



# Correlates of Stress in People Living with HIV/AIDS

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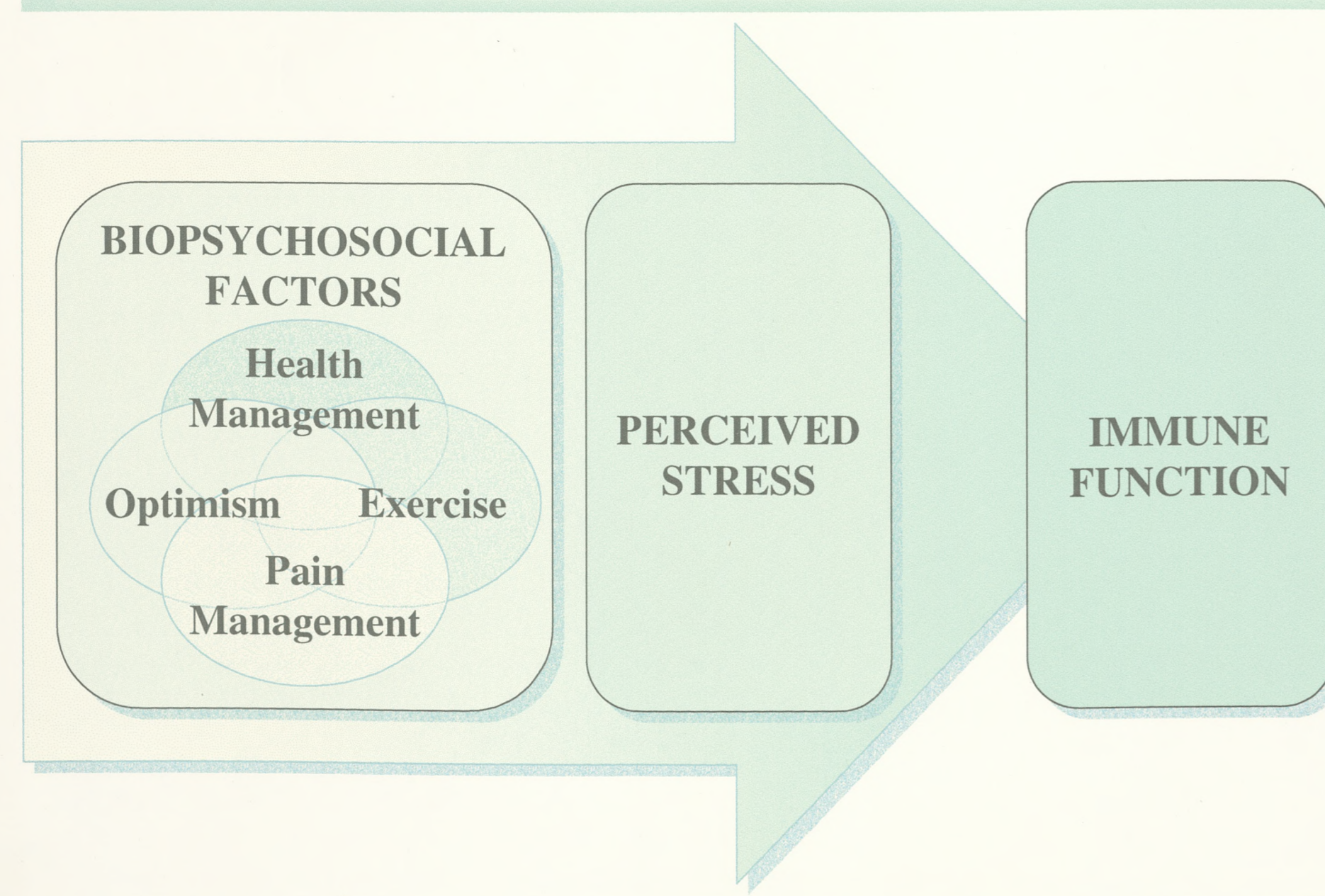
## Background

- As of December 2003 approximately 40 million people in the world were infected by HIV. As many as 14,000 new infections occur each day with over half of these in people under 25 (Fleming et al., 2000).
- HIV works by attacking the immune system.
- Since their immune system is already under attack, people living with HIV/AIDS (PLH) should try to protect their immune systems from additional stress.
- The immune system is negatively impacted by stress and stress has been associated with faster progression to AIDS (Herbert et al., 1993; Leserman et al., 2000).
- Therefore PLH should engage in stress management.

## Biopsychosocial Factors and Stress

- Psychosocial, behavioral and somatic factors can contribute to the stress experience.
  - Optimism** - Dispositional optimism is associated with better adjustments to living with HIV/AIDS. However, current research is mixed as to whether or not dispositional optimism provides a long-term shield against stress and protection to the immune system (Cohen et al., 1999; Taylor et al., 1992; Tomakowsky et al., 2001).
  - Satisfaction with Health Management** - Many aspects of health management are self regulated. Proper regulation is related to self-efficacy which can be an important factor in reducing perceived stress (Bandura, 1982; Gifford et al., 1999).
  - Exercise** - Aerobic exercise has been shown to decrease stress while having a positive effect on immune system functioning in PLH (Antoni et al., 1990; LaPerriere et al., 1994).
  - Pain Management** - Chronic pain in PLH is well documented but little is known about its long term impact on stress and the immune system (Breitbart et al., 1998; Marcus et al., 2000; Vosvick et al., 2003).

## Study

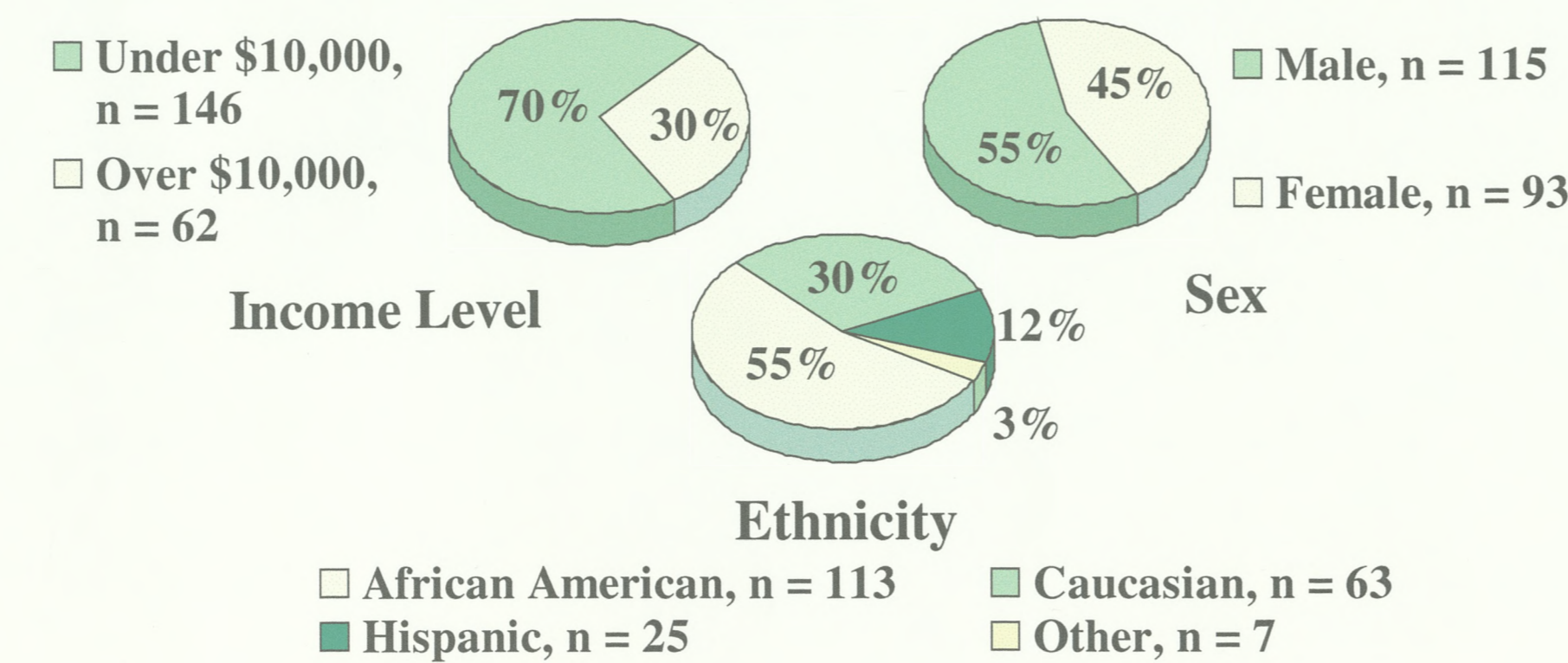


## Purpose

- To examine the biopsychosocial factors that correlate with perceived stress in PLH.

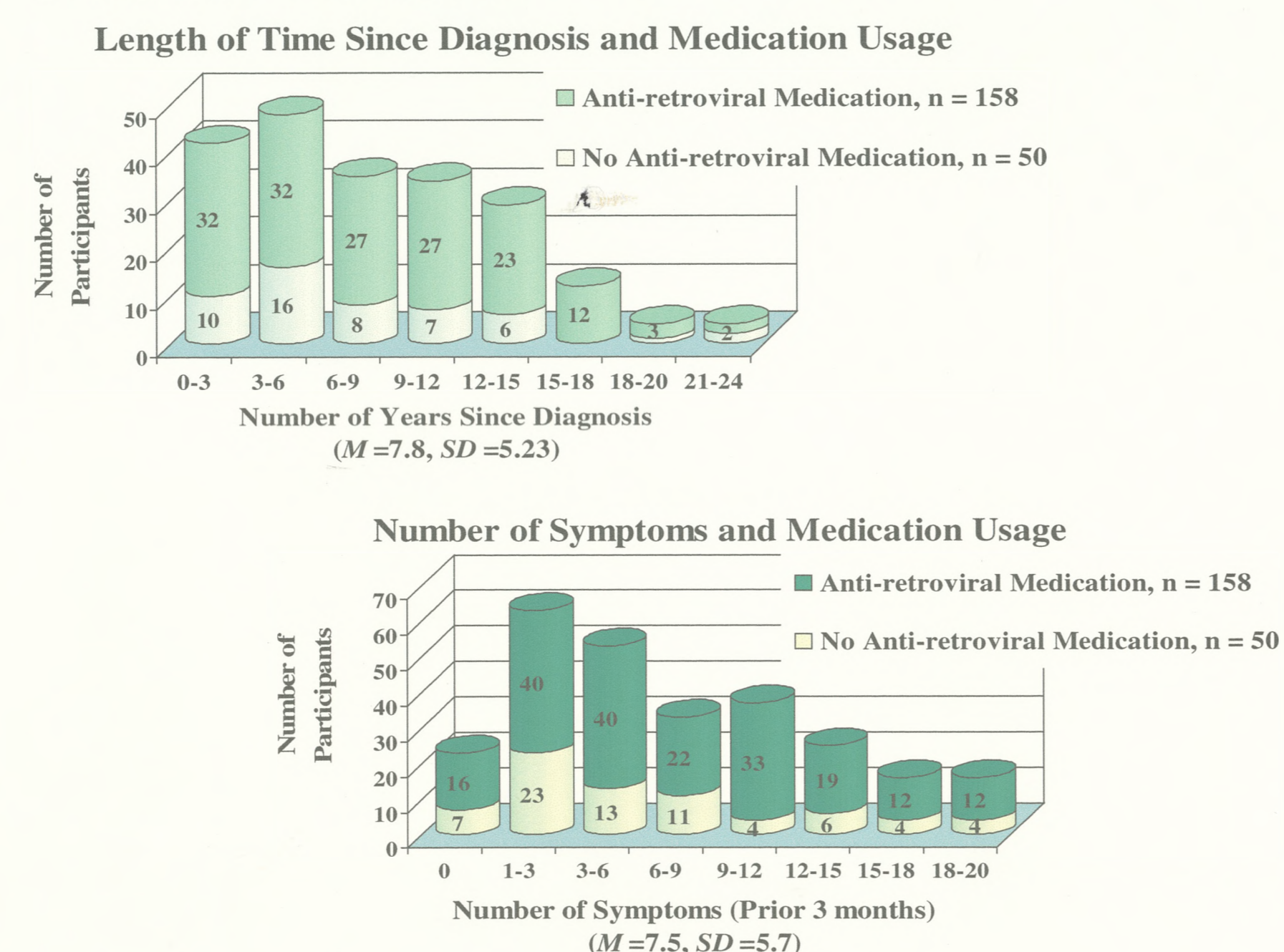
## Participants

### Demographics N = 208



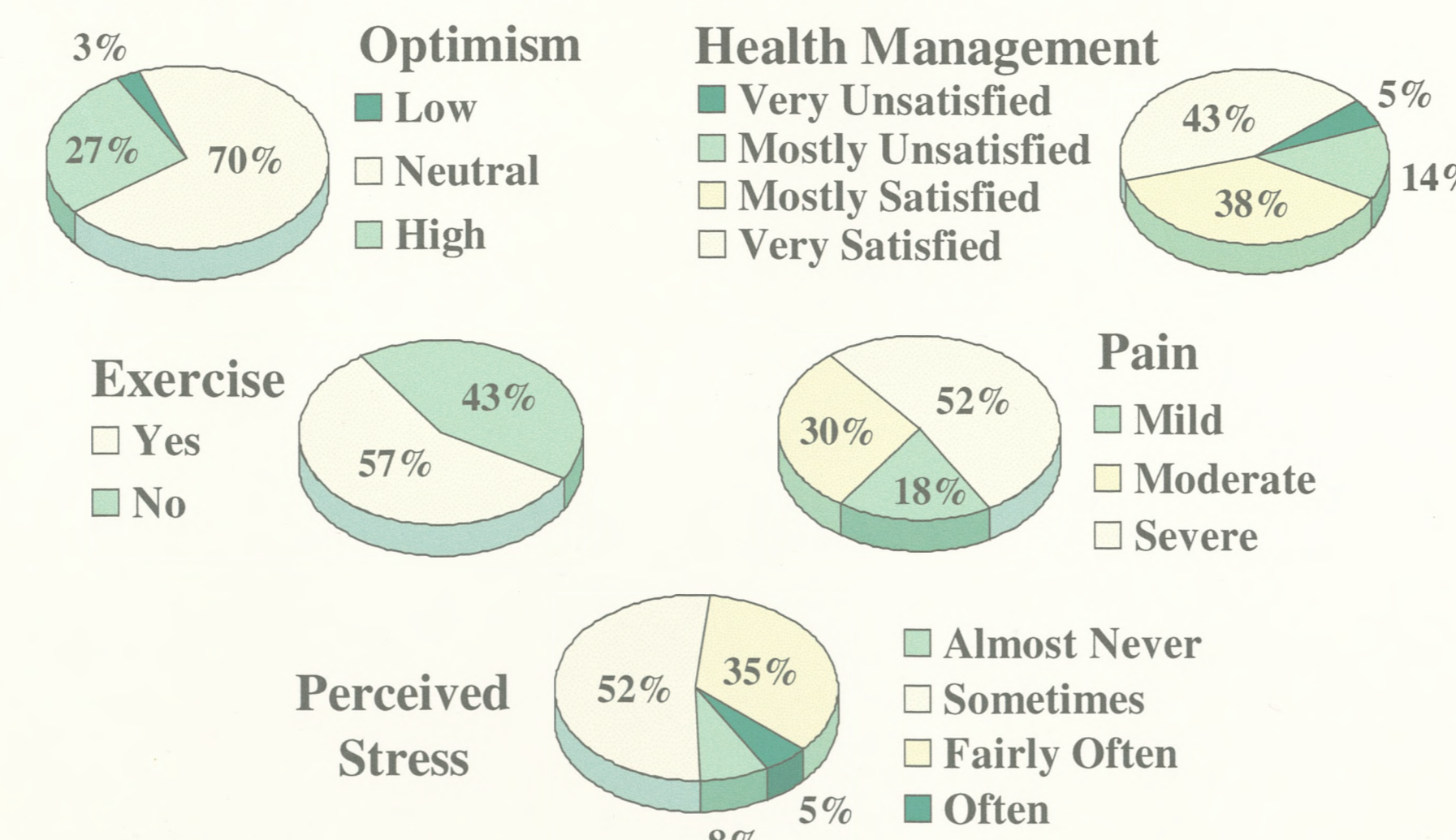
- Measures: Demographic Questionnaire

### Medical Variables



- Measures: Medication Adherence Questionnaire (Chesney et al., 2000), Date of HIV Diagnosis, HIV Symptom Checklist (StatEpi Coordinating Center)

### Biopsychosocial Variables



- Measures:
  - Optimism** - Extended Life Orientation Test (Chang et al., 1997;  $M = 51, SD = 5.30$ ; Range 15-75;  $\alpha = .84$ )
  - Health Management Satisfaction** - Health Care Services (StatEpi Coordinating Center;  $M = 25, SD = 5.30$ ; Range 8-32;  $\alpha = .82$ )
  - Exercise** - Daily Activities Report
  - Pain Management** - MOS-HIV (Wu et al., 1991;  $M = 42, SD = 13.9$ ; Range 11-60;  $\alpha = .89$ )
  - Stress** - Perceived Stress Scale (Cohen et al., 1983;  $M = 19.6, SD = 6.40$ ; Range 0-40;  $\alpha = .67$ )

## Analysis

### Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Sex	-----												
2. African American†	ns	-----											
3. Hispanic †	ns	-.40**	-----										
4. Other †	ns	-.20**	ns	-----									
5. Income	-.14*	ns	ns	ns	-----								
6. Number of Symptoms	ns	ns	ns	ns	ns	-----							
7. Diagnosis Years	ns	ns	ns	ns	ns	ns	-----						
8. Anti-retroviral Meds	ns	-.15**	.14*	-.15*	ns	ns	ns	-----					
9. Optimism	ns	ns	ns	ns	ns	-.20**	ns	ns	-----				
10. Health Management	ns	-.14**	ns	ns	-.14*	-.35**	ns	ns	-.19**	-----			
11. Exercise	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	-----		
12. Pain Management	ns	ns	ns	-.14*	ns	-.42**	ns	ns	-.19**	-.14*	ns	-----	
13. Perceived Stress	-.17*	ns	ns	ns	ns	-.30**	ns	ns	-.30**	-.27**	-.22**	-.24**	-----

† Caucasian was dummy coded as the referent ethnicity.  
ns Not significant  
\* Significant at the 0.05 level  
\*\* Significant at the 0.01 level

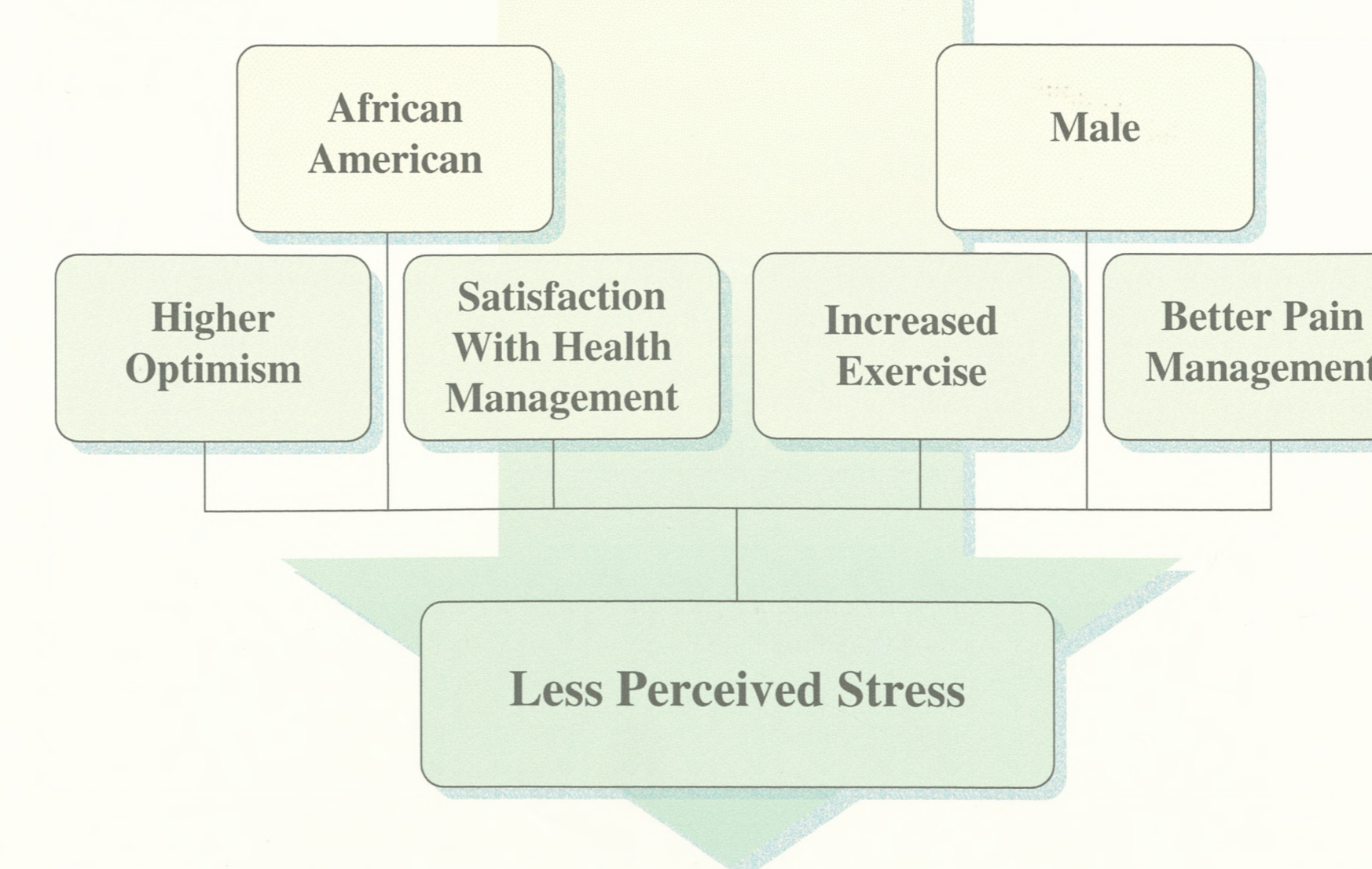
### Multiple Regression Analysis

MODEL VARIABLES	B	t	p
Demographic Variables			
Sex	.20	3.12	.002**
African American †	-.15	-2.17	.031*
Hispanic †	-.05	-.79	.428
Other	-.04	-.58	.564
Income	.11	1.74	.083
Medical Variables			
Number of Symptoms	.13	1.74	.083
Number of Years Since Diagnosis	-.07	-1.13	.260
Anti-retroviral Medication	-.02	-.23	.816
Biopsychosocial Variables			
Optimism	-.19	-2.90	.004**
Health Management	-.21	-3.15	.002**
Exercise	-.18	-2.83	.005**
Pain Management	-.14	-2.00	.047*

Dependent Variable: Perceived Stress (Adj.  $R^2 = .24, F(12, 195) = 6.36, p < .001$ )

† Caucasian was coded as the comparison ethnicity  
\* Significant at the 0.05 level  
\*\* Significant at the 0.01 level

### Model



### Design Limitations

- Generalizability is limited since a convenience sample was utilized and may not represent all PLH.
- This study is a cross-sectional correlational design and therefore causal relationships can not be inferred.
- Surveys were self-report.

## Conclusions

- Our model explains 24% of the variance in perceived stress in PLH.
- These findings suggest that a biopsychosocial approach may be beneficial to PLH to reduce stress.

## Future Research

- Examine effective delivery mechanisms that can be incorporated in clinical settings to reduce stress for PLH.
- Determine if biopsychosocial interventions to reduce stress will improve immune function and prolong life in PLH.
- Further exploration into the role of pain management as it relates to stress and immune function in PLH.
- Although dispositional optimism might protect PLH from perceived stress, long term effects on immune function should be explored further (Cohen et al., 1999; Taylor et al., 1992; Tomakowsky, et al., 2001).
- Further exploration into why African Americans and men reported experiencing significantly less perceived stress.

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