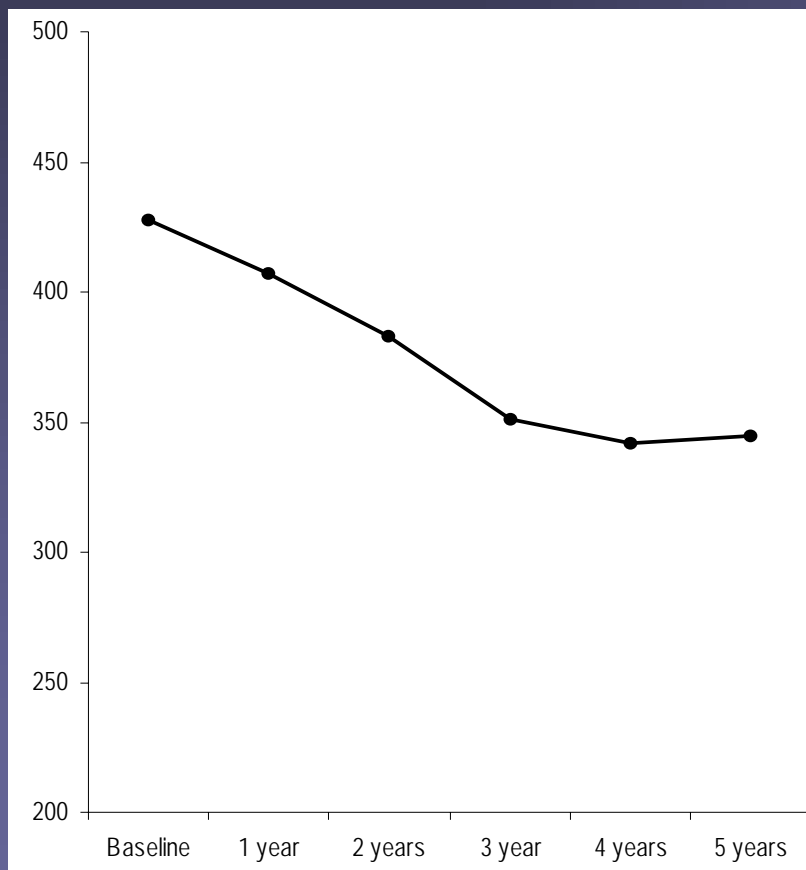
B. Adjusted

CD4+, VL, symptoms, ART, depression;
drug, alcohol, tobacco; age, race, SES

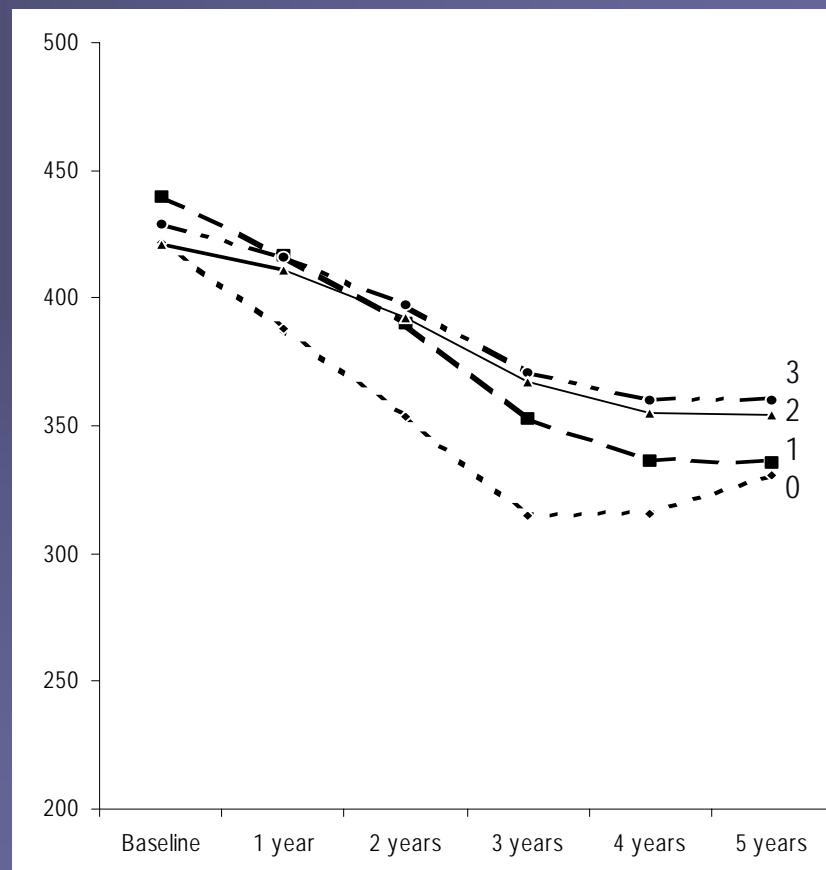


Estimated CD4+ Count Trajectories for Sample & for Women With Differing Levels of Psychological Resources at Baseline

Average CD4+ Trajectory for Sample



CD4+ Trajectories for Different Levels of Psychological Resources



No baseline difference in CD4+ count; those with more psychological resources had slower rate of CD4+ decline. (Adj Beta = $-.27$, $p < .01$)



DISCUSSION



Summary of Results

- HIV disease progression is strongly driven by pathophysiology associated with HIV
 - Psychological resources have some protective effect against HIV-related mortality and immune system decline, after controlling for related clinical and demographic features
 - Strongest for those with low baseline CD4+ counts
 - Women with greatest diversity of resources had greater longevity and slower immune decline
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Clinical Implications

- Fostering innate or acquired psychological resources may promote resilience to clinical setbacks as HIV progresses
 - Identify under what circumstances psychological resources can be enhanced to promote longevity
 - Clinical interventions could enhance psychological resources, and impact treatment response
 - Understanding could help identify new drug targets
 - This is not a question of mind *over* matter, but it is important to recognize that mind *does* matter
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Collaborators

- Stephanie Milan, Yale University
 - Jan Moore, CDC, Project Officer
 - Site PI's
 - David Vlahov, Johns Hopkins University (NYAM)
 - Ellie Schoenbaum, Montifiore Medical Center
 - Robert Boland, Brown University
 - Paula Schumann, Wayne State University
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(Sugar age 34, with Jessica & Jocelyn; from *A Positive Life: Portraits of Women Living with HIV*. Huston & Berridge, 1997)