

# **Race, Chronic Stress, Poor Health Behaviors, and Physical and Mental Disorder Disparities**

## **Exploring the Intersections**

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**Institute for Social Research**  
**University of Michigan**

Conference on Understanding and Reducing Health Disparities: Contributions from the Social and Behavioral Sciences. NIH, Bethesda, MD, October 23-24, 2006

My appreciation to Kati Knight and Jane Rafferty for the analyses and charts and the “State of the Dream 2004” and “State of the Dream 2005” reports, United for a Fair Economy, 37 Temple Place, 2<sup>nd</sup> Floor Boston, MA 02111, for some of the slides in this presentation. I also thank Julie Sweetman for her help in assembling this material and presentation and the entire PRBA group.

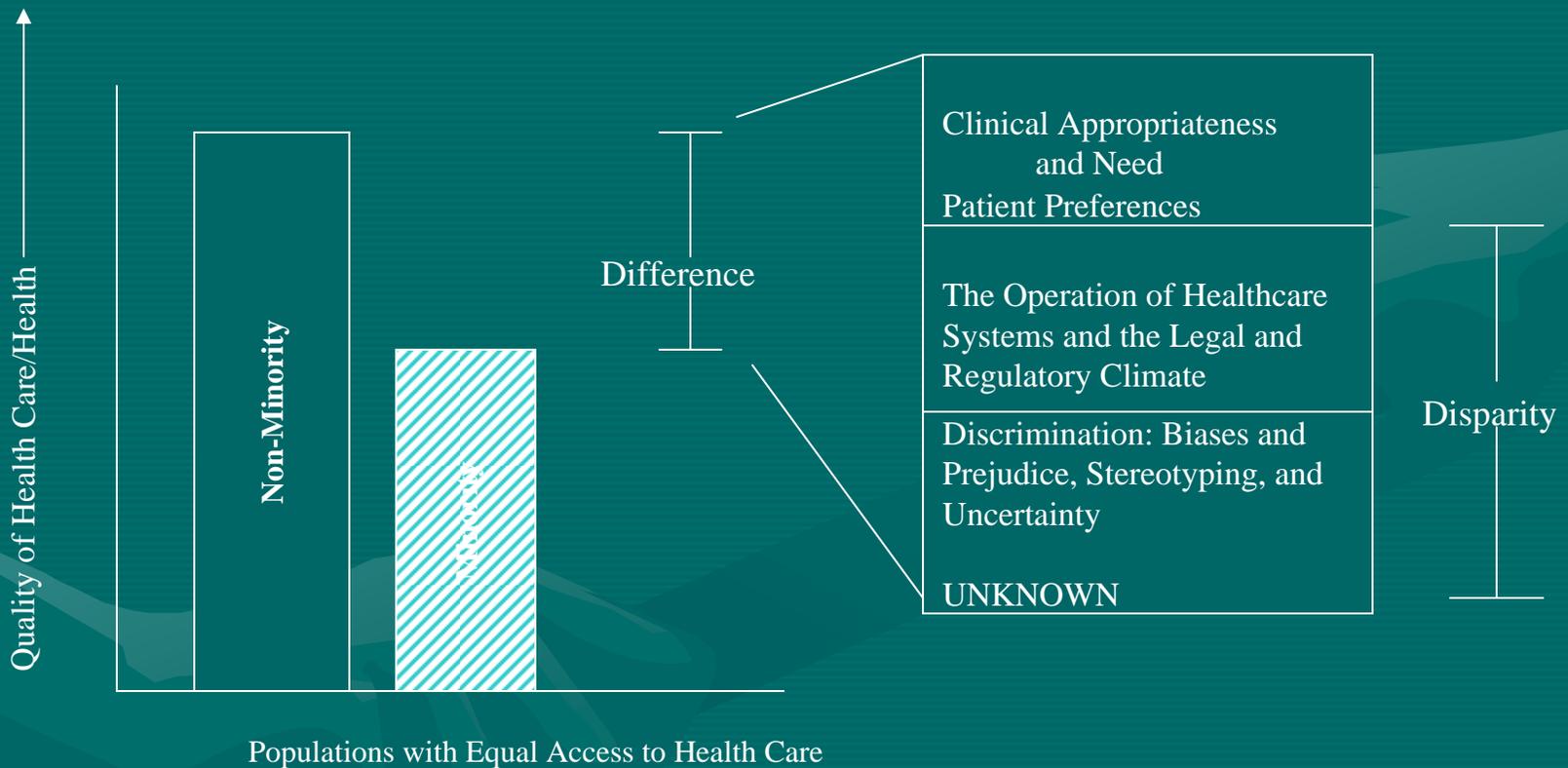
# Themes of the Conference

- Elimination of Disparities vs. Improving Parity
- Complexity of Causes
- Life-Course
- Mechanisms – Horizontal and Vertical Integration
- Intervention and Treatment
- National and Local Policy Changes

# R.I.C.E.

- Race
- Immigration
- Culture
- Ethnicity (and Gender, SEL and Identity and . . .)

# Figure 1: Differences, Disparities, and Discrimination



# Law of Small Effects in Race Related Outcomes (Jackson, 2004)

- There is no one single factor that produces observed physical health disparities among race/ethnic groups in U.S.
- Group of small differences which may accumulate over the life-course to produce observed differences in adulthood and older ages among different race/ethnic groups

# Some Candidates

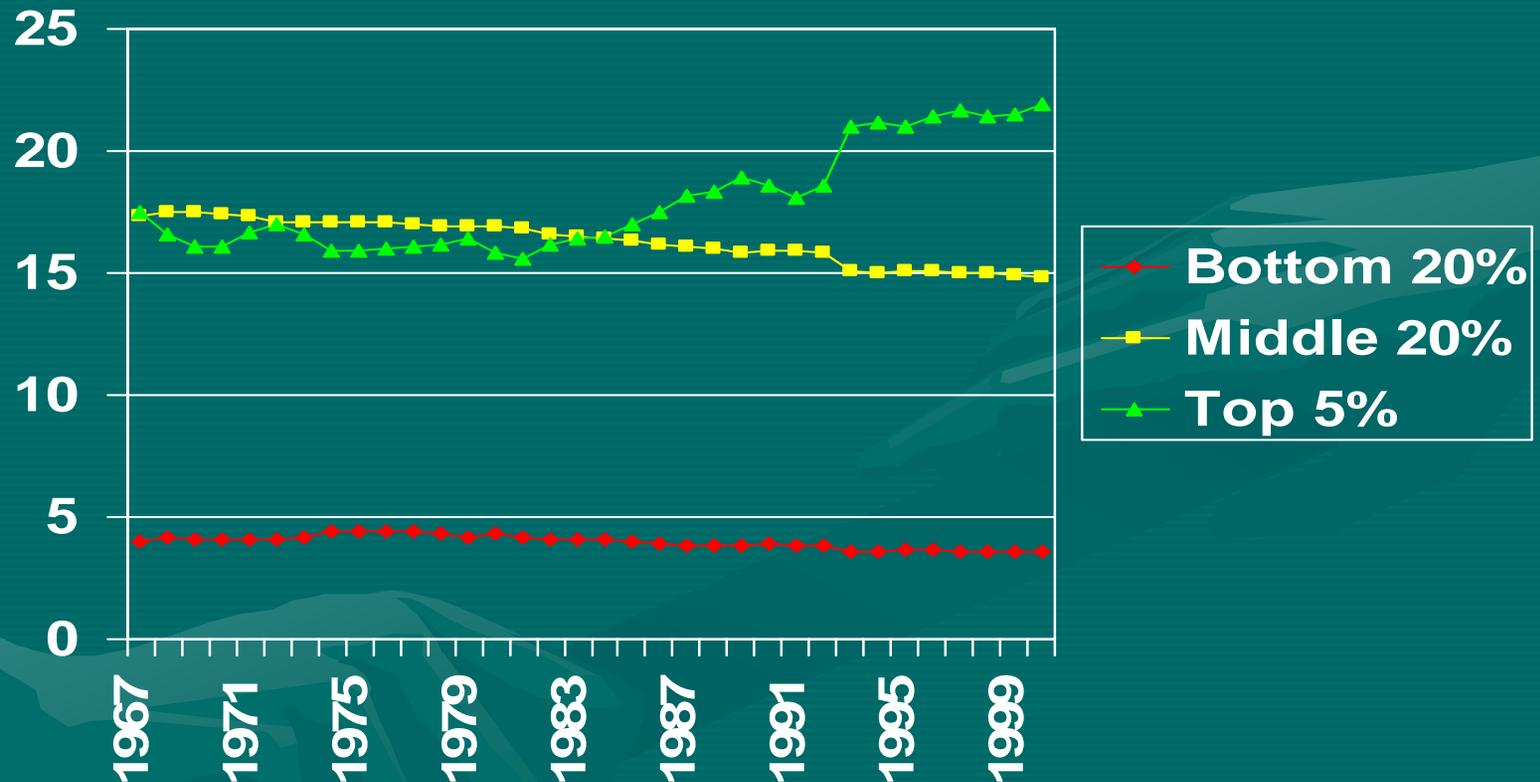
- Gene/gene and gene/environment interactions
- Discrimination and perceived racism (stress process)
- Accumulated stress (weathering, allostatic load, etc.)
- Life course selection
- Cultural factors
- Behavioral differences
- SES and institutional arrangement

- Accumulated Treatment Differences
- Social & Psychological Factors (e.g. John Henryism, Self-efficacy, mastery, etc).
- Culturally & Environmentally Mediated Behavioral Coping Strategies
- We cannot easily parse these potential effects into their constituent parts and assign individual contributions

# Disparities in Demographic, Economic, and Social Resources: Structural Inequalities

- The U.S. is becoming more unequal in the distribution of economic resources
- The U.S. is becoming more racially and ethnically diverse
- Blacks and other groups remain materially disadvantaged and geographically segregated

# Income Shares at the Bottom, Middle, and Top Percents of Household Incomes



Source: US Bureau of the Census, March Current Population Survey  
Based Upon Historical Income Tables, H-2. Share of Aggregate Income  
Received by Each Fifth and Top 5 Percent of Households (All Races): 1967-2000

# Evidence of Racial and Ethnic Disparities in Health and Healthcare

- Disparities consistently found across a wide range of disease areas and clinical services
- Disparities are found even when clinical factors, such as stage of disease presentation, co-morbidities, age, and severity of disease are taken into account
- Disparities are found across a range of clinical settings, including public and private hospitals, teaching and non-teaching hospitals, etc.
- Disparities in care are associated with higher mortality among minorities (e.g., Bach et al., 1999; Peterson et al., 1997; Bennett et al., 1995)

# Race Matters

- Even if we don't know what "IT" is

# Biological and Social Perspectives on Race

- Self-reported (or other reported) race/ethnicity most often used categorization in both biological and social research
- Why should we observe such large and both consistent (African Americans), and inconsistent (Caribbeans, Latinos, Asians, etc), disparities among race/ethnic groups

Figure 2: Self and Other Race Perceptions

		Self	
		Yes Black	Not Black
Other	Yes Black	African American	Asian Hispanic Afro Caribbean
	Not Black	Asian Hispanic Afro Caribbean	Non-Hispanic White

# Race and Chronic Stress



**Chronic Stress Process: One Possible  
Pathway for Physical and Mental  
Health Effects Among Racial and  
Ethnic Minorities**



# Major Culprits For Producing Stressful Effects May be Chronic Environmental Stressors and Discrimination

- Discrimination and perceived racism as a class of stressors have been shown to have health and mental health effects among racial and ethnic minorities
- Discrimination operates in the context of social, political, economic, and cultural influences over the individual and group life-course
- Discrimination and perceived racism, as well as other stressors related to poor structural life conditions probably play a role in health and mental health processes, but the role is complex

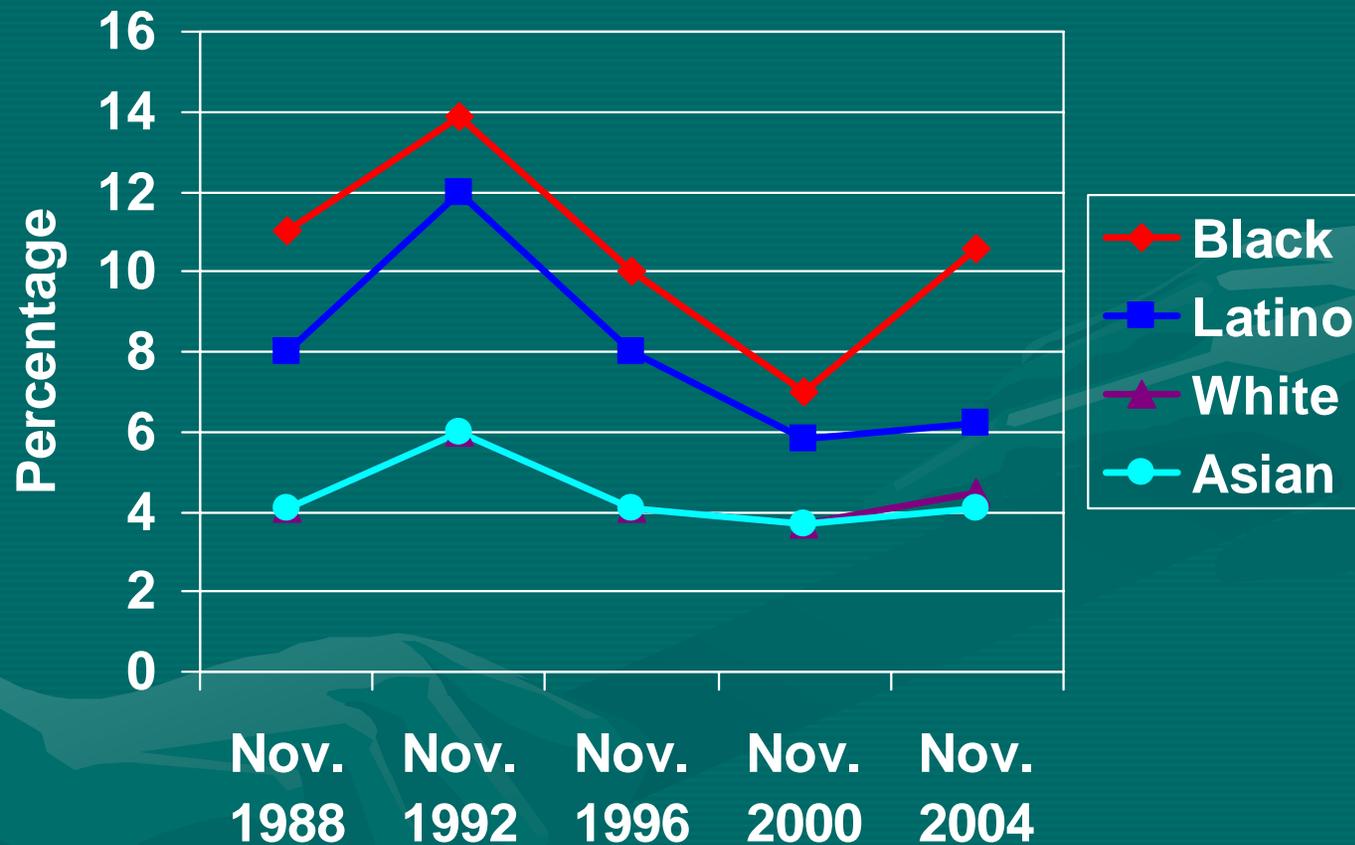
# Disparities in Demographic, Economic, and Social Resources: Structural Inequalities

- Blacks disproportionately in comparison to Non-Hispanic Whites remain materially disadvantaged and geographically segregated, especially in poor, core urban areas

# Negative Neighborhood Characteristics

- Neighborhood Segregation & Health (Roux, et al, 2002)
- Differentially Stressful (e.g. Roux et al, 2001; 2002; Geronimous & Thompson, 2004; Massey, 2004)
- Afford Differential Opportunities, e.g. food, services, jobs (e.g. Morland, et al, 2001; 2002; Wing et al, 2002; )
- Afford Differential Coping Resources (e.g. Fast Food Outlets, Liquor Stores, Illegal Drug Distributors, etc. Roux, 2002)

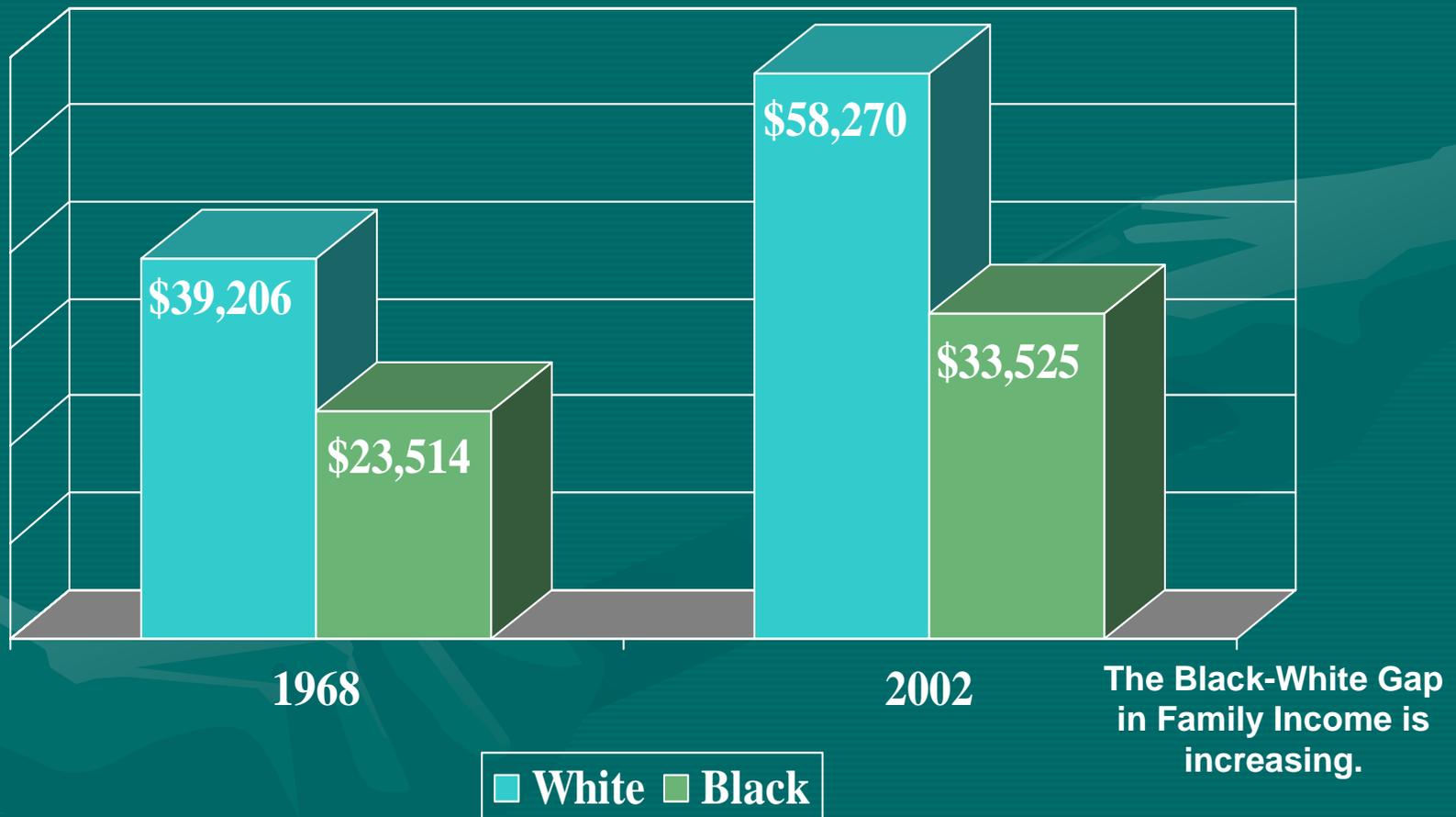
# Unemployment Rate by Race 1988 - 2004



Source: Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey, Table A-2.

# Median Family Income, 1968 and 2002

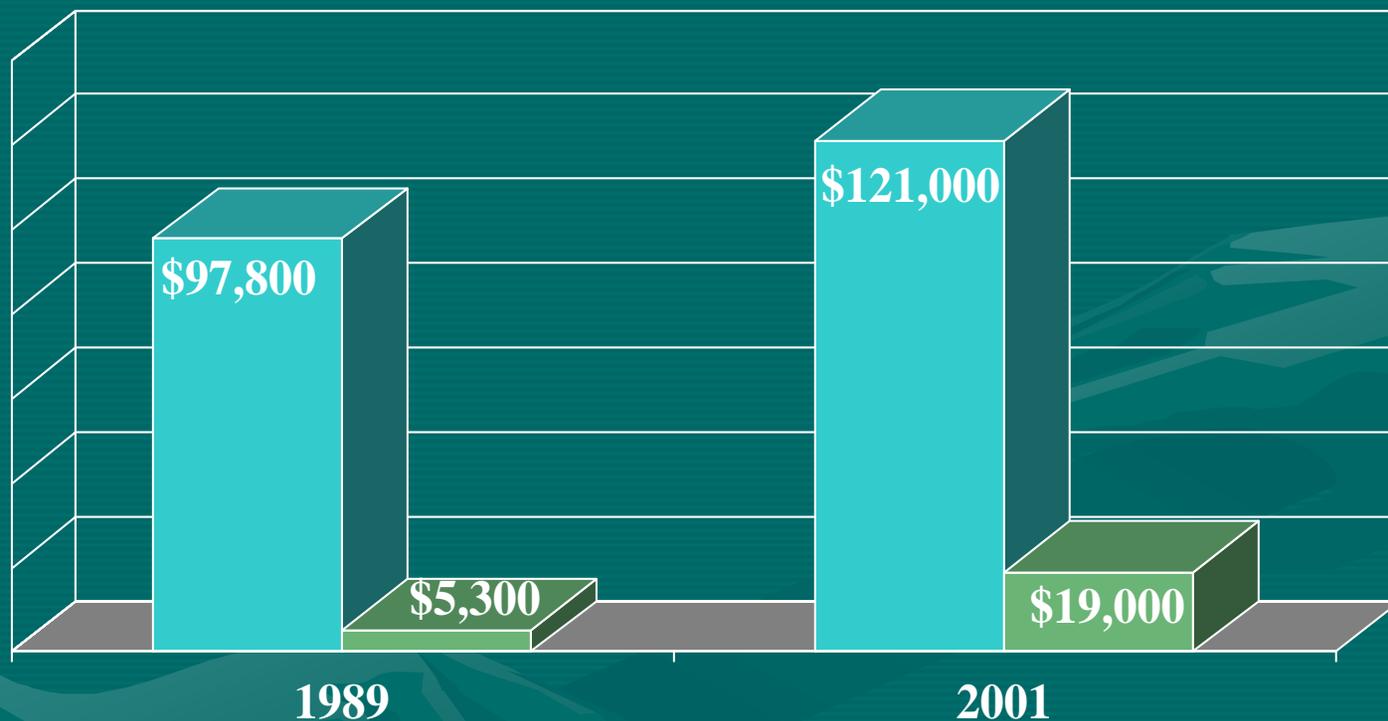
(Adjusted for Inflation in 2002 dollars)



Source: U.S. Census Bureau, Current Population Survey, Historical Income Tables, Table F-5  
State of the Dream 2004 Report

# Median Household Net Worth, 1989 and 2001

(Adjusted for Inflation in 2001 dollars)

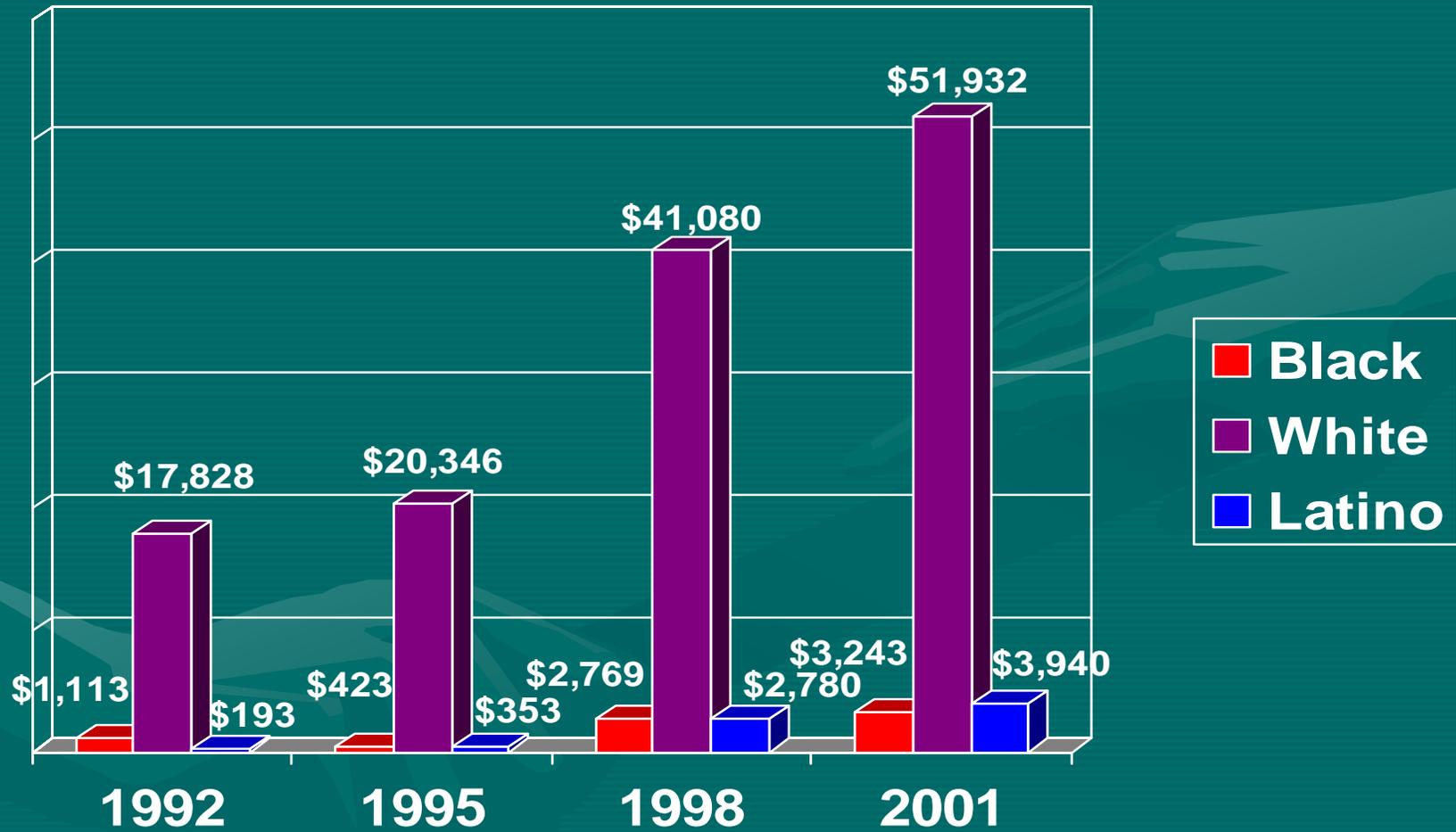


Years to Parity: 98

Parity Year: 2099

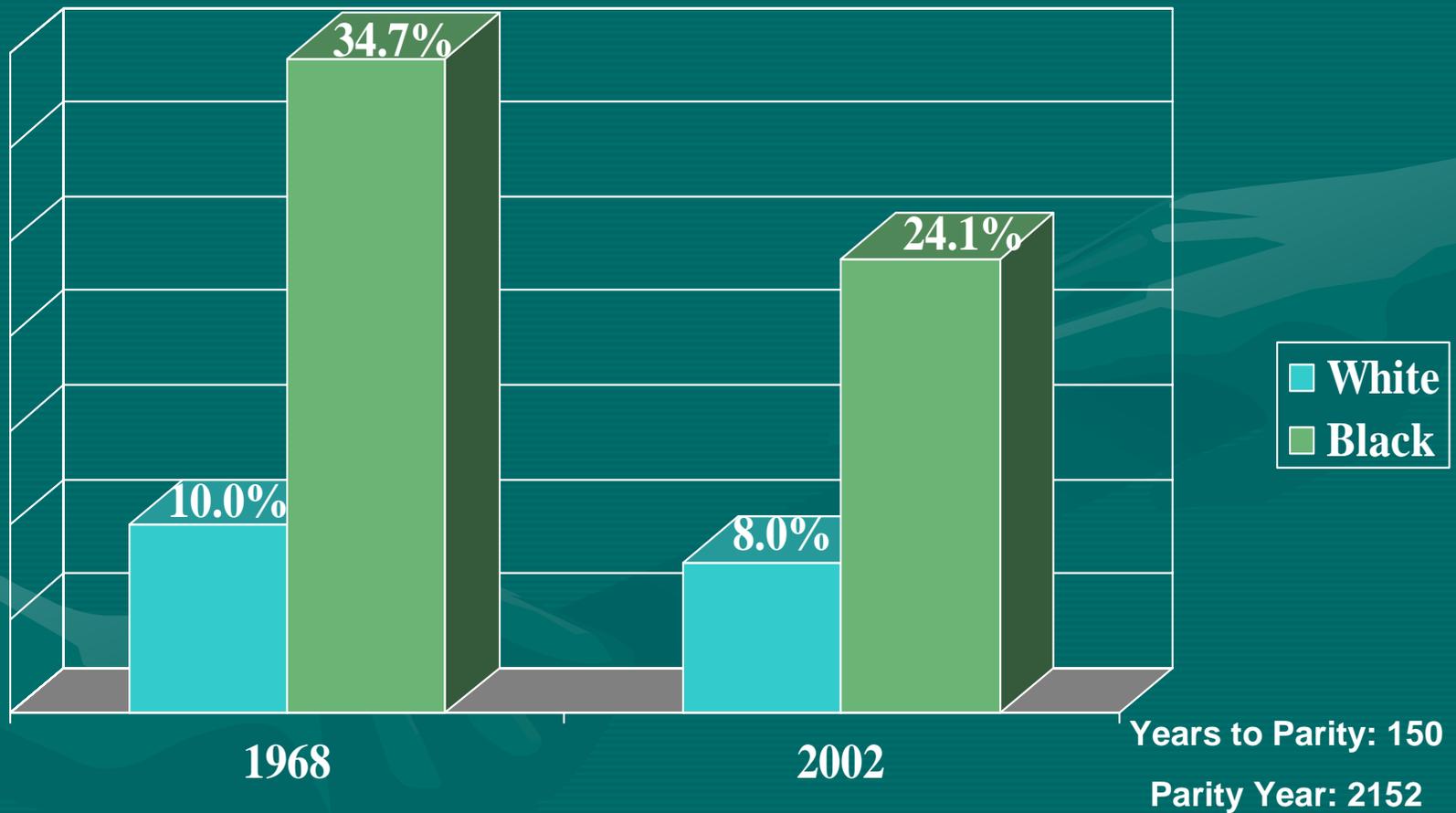
Source: Arthur B. Kennickell, "A Rolling Tide: Changes in the Distribution of Wealth in the U.S., 1989-2001," Levy Economics Institute, Nov. 2003. Note: 1989 is the first year for available methodologically consistent data.  
State of the Dream 2004 Report

# Mean Household Ownership of Stocks by Race, 1992-2001 (in 2001 dollars)



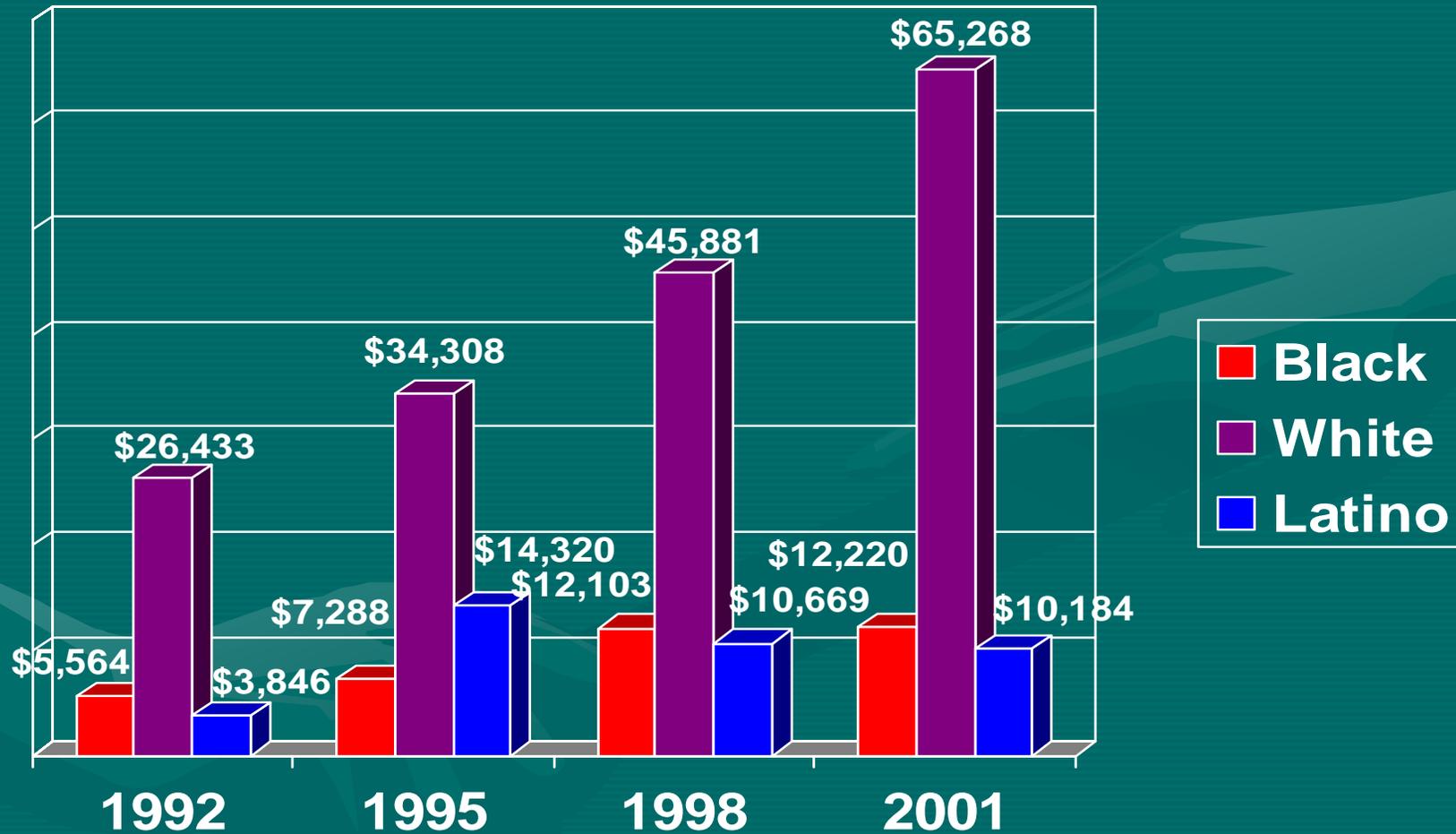
Source: Federal Reserve Board, Survey of Consumer Finances.

# Overall Poverty Rate, 1968 and 2002



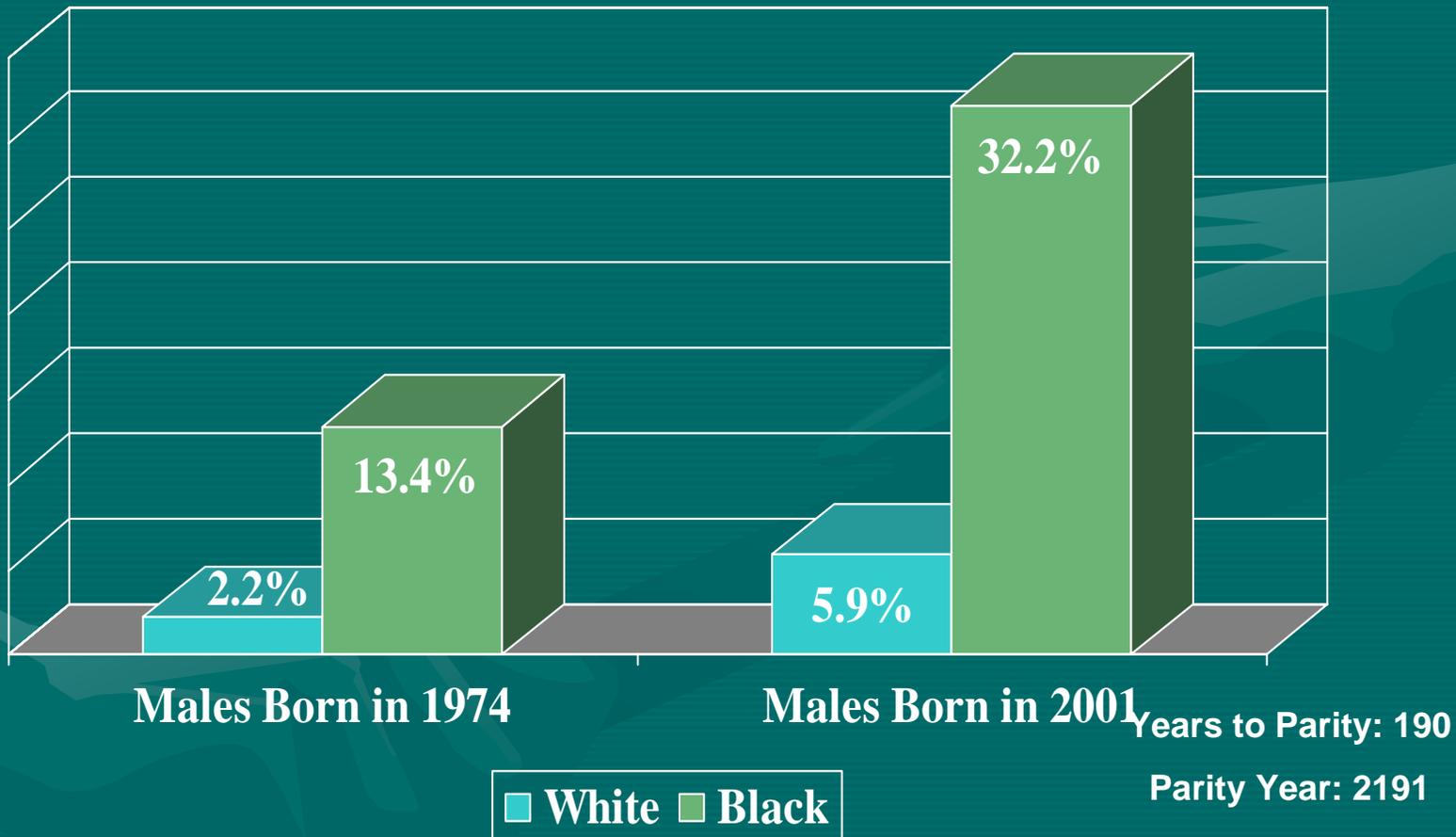
Source: U.S. Census Bureau, Current Population Survey, Historical Poverty Tables, Table 2.  
State of the Dream 2004 Report

# Mean Retirement and Pension Assets (in 2001 dollars)



Source: Federal Reserve Board, Survey of Consumer Finances.

# Lifetime Chance Going to Prison Males Born in 1974 and 2001



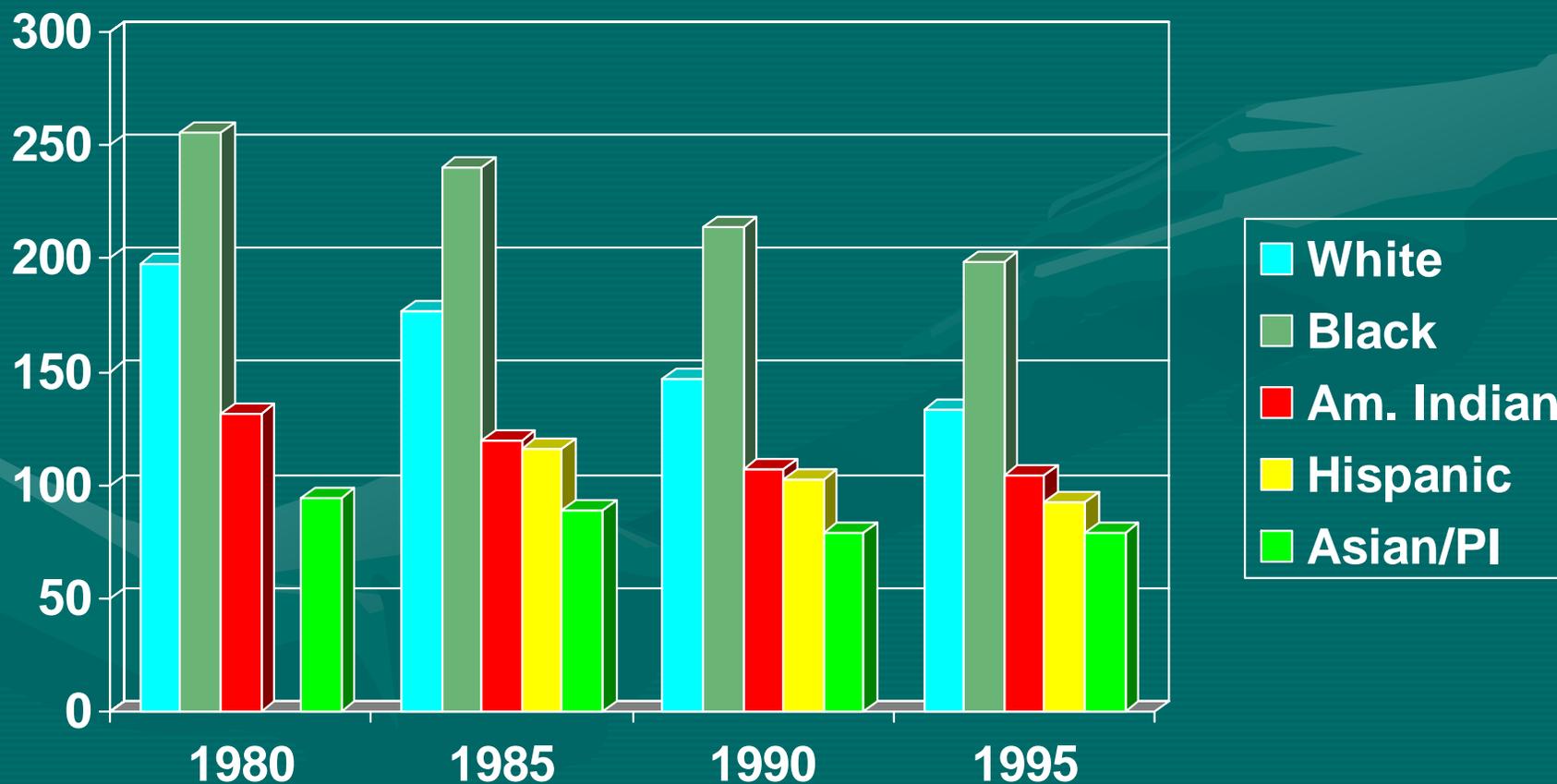
Source: U.S. Census Bureau, Current Population Survey, Educational Attainment Historical Tables, Table A-2. State of the Dream 2004 Report

# Disparities in Health Status, Health Services and Mental Health: Physical and Psychological Inequalities

- Large disparities in all cause and specific cause death rates exist among ethnic and racial groups – these differences are not due in any simple way to socioeconomic status
- Infant mortality rates have declined but large difference exist between African Americans and whites
- There are large disparities in health care utilization between African Americans and whites

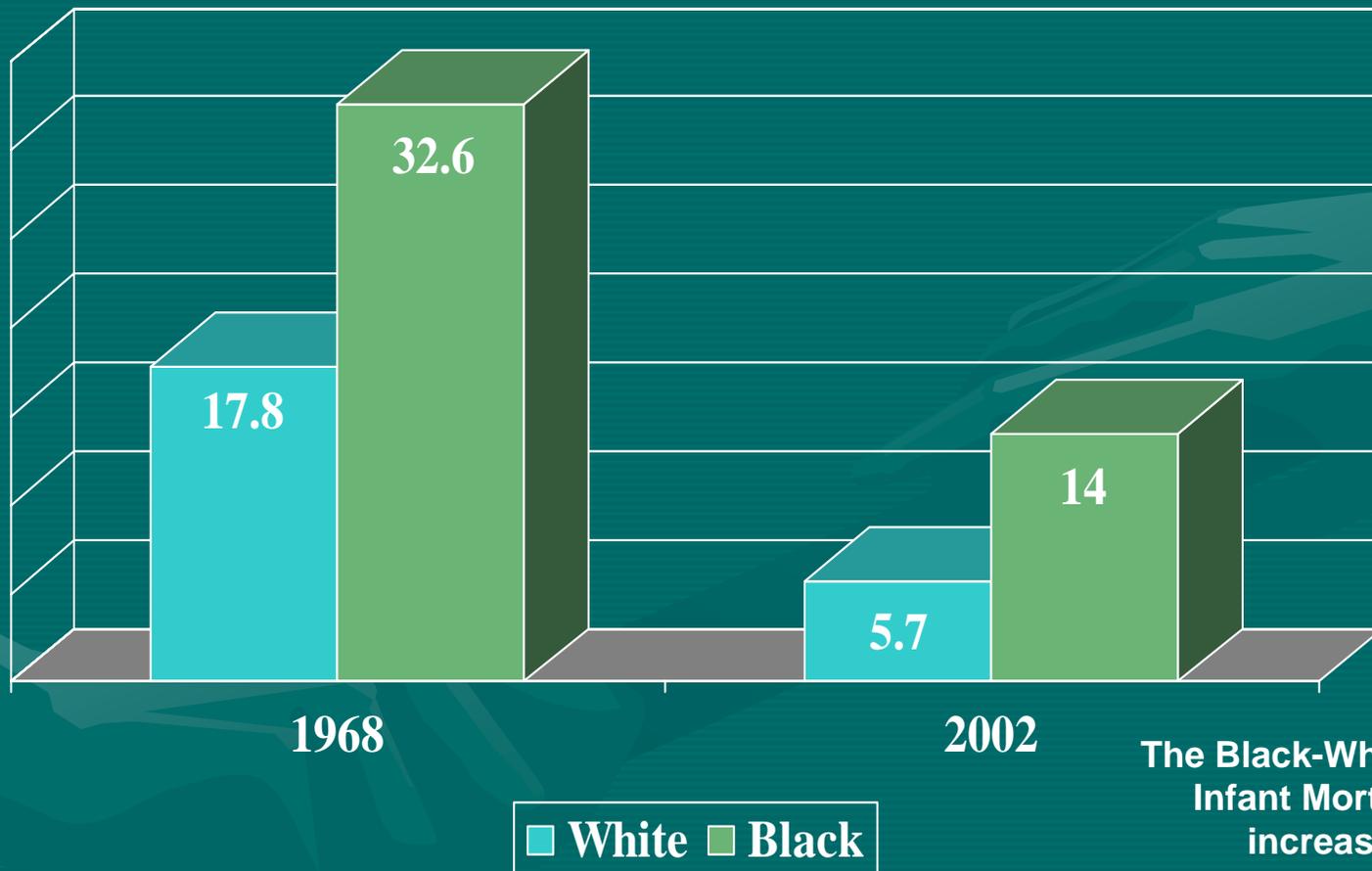
# Trends in Heart Disease Mortality, 1980-1995

Age-adjusted death rates per 100,000 population



# Infant Mortality Rate, 1970 and 2001

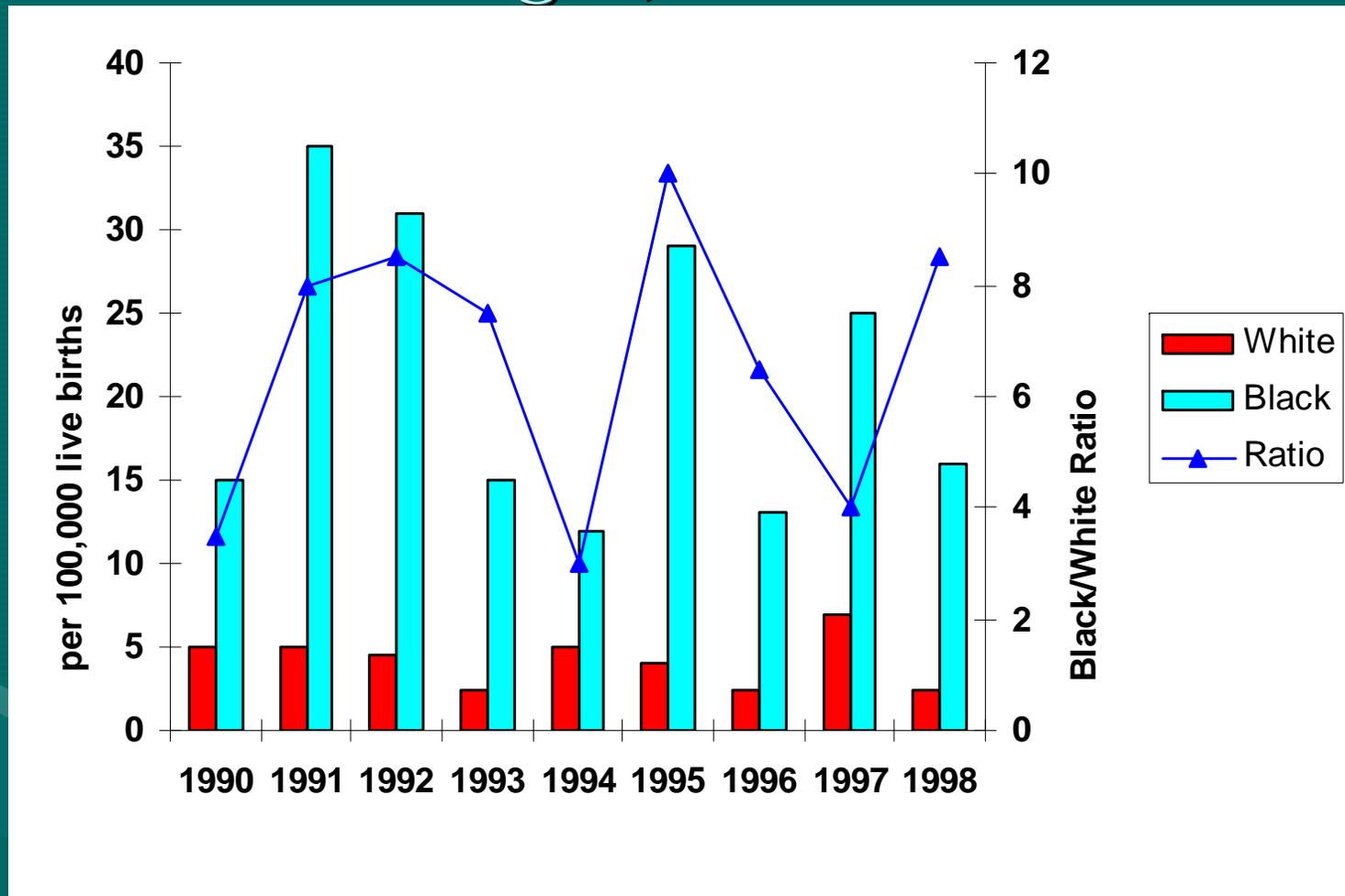
(Deaths per 1,000 live births)



The Black-White Gap in Infant Mortality is increasing.

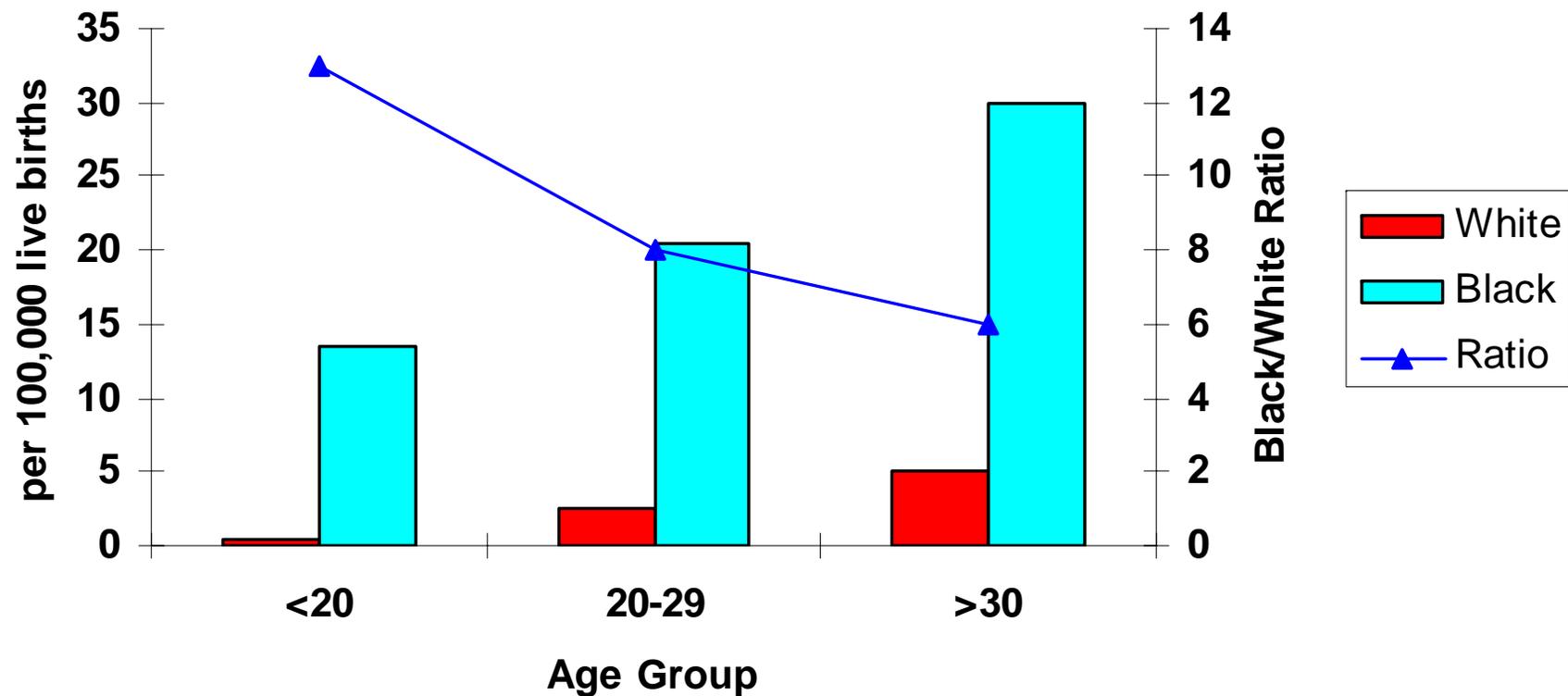
Source: National Center for Health Statistics, National Vital Statistics Reports, Sept. 18, 2003, Table 3I.  
State of the Dream 2004 Report

# Pregnancy-Related Mortality Ratio by Race, Michigan, 1990-1998

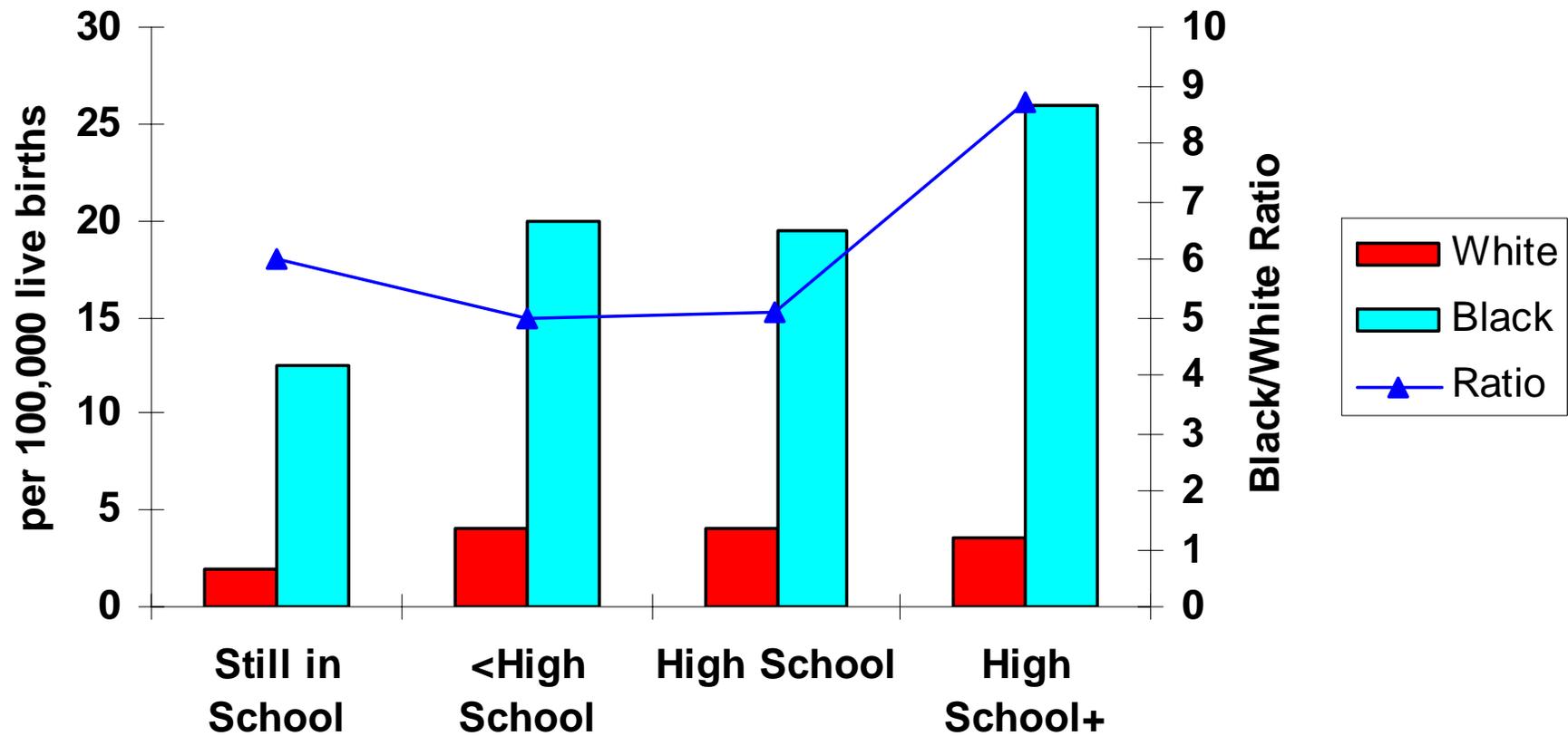


Joanne G. Hogan, Ph.D., Bao-Ping Zhu, MD, MS. Division of Epidemiology Services, Community Health Agency, Michigan Department of Community Health.

# Pregnancy-Related Mortality Ratio by Age & Race, Michigan, 1990-1998

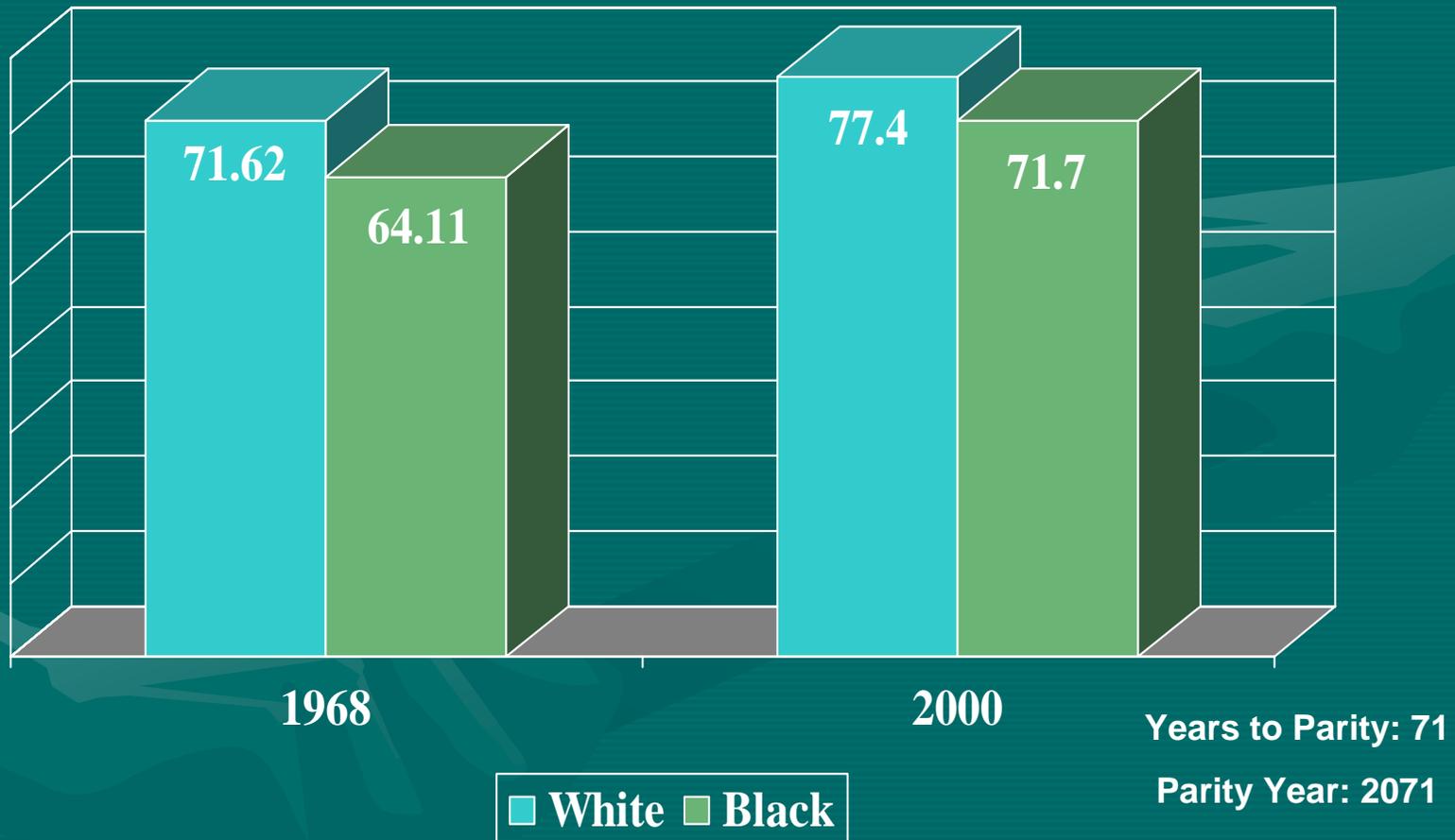


# Pregnancy-Related Mortality Ratio by Education & Race, Michigan, 1990-1998



Joanne G. Hogan, Ph.D., Bao-Ping Zhu, MD, MS. Division of Epidemiology Services, Community Health Agency, Michigan Department of Community Health.

# Life Expectancy at Birth, 1970 and 2000



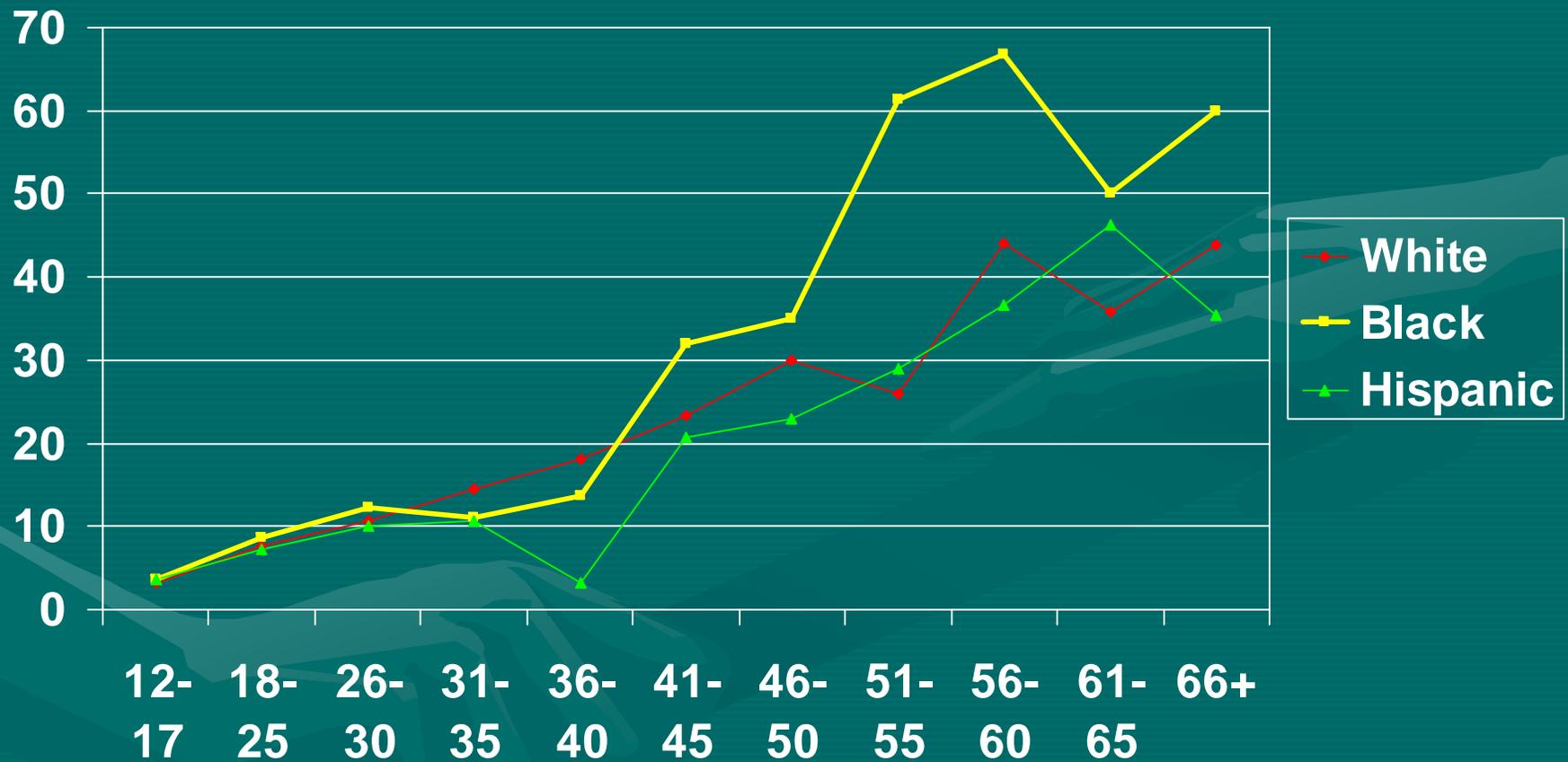
Source: National Center for Health Statistics, National Vital Statistics Reports, Dec. 19, 2002, Table 11.  
State of the Dream 2004 Report

# Health Disparities by Age, Aging and the Life-Course

- There are links from childhood (infancy, neonatal, pregnancy, etc.) social conditions to race/ethnic disparities in adulthood and older age (e.g. Warner & Hayward)
- Over the life course blacks more than any other group live the fewest years and a high proportion of these years is in poor health (e.g. Hayward & Heron)
- Health, race, ethnicity and mobility (SES) are linked in complex ways across childhood, adolescence, adulthood, and old age (e.g. Hayward et al; Whitfield & Hayward, 2003; Crimmins et al, 2000; Crimmins & Saito, 2001)

# Percentage of Males Reporting High Blood Pressure, by Age Group and Race

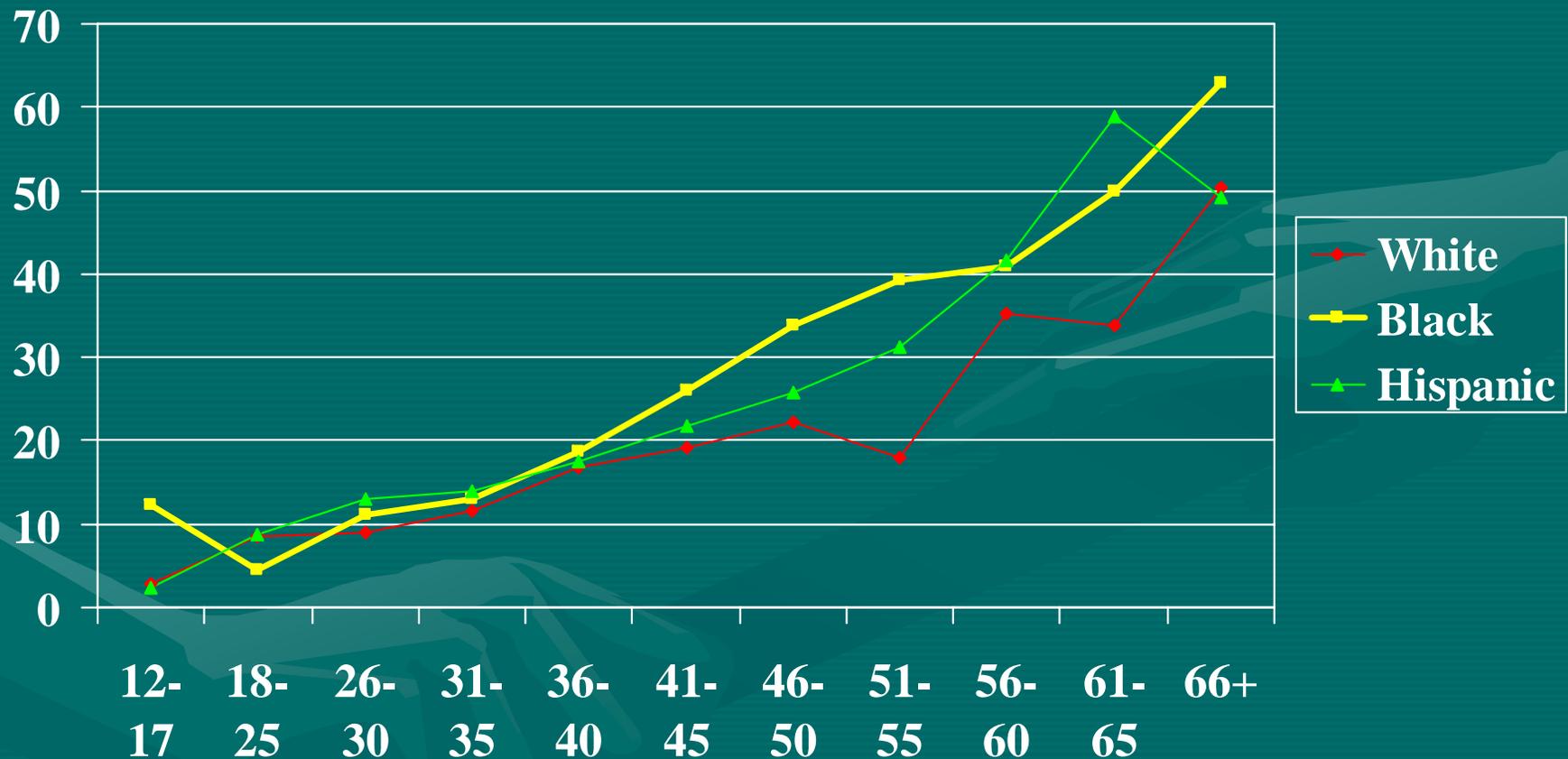
## National Household Survey on Drug Abuse, 1992



NOTE: High blood pressure is defined as "ever" being diagnosed with high blood pressure.

# Percentage of Females Reporting High Blood Pressure, by Age Group and Race

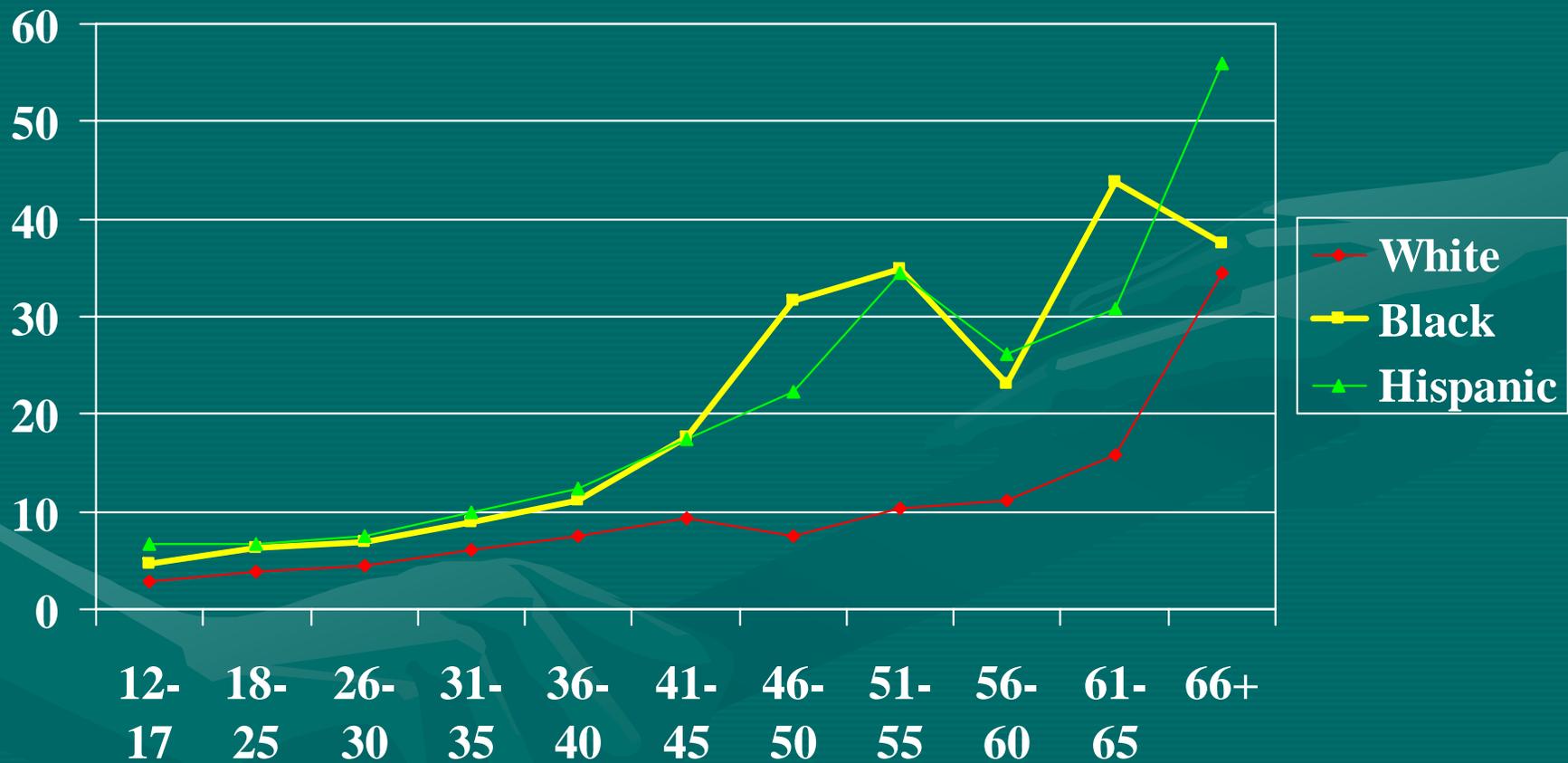
## National Household Survey on Drug Abuse, 1992



NOTE: High blood pressure is defined as "ever" being diagnosed with high blood pressure.

# Percentage of Males Reporting Poor Self-Reported Health, by Age Group and Race

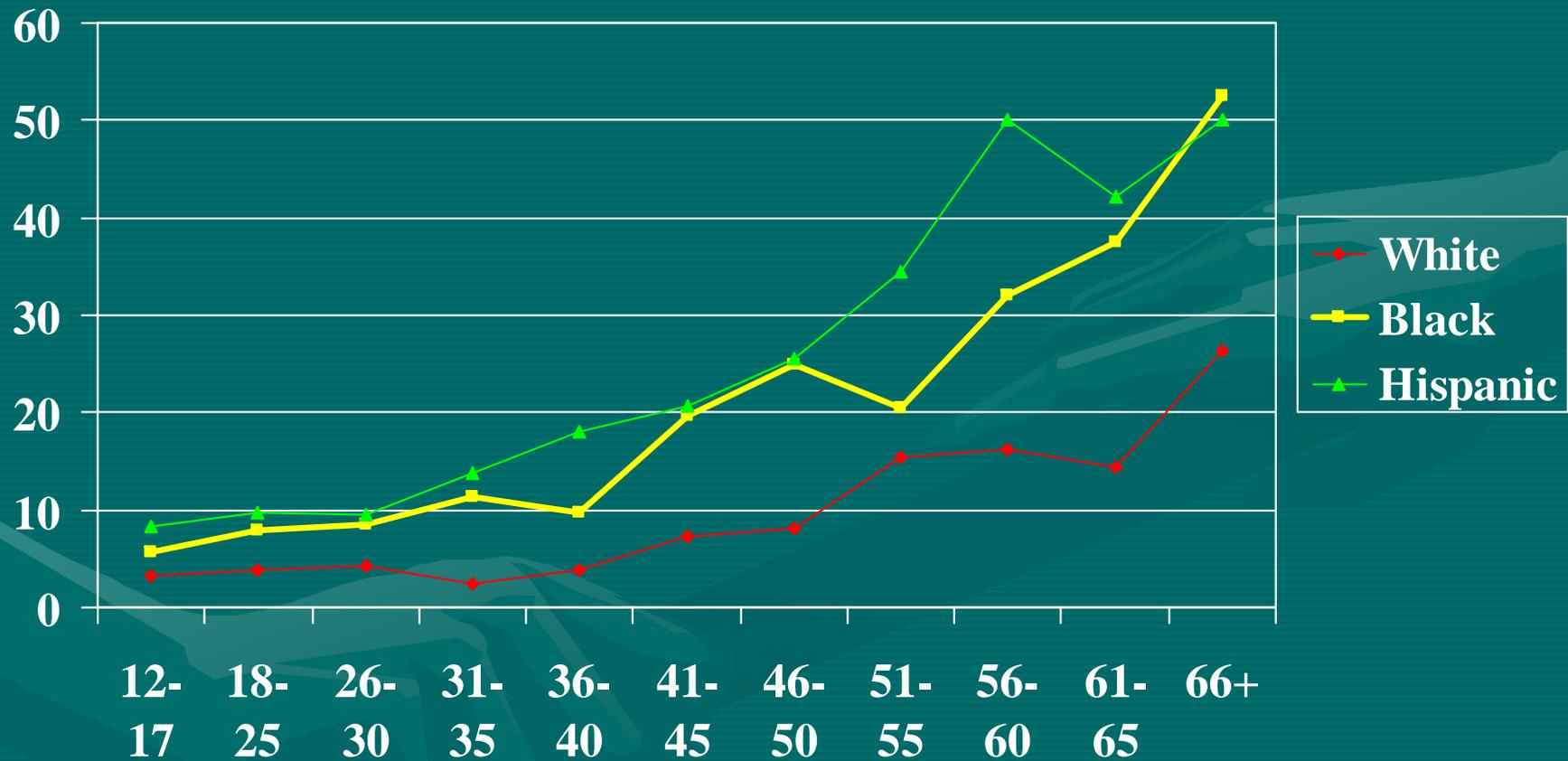
## National Household Survey on Drug Abuse, 1995



NOTE: Poor self-reported health during the past year.

# Percentage of Females Reporting Poor Self-Reported Health, by Age Group and Race

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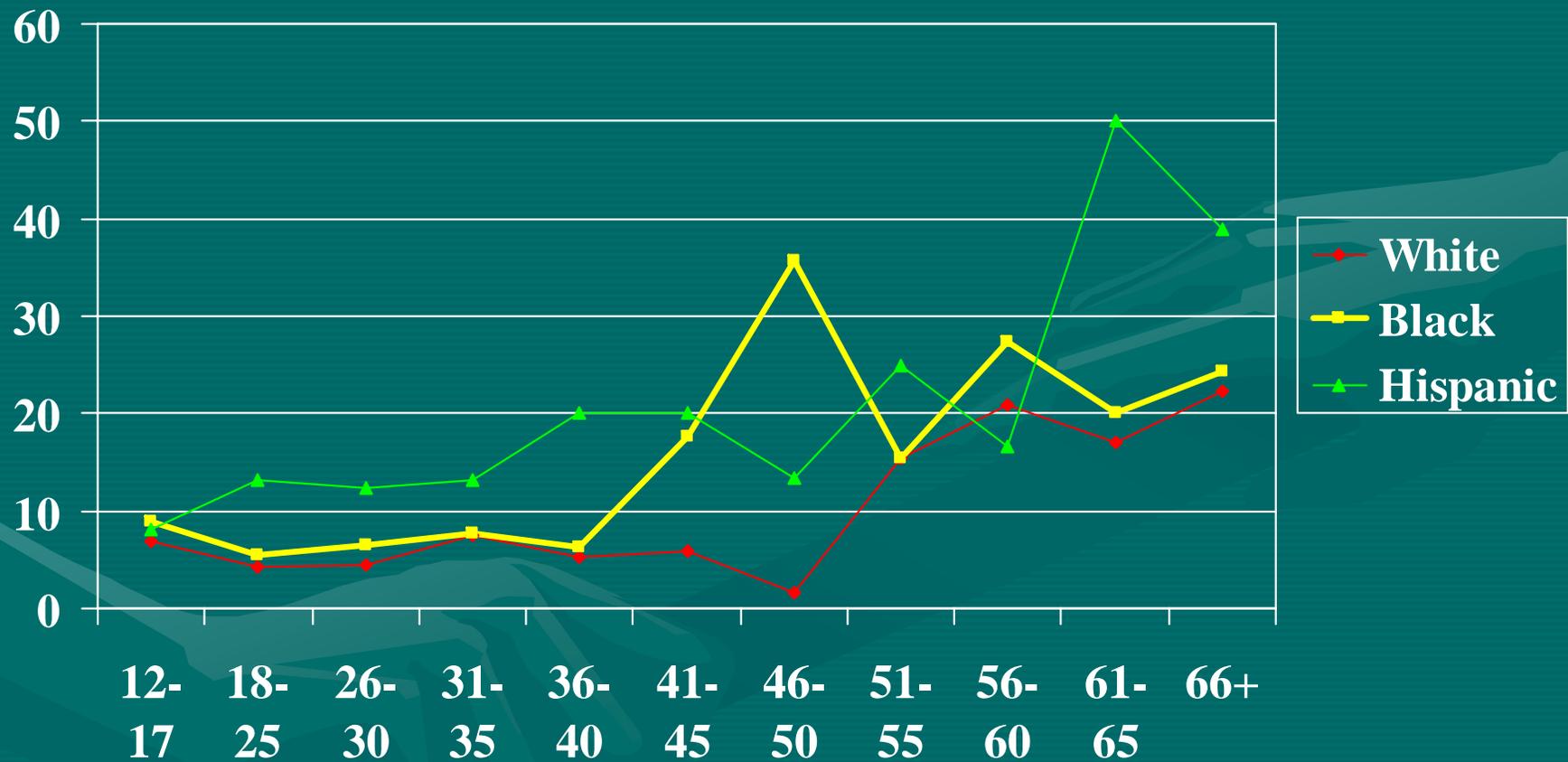
NOTE: Poor self-reported health during the past year.

- It is unlikely that this is a cohort effect



# Percentage of Males Reporting Poor Self-Reported Health, by Age Group and Race

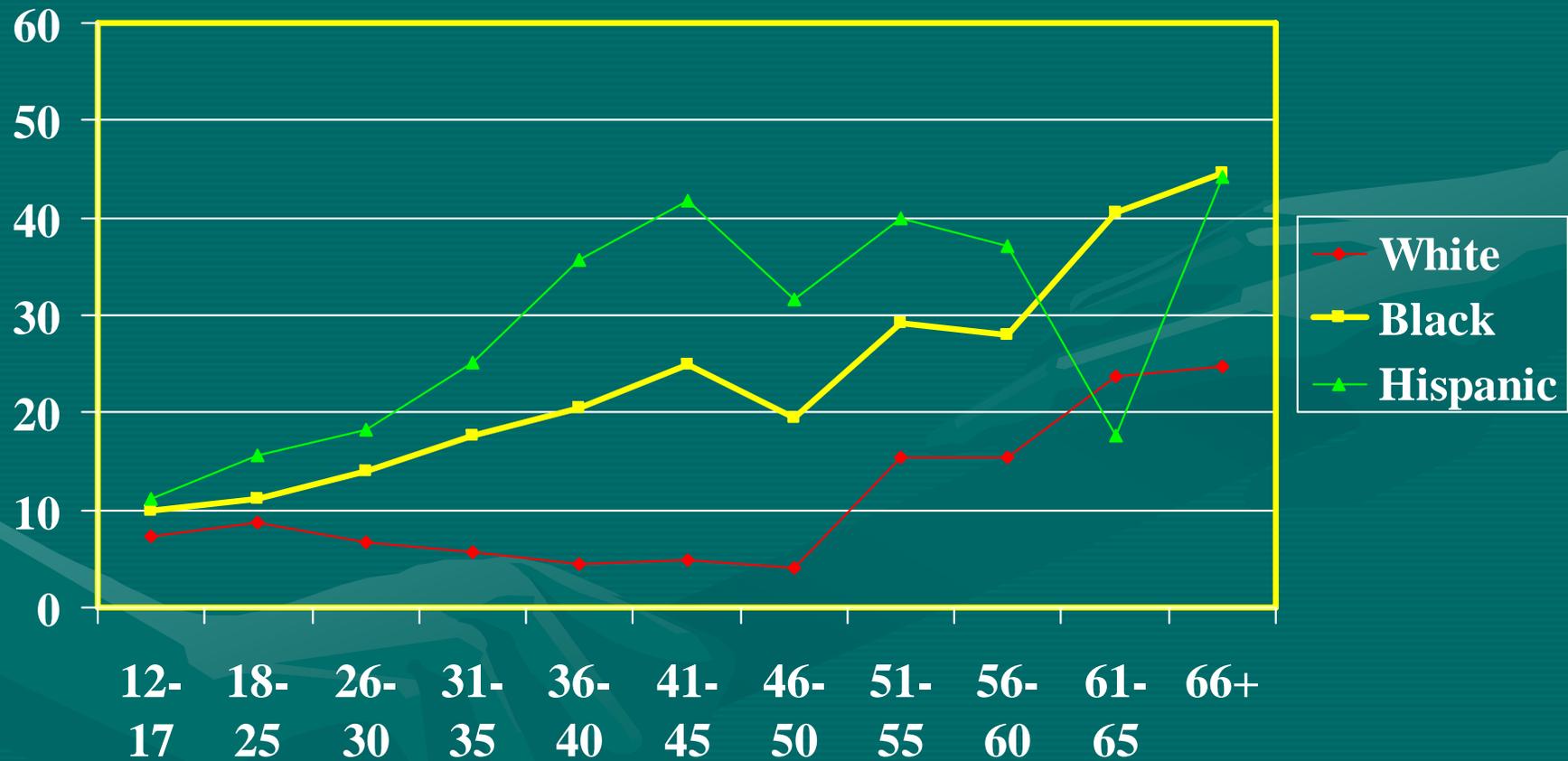
## National Household Survey on Drug Abuse, 1985



NOTE: Poor self-reported health during the past year.

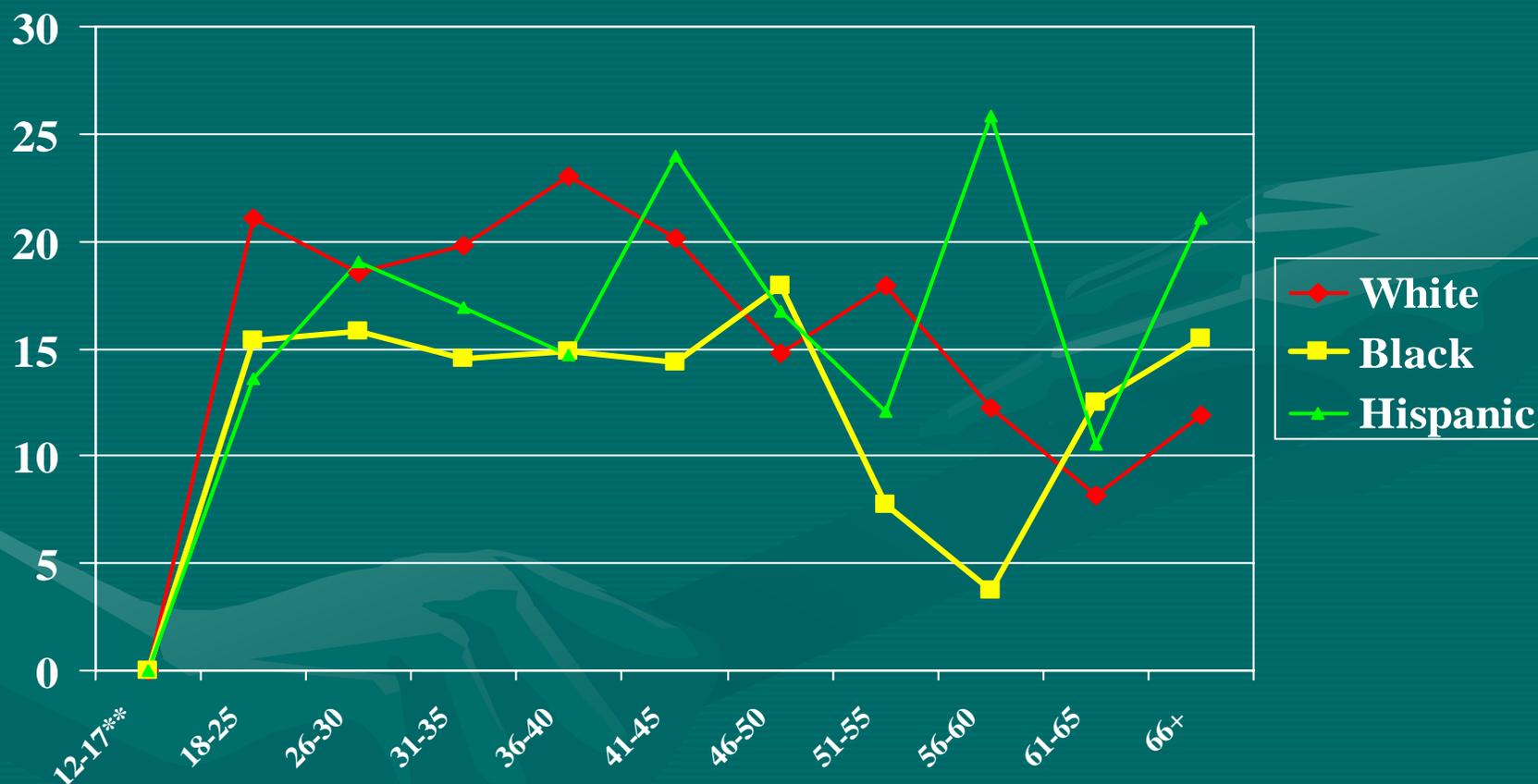
# Percentage of Females Reporting Poor Self-Reported Health, by Age Group and Race

## National Household Survey on Drug Abuse, 1985



NOTE: Poor self-reported health during the past year.

# Percentage of Females Reporting Major Depression by Race and Age Group, 1997\*



\*NHSDA 1997, National Household Survey on Drug Abuse

\*\*Data not available for respondents aged 12-17 years old

# Percentage of Males Reporting Major Depression by Race and Age Group, 1997\*



\*NHSDA 1997, National Household Survey on Drug Abuse

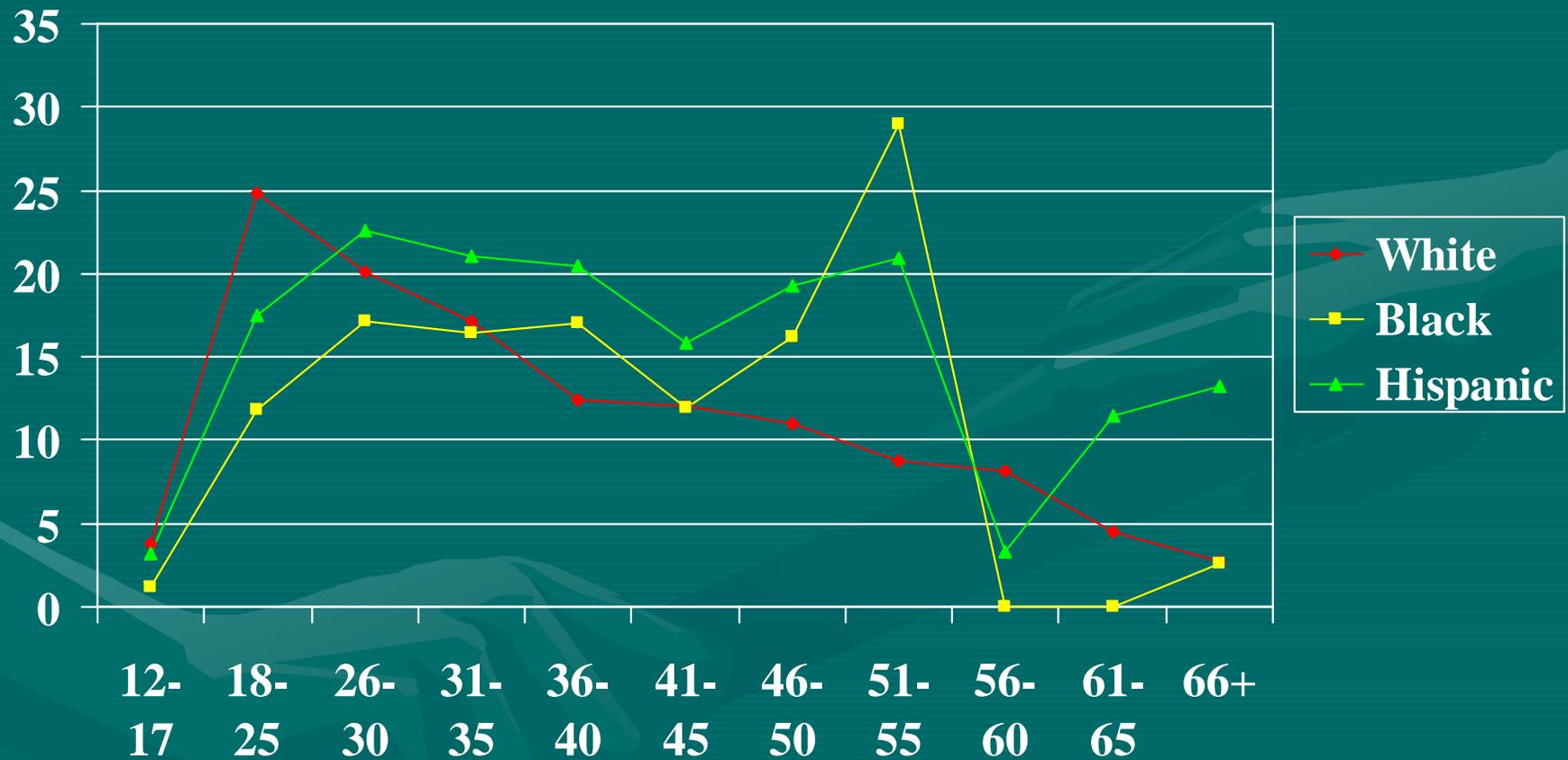
\*\*Data not available for respondents aged 12-17 years old

- Poor health behaviors parallel the disparities found in health status



# Percentage of Males Reporting Heavy Alcohol Use, by Age Group and Race

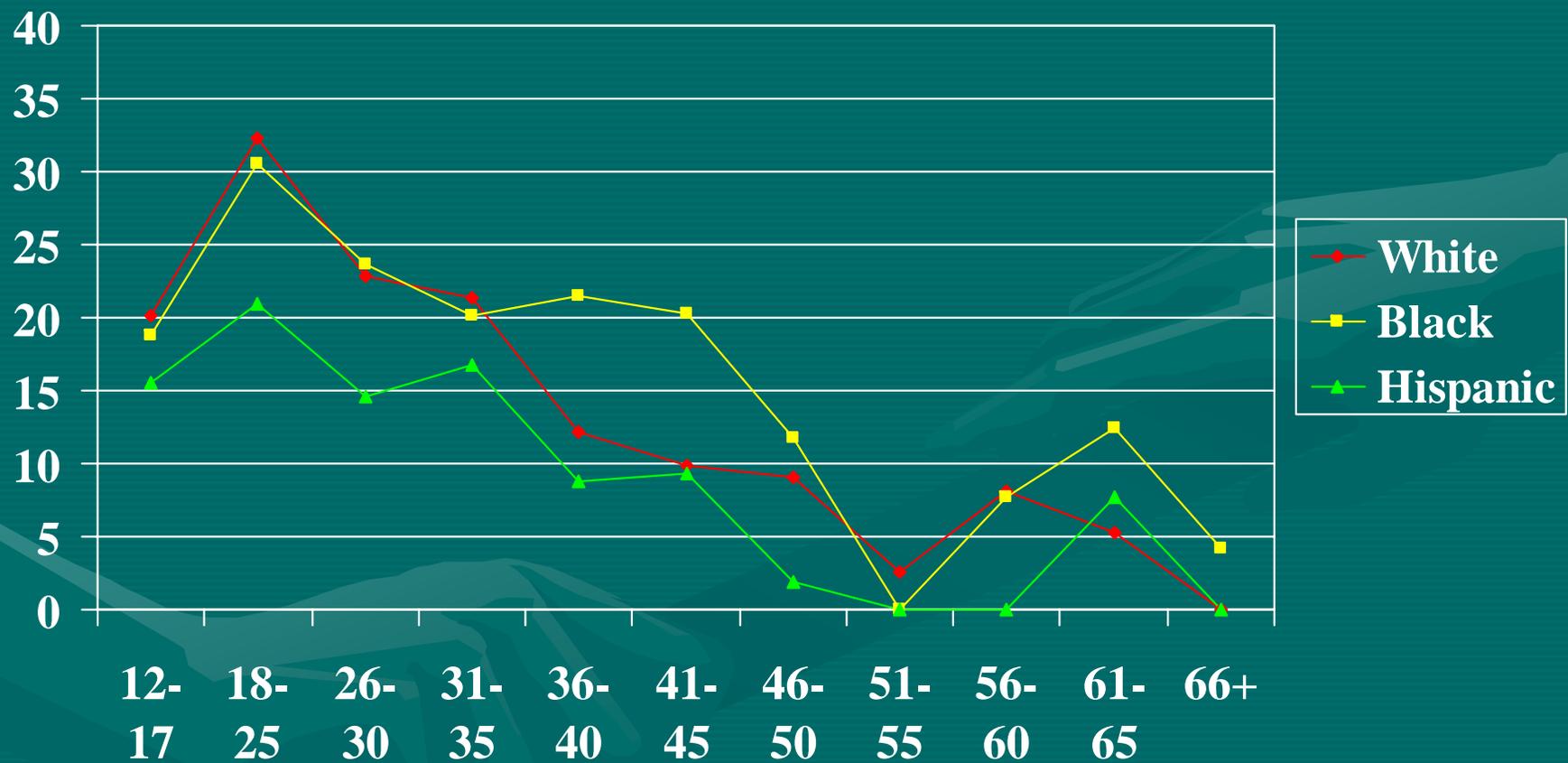
## National Household Survey on Drug Abuse, 1992



NOTE: Heavy alcohol use is defined as drinking five or more drinks per occasion on 3 or more days in the past 30 days.

# Percentage of Males Reporting Drug Use, by Age Group and Race

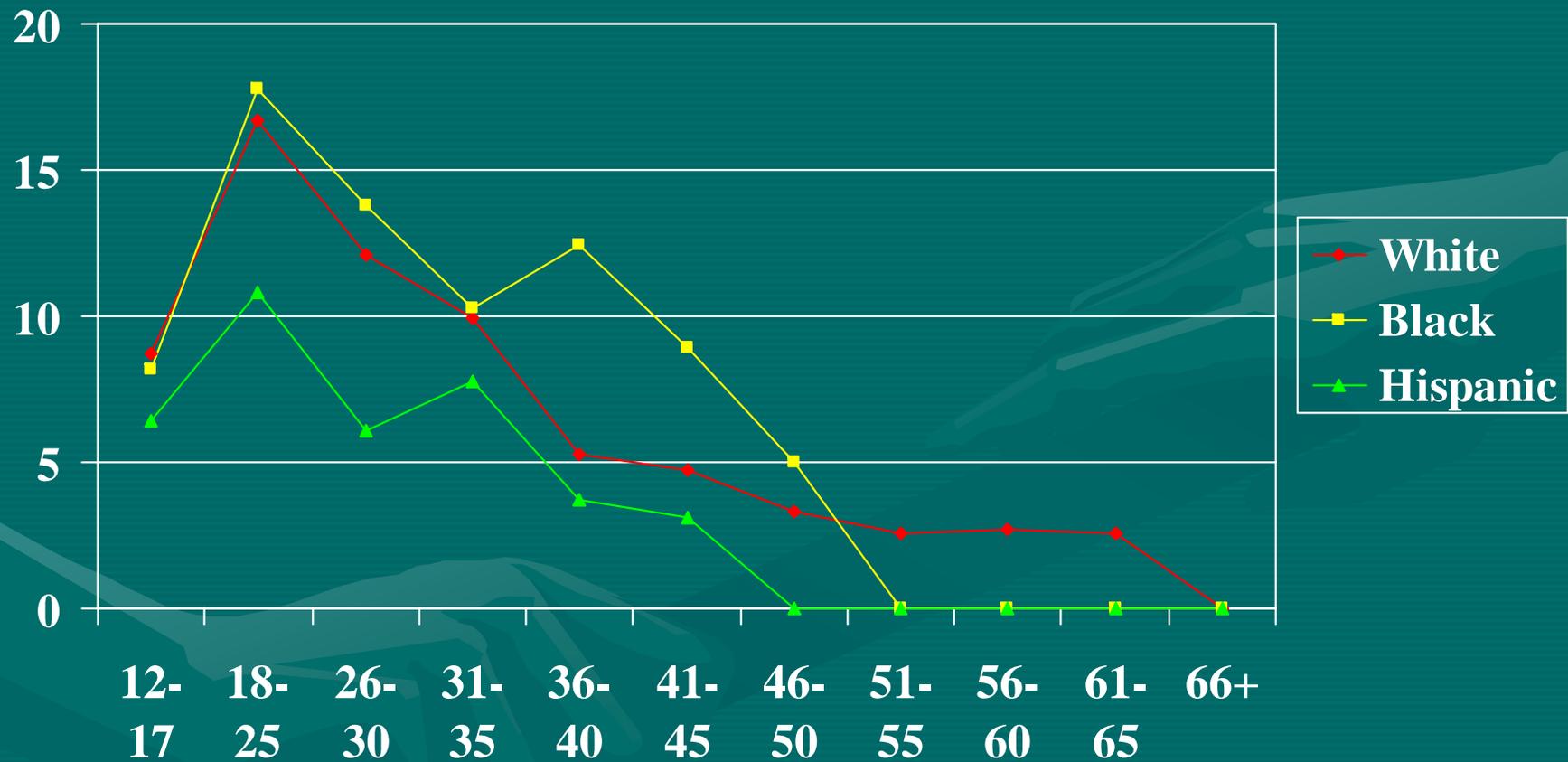
## National Household Survey on Drug Abuse, 1995



NOTE: Drug use is defined as the use of any illicit drug in the past year.

# Percentage of Males Reporting Marijuana Use, by Age Group and Race

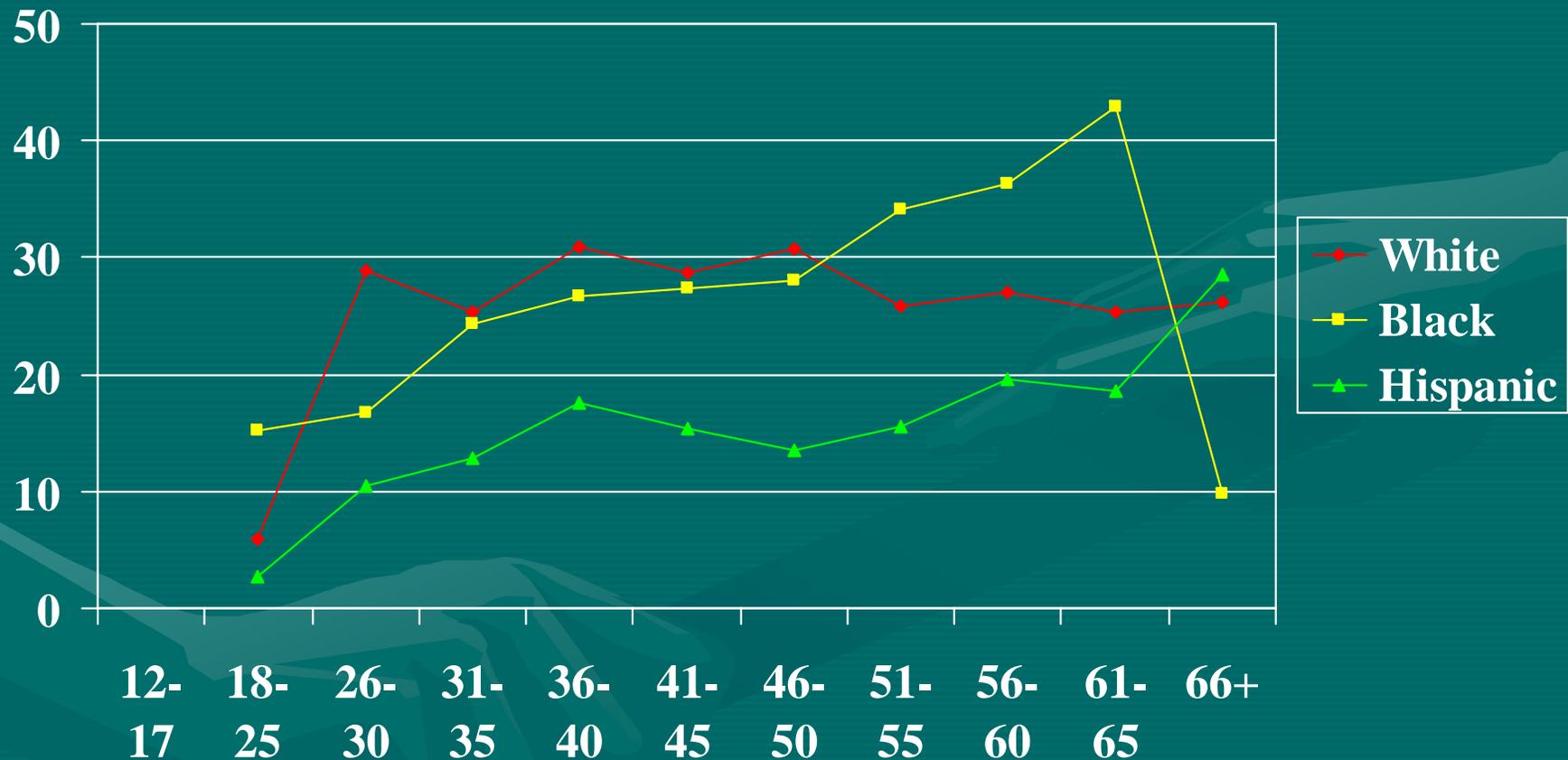
## National Household Survey on Drug Abuse, 1995



NOTE: Marijuana use is defined as the use of marijuana in the past 30 days.

# Percentage of Males Reporting Heavy Cigarette Use, by Age Group and Race

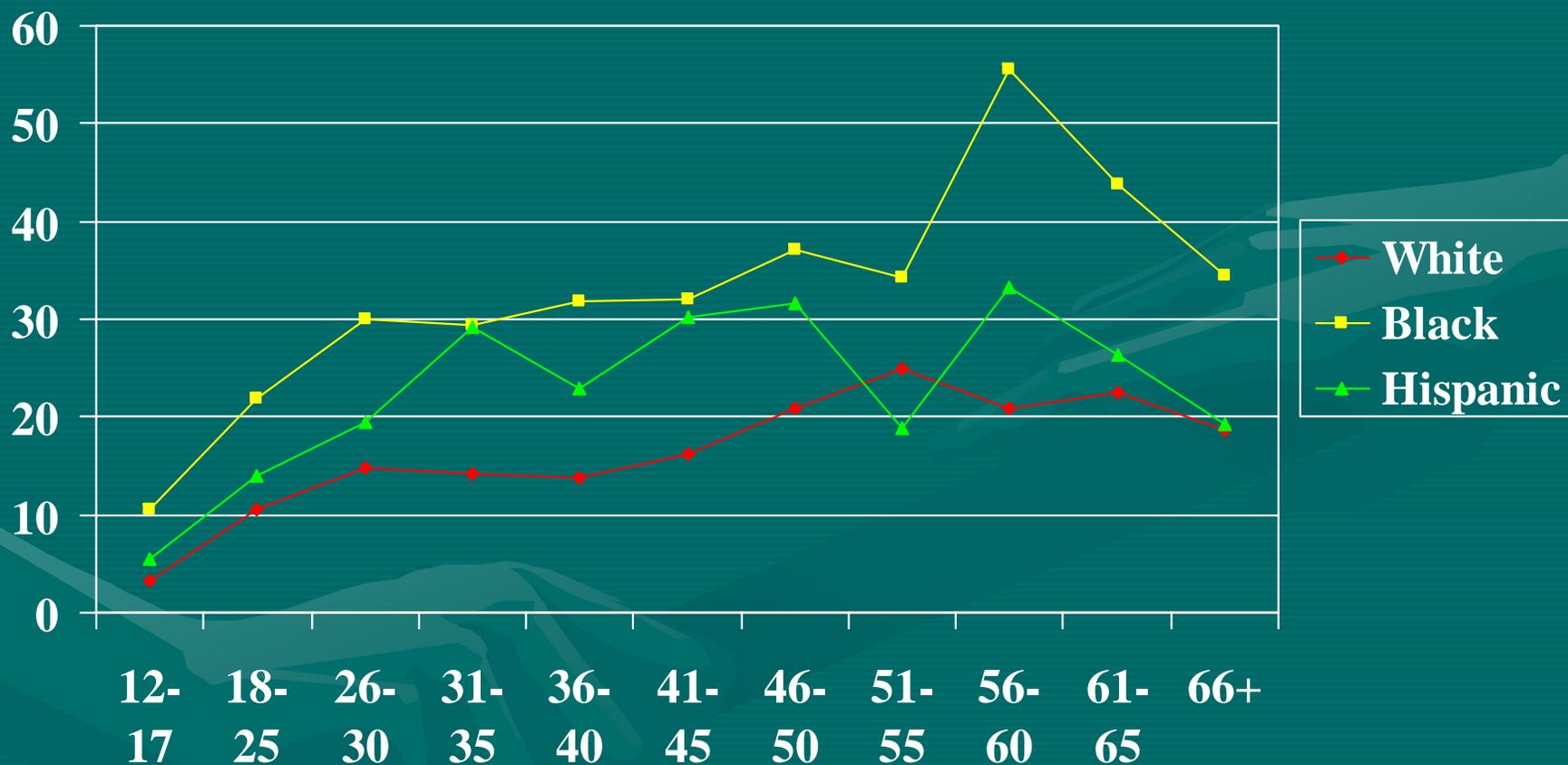
## National Household Survey on Drug Abuse, 1997



NOTE: Heavy cigarette use is defined as smoking six or more cigarettes per day on average during the past 30 days.

# Percentage of Females Reporting Obesity, by Age Group and Race

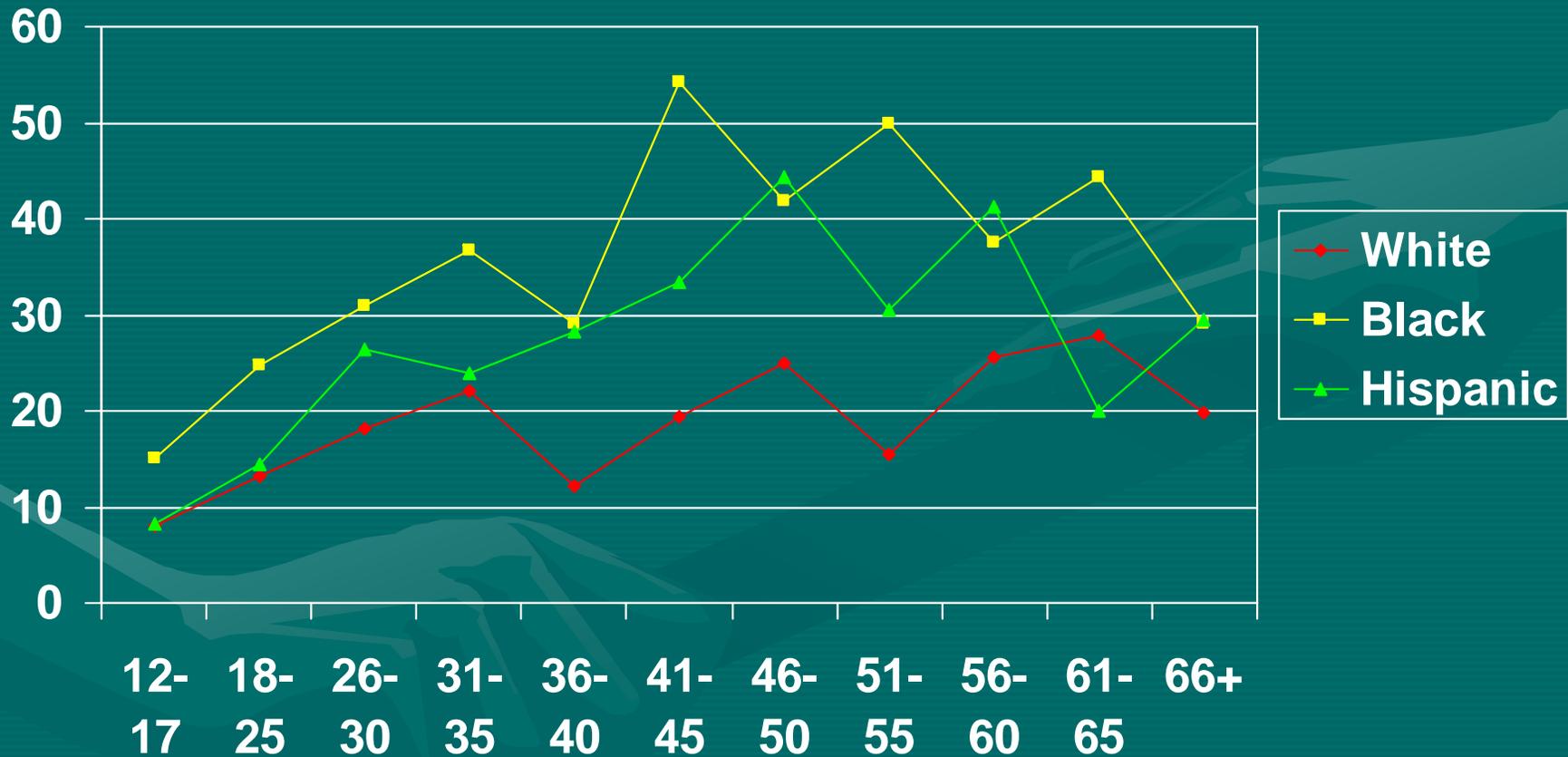
## National Household Survey on Drug Abuse, 1995



NOTE: Obesity is defined as having a calculated BMI\* of 30 or greater.

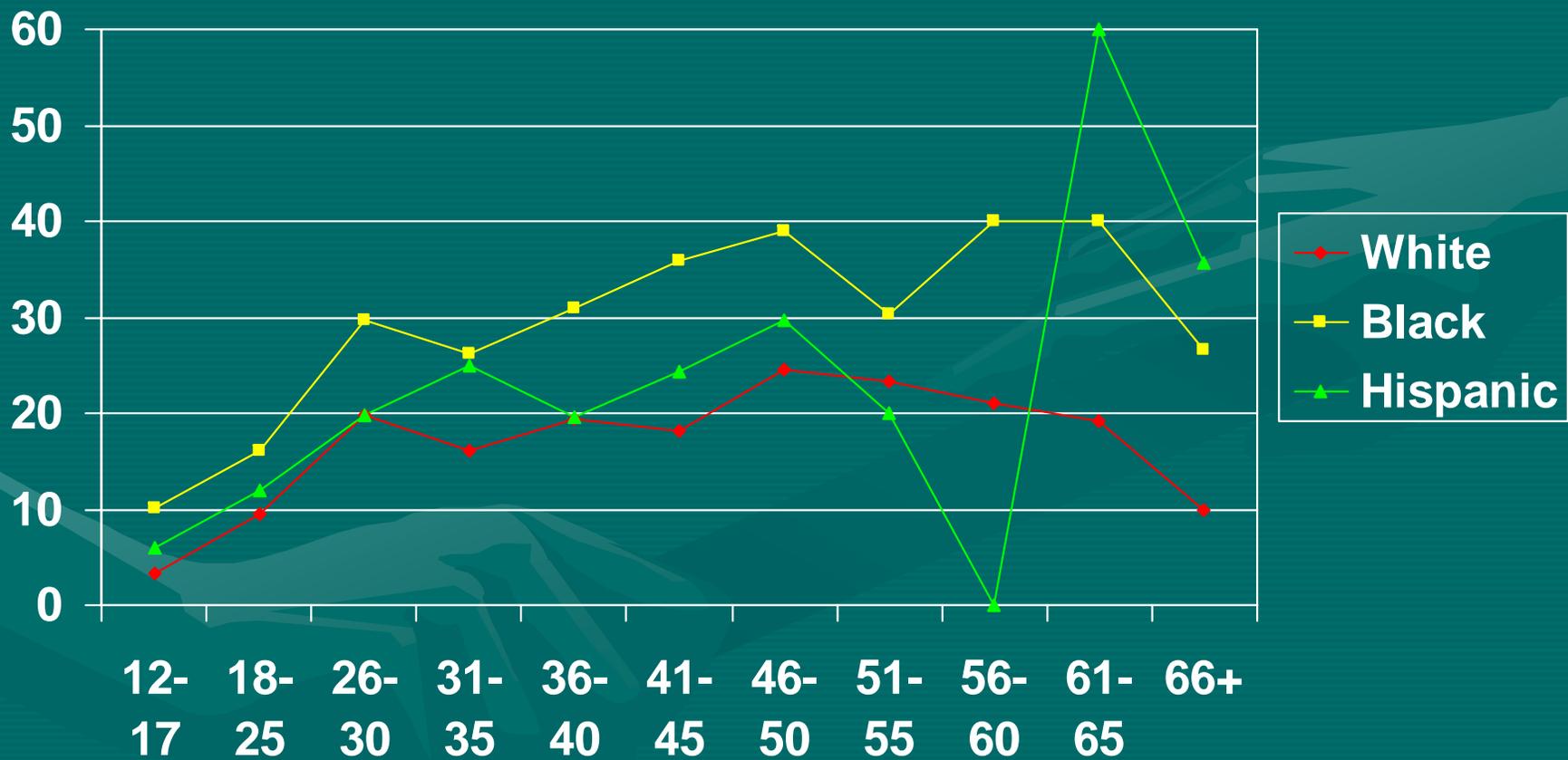
\* BMI = weight/height<sup>2</sup>

# Percentage of Females with Low Social Economic Status Reporting Obesity by Age Group and Race



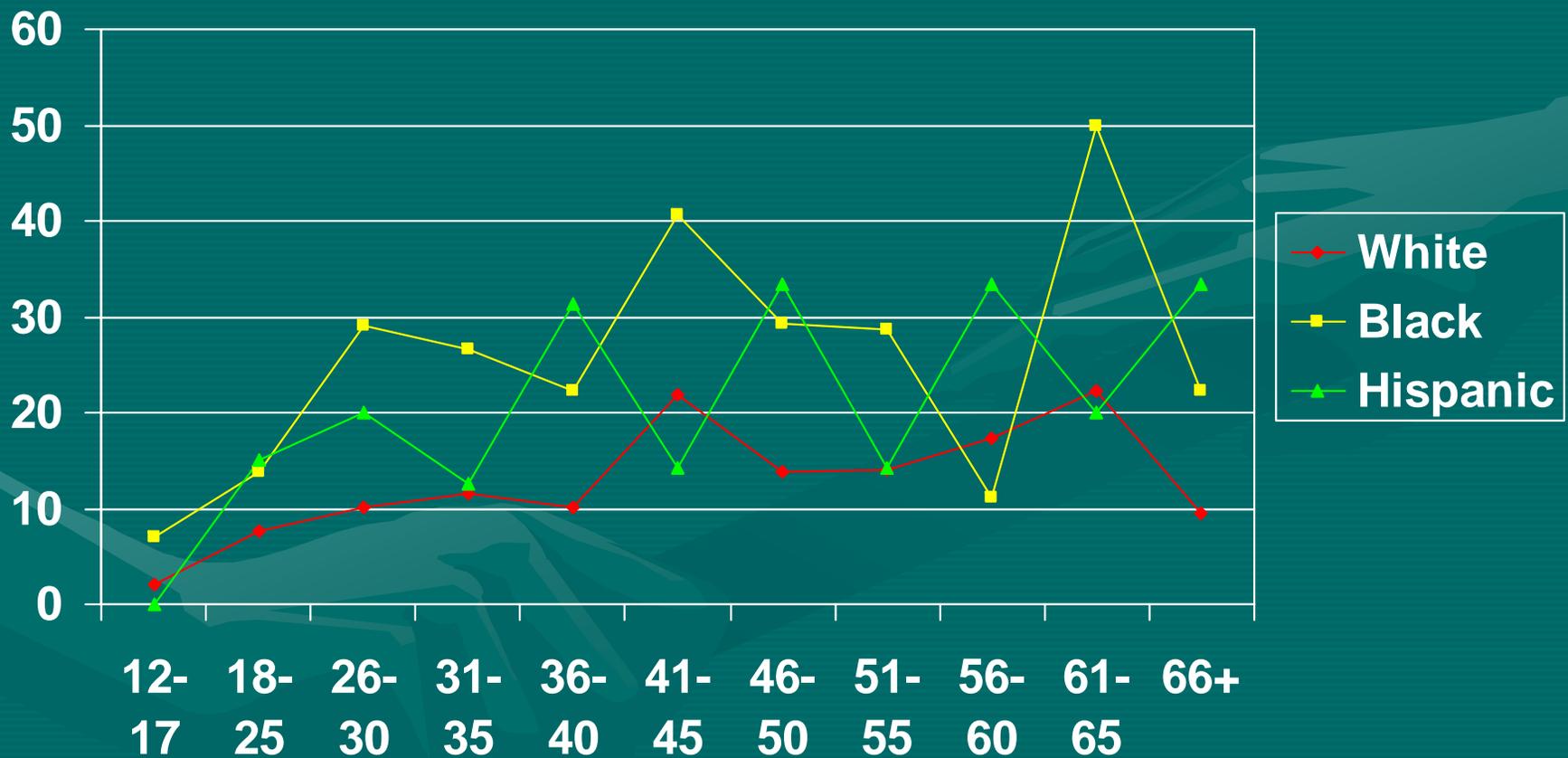
Source: NHSDA; National Household Study on Drug Abuse, 1997.

# Percentage of Females with Moderate Social Economic Status Reporting Obesity by Age Group and Race



Source: NHSDA; National Household Study on Drug Abuse, 1997.

# Percentage of Females with High Social Economic Status Reporting Obesity by Age Group and Race



Source: NHSDA; National Household Study on Drug Abuse, 1997.

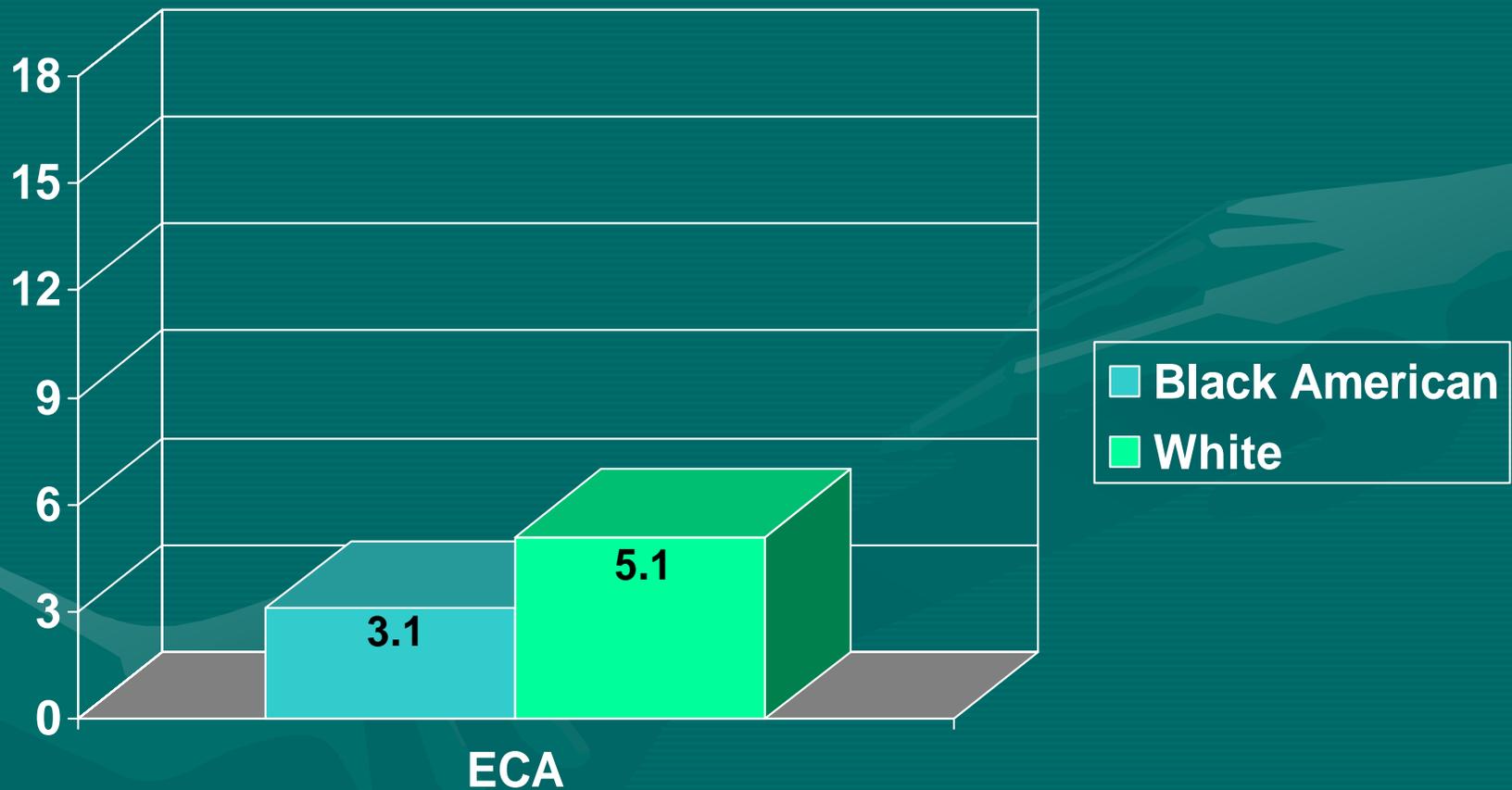
- In comparison to health statuses and poor health behaviors, prevalence rates for major psychiatric disorders reveal very few black/white racial disparities favoring whites, and for most lower prevalence rates for African Americans

**Household surveys of mental disorder prevalence estimates since the 1980s have all revealed equivalent, or higher, rates (especially MDD) for whites in comparison to blacks**

- Weissman & Myer (1978) - Community
- Somervall et al (1989) - ECA
- Kessler et al (1994; 2003) NCS/NCS-R
- Breslau et al (2003) NCS-R
- Jackson et al (2003) NSAL
- Riolo et al (2004) – NHANES III
- At the same time these and other studies have shown higher rates of dysthymic disorder and psychological distress among blacks in comparison to whites

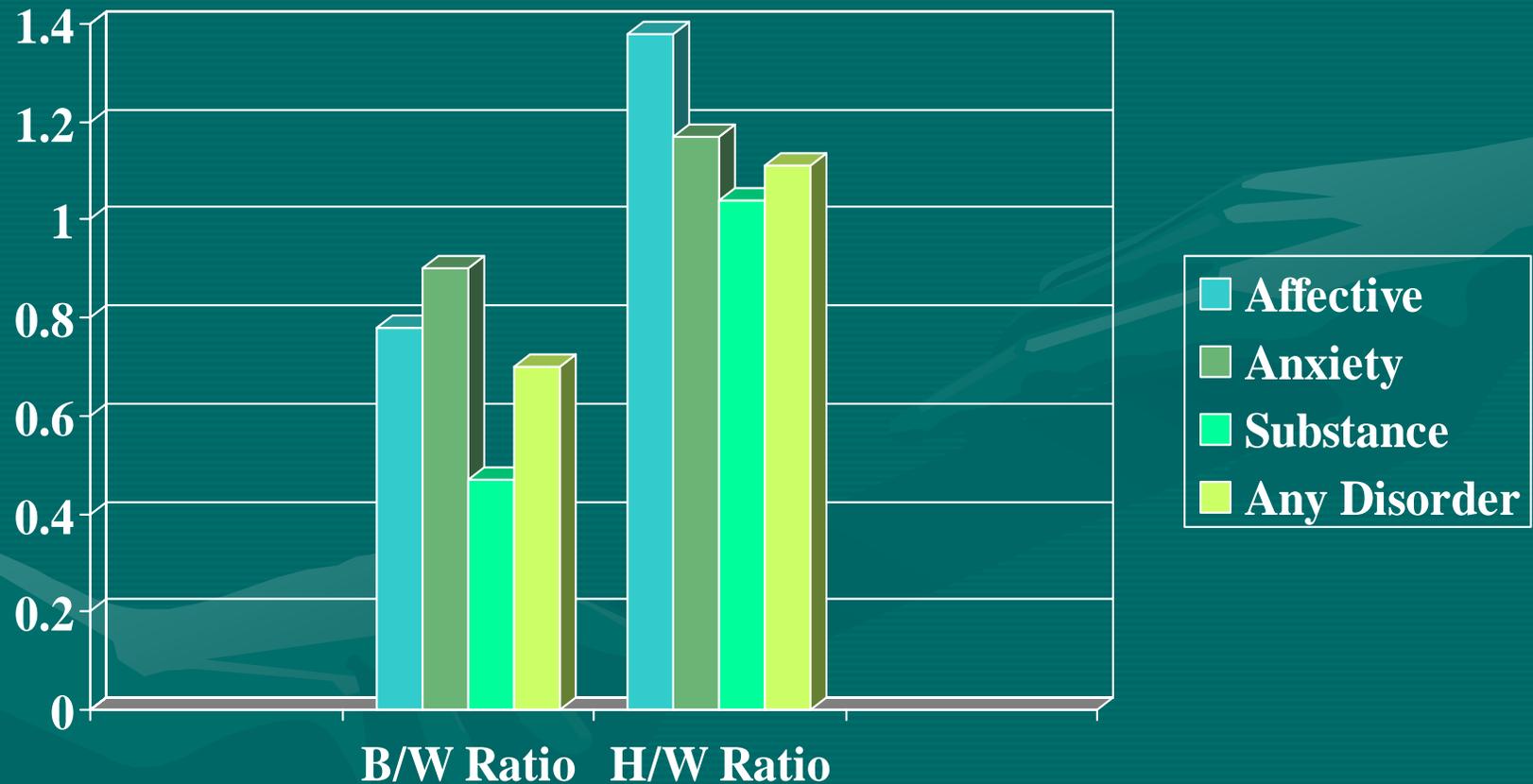
# Lifetime Prevalence Rates

Major Depression by Race  
(in percentages)



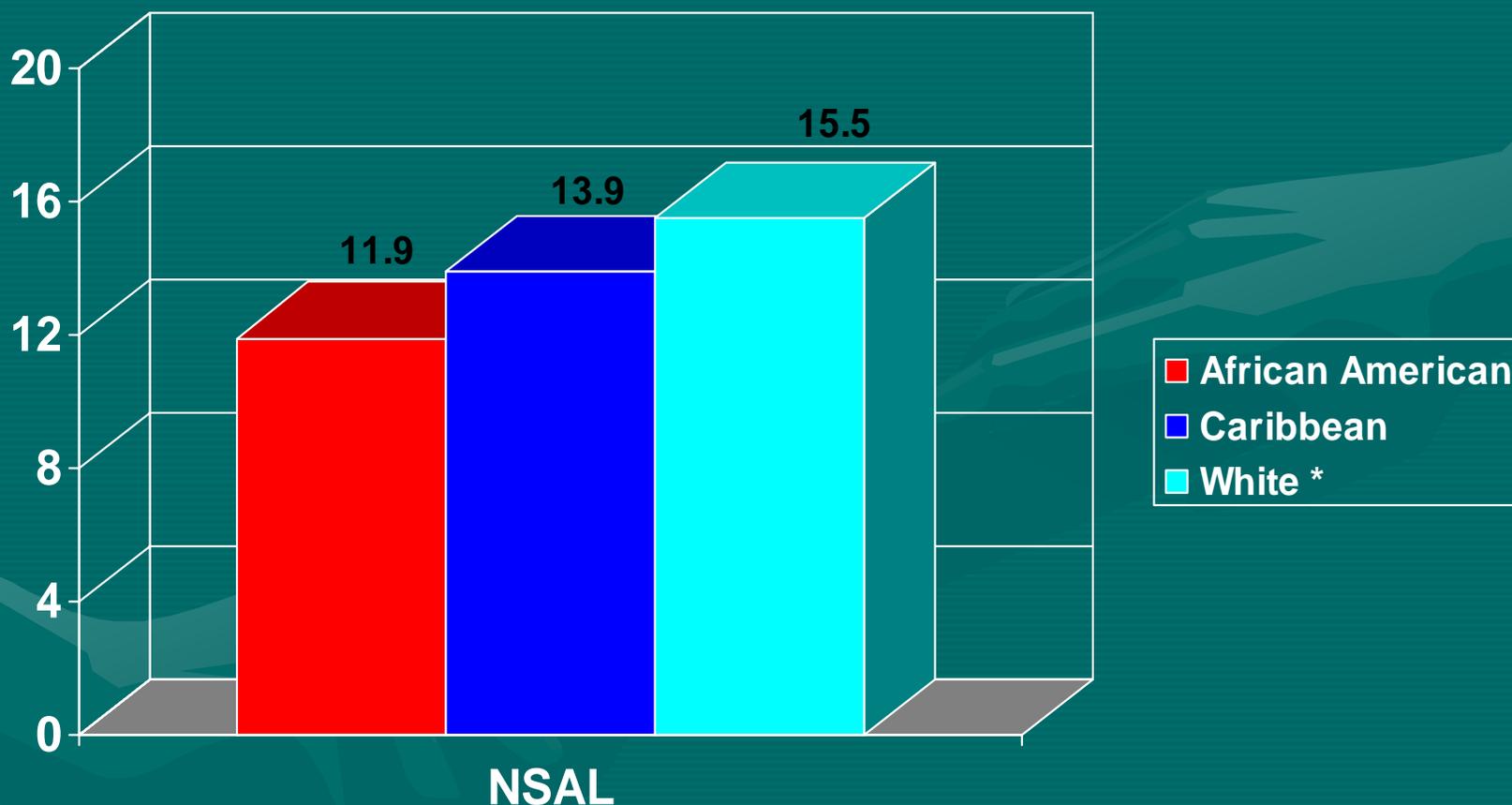
Source: ECA, Epidemiologic Catchment Area Study, *Psychiatric Disorders in America*, 1991.  
\*ECA does not distinguish between African American respondents and Caribbean respondents.

# Black/White, Hispanic/White Life-Time Psychiatric Disorder Ratios: National Comorbidity Study, 1990



# 12-Month Any Disorder\*\*

by Race  
(in percentages)



Source: NSAL, National Survey of American Life, 2004.

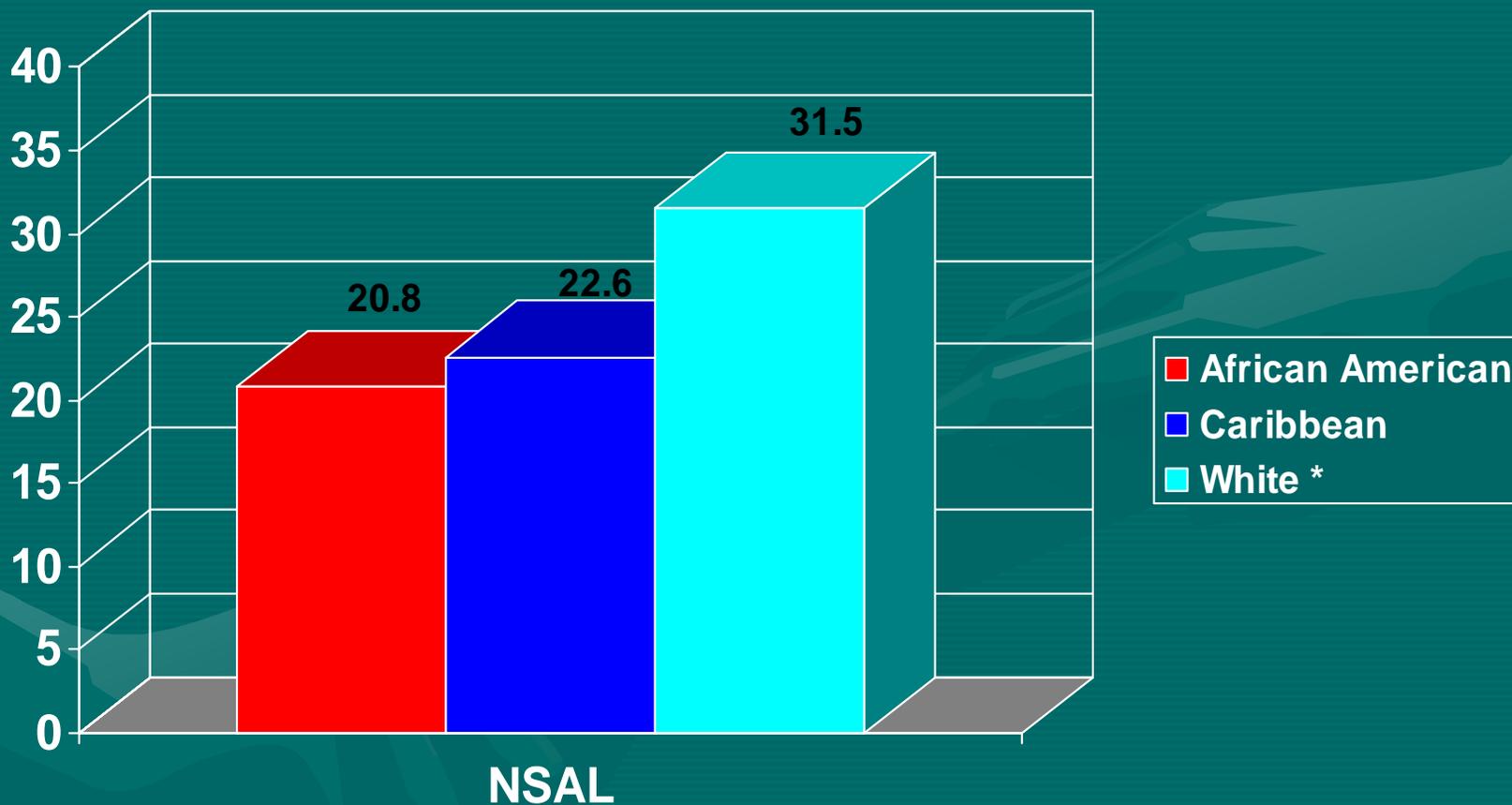
Note: Adjusted for age.

\*NSAL Whites living in areas with Black population of 10% or more.

\*\*Includes 7 disorders asked of all races: Major Depression, Dysthymia, Mania, Panic Disorder, Social Phobia, Generalized Anxiety Disorder, and Agoraphobia

# Lifetime Any Disorder\*\*

by Race  
(in percentages)



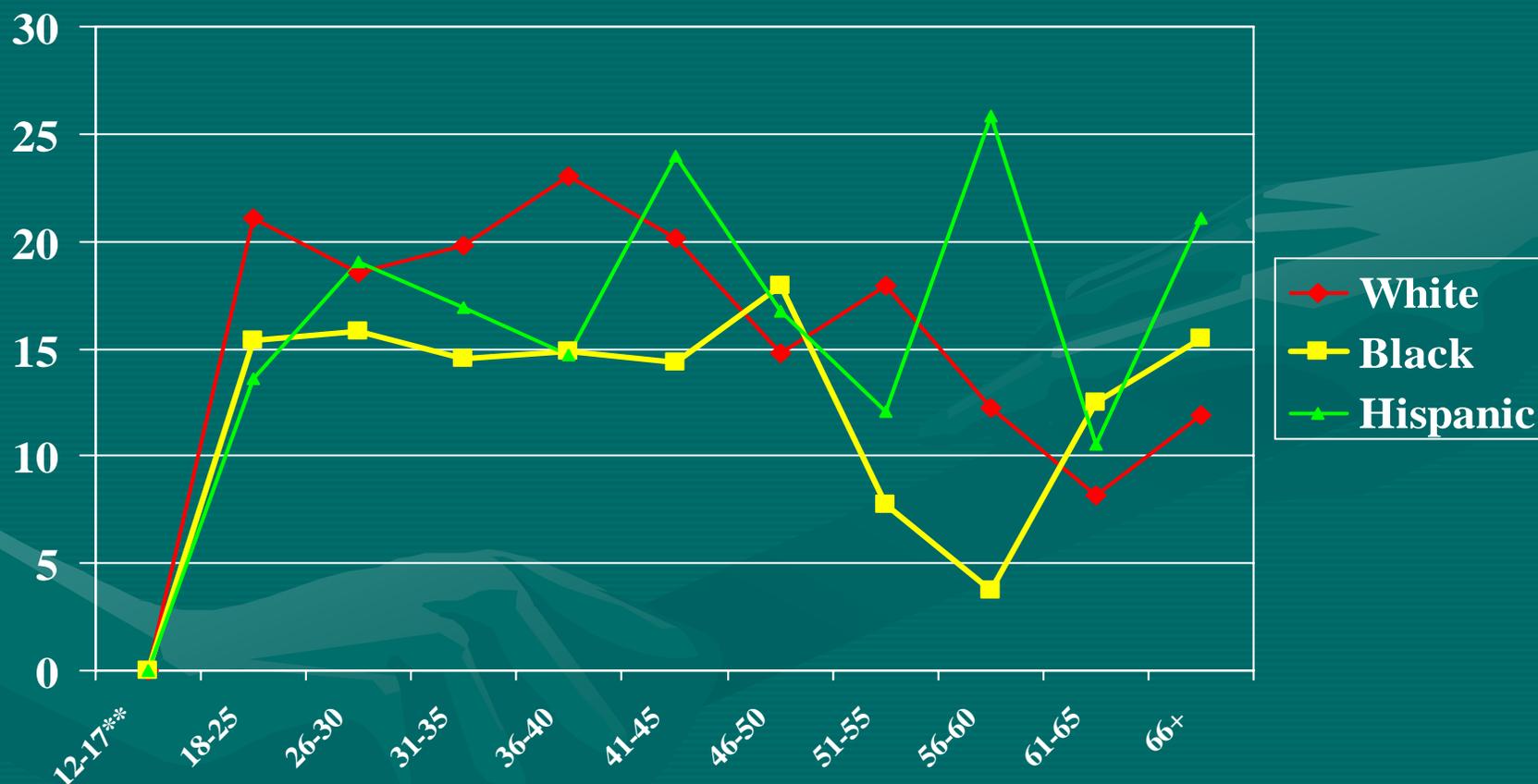
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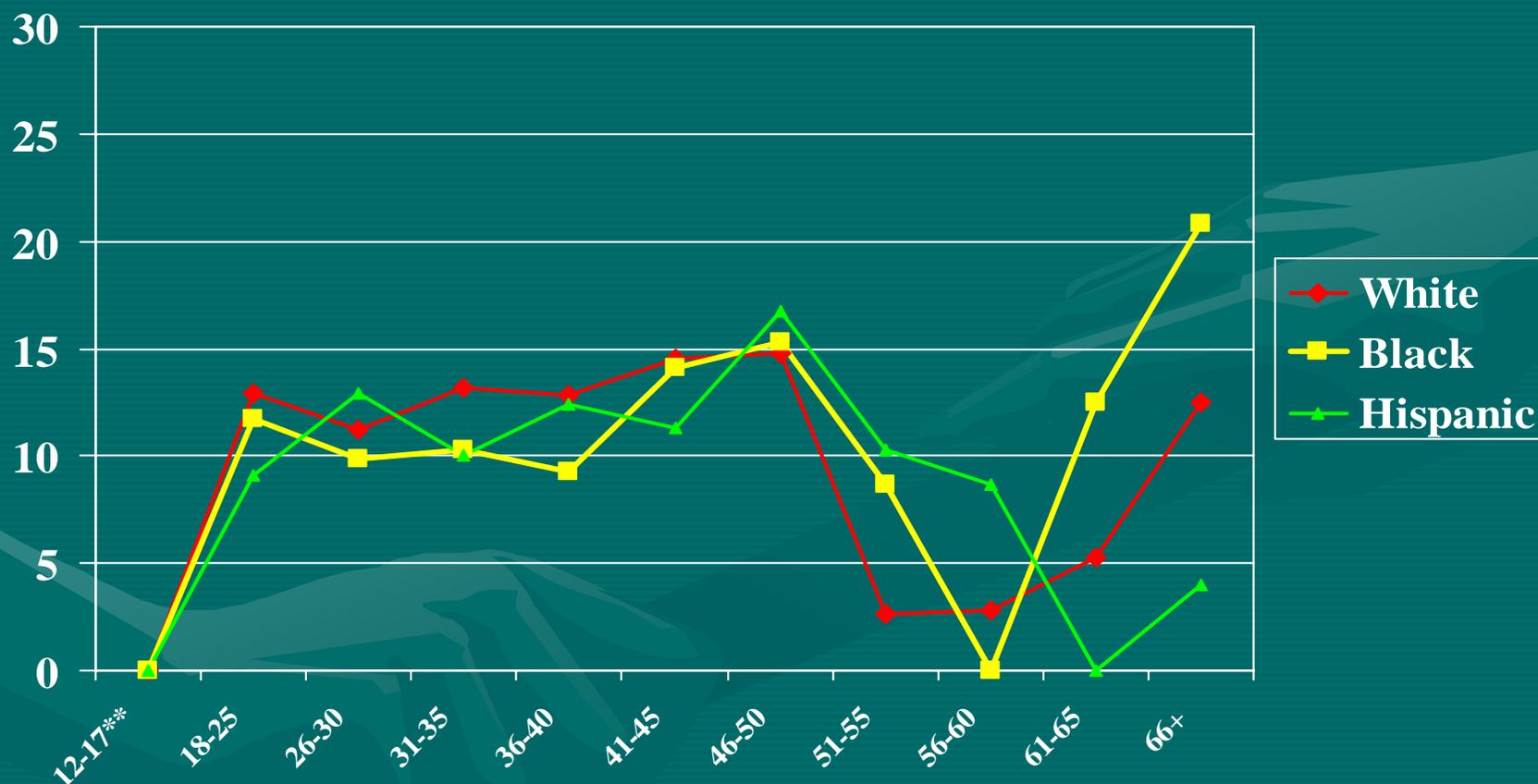
# Percentage of Females Reporting Major Depression by Race and Age Group, 1997\*



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\*\*Data not available for respondents aged 12-17 years old

# Percentage of Males Reporting Major Depression by Race and Age Group, 1997\*



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The Self-Regulation of Health Behaviors:

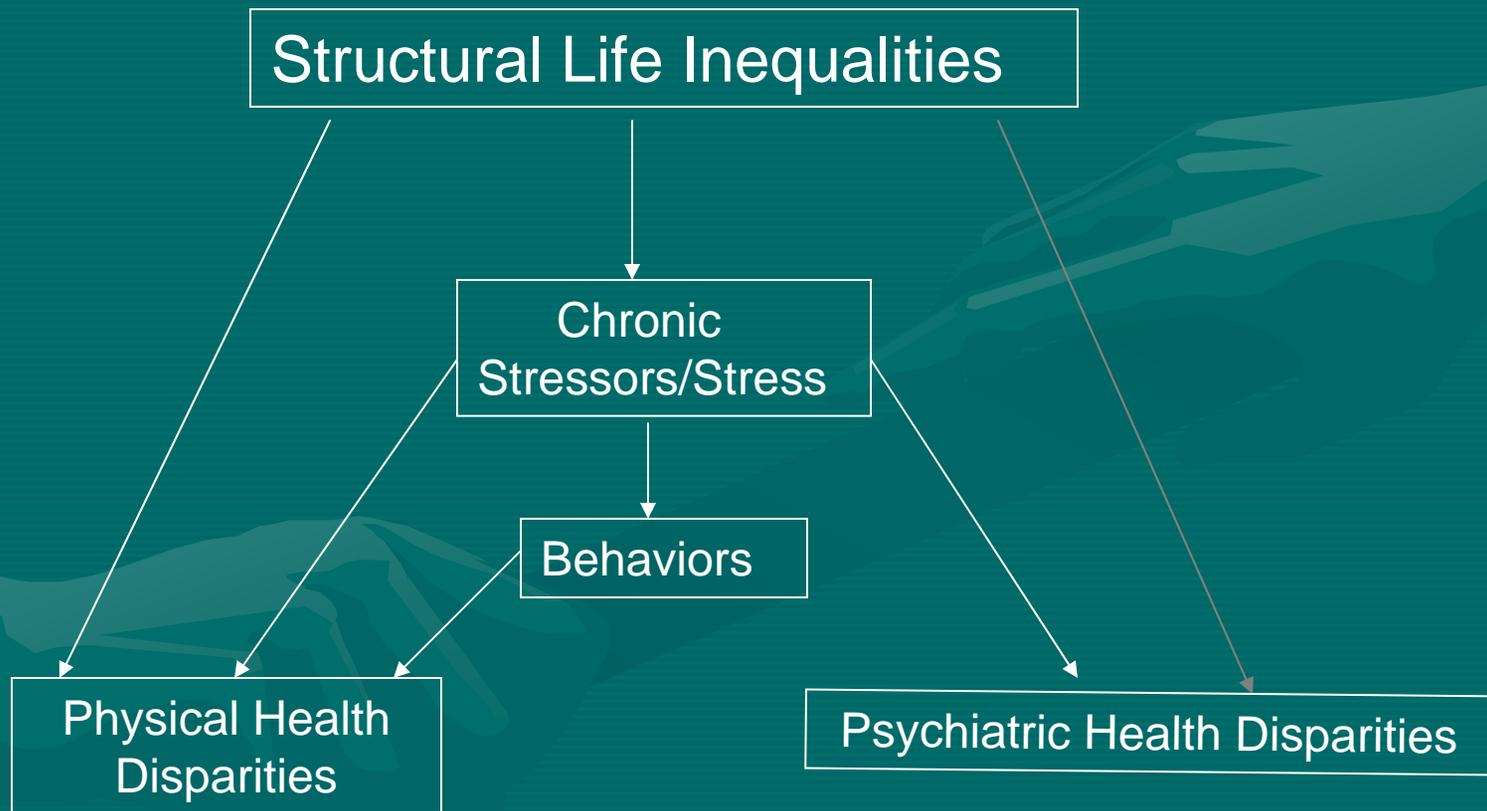
The Interrelationships Among Physical and Mental  
Health Disparities



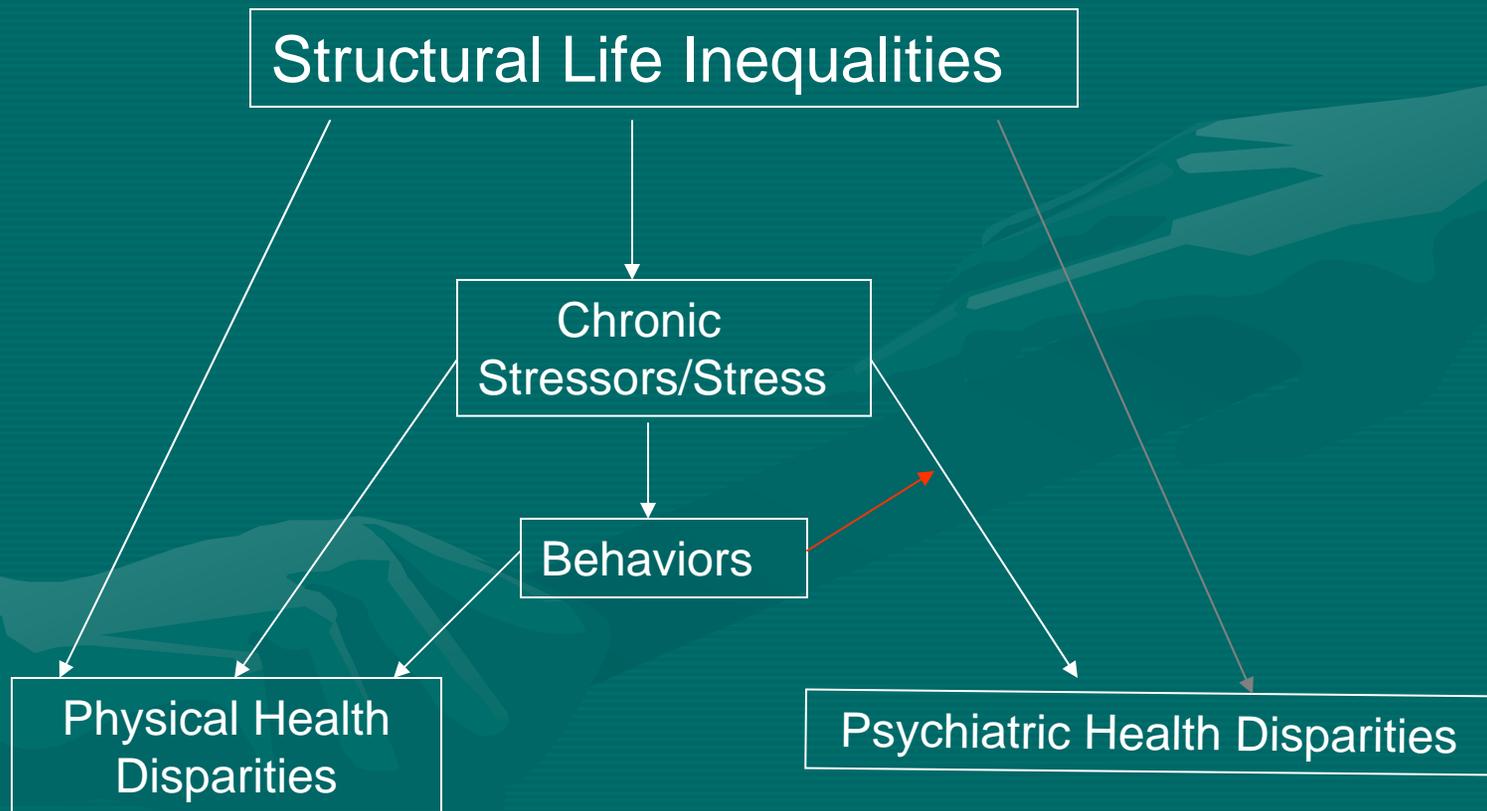
# Possible Health and Mental Health Interrelationships Among African American and other Ethnic/Racial Groups

- Structural life inequalities are hypothesized to “cause” both health and mental health disparities
- Structural life inequalities in income, wealth, employment and educational opportunities are large and unfavorable for African Americans and other minorities
- Physical health disparities are large and unfavorable for African Americans and other minorities
- Mental health disparities in comparison to whites are small and often favorable for African Americans, but variable for other groups

# Relationships Among Structural Life Inequalities, Chronic Stress, Negative Behaviors and Physical and Psychiatric Health Disparities



# Relationships Among Structural Life Inequalities, Chronic Stress, Negative Behaviors and Physical and Psychiatric Health Disparities



- Coping strategies in the face of non-race, and race specific, stressors may themselves be harmful to health (Jackson, 2002; Jackson & Knight, 2006; Jackson, Knight & Rafferty, under review)
- Stress-related precursors of serious mental health problems are more available to consciousness than are those of physical health problems
- This psychological awareness motivates individuals to action
- For example, Dallman et al (2003) suggested that people eat comfort food to reduce activity in the chronic stress-response network (Cannetti, et al, 2002)
- It is proposed that other behaviors, e.g. smoking, alcohol and drug use have similar, immediate, effects to reduce activation of the stress-response network

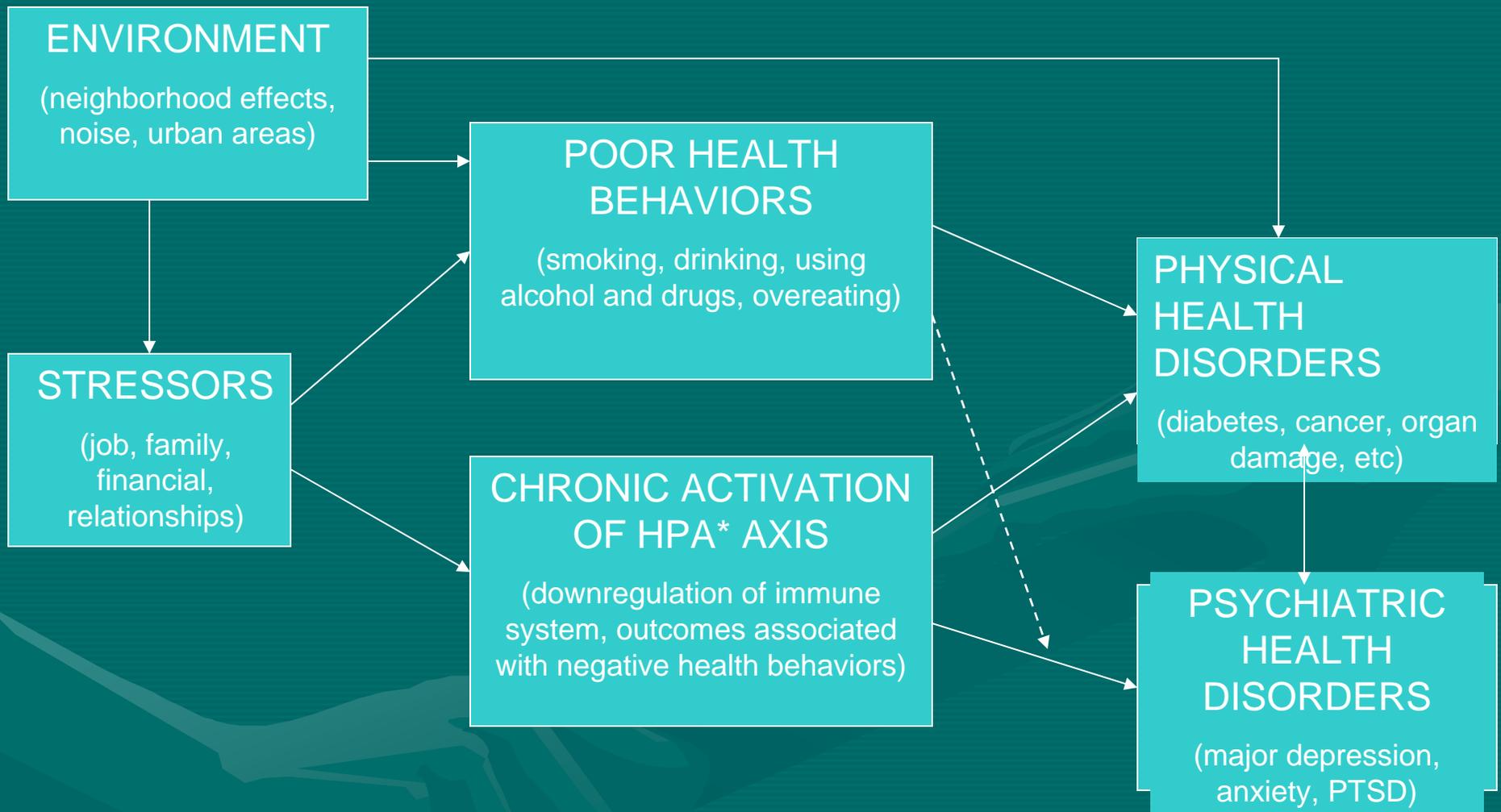


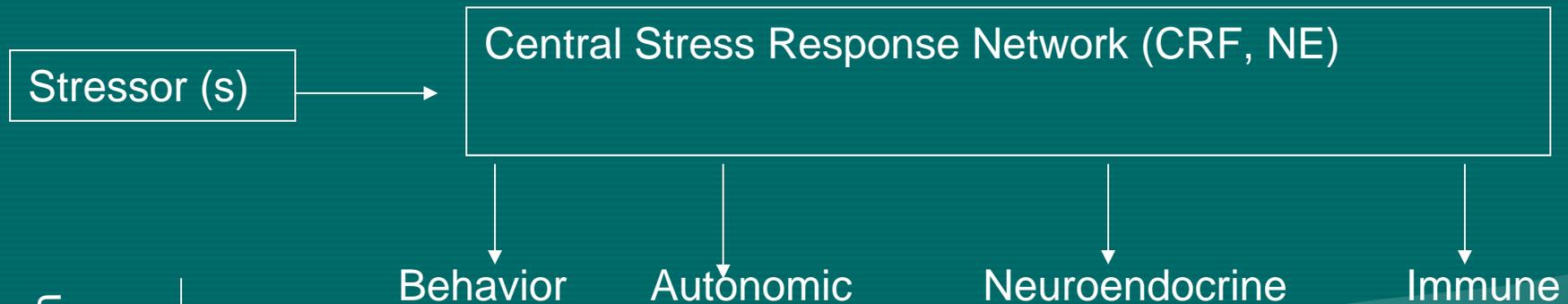
Figure 4: Possible Interrelationships Among Environment, Stressors, Negative Health Behaviors and Physical and Mental Health Disorders

\*hypothalamic-pituitary-adrenal

# Hypothesized Effects Through the HPA Axis

- Complex interactions between endocrine and neurological systems (Sapolsky)
- Under chronic stress negative feedback breakdown and there is continued release of CRF and cortisol
- Long term chronic activation of HPA axis may be related to etiology of some mental disorders (Barden, 2004; McEwen, 1989; Young et al, 2004a; 2004b)

Figure 3: “Adaptation?” (Dallman, 2003)



Increasing Intensity/duration

1. Stress response rapidly abolishes the stressor
  - transient activation of the stress response network
2. Stress response slowly removes the stressor
  - prolonged activation of the central response network
3. Stress response cannot remove the stressor
  - consistently activated central response network

# HPA Axis and Consequences of Poor Health Behaviors

- Comfort Foods (high in fats and carbohydrates) may aid in shutdown of stress response by inhibiting release of CRF (e.g. Dallman et al)
- Alcohol, nicotine, and drug use stimulate release of dopamine and beta-endorphins aiding in shutdown of stress response and leading to feelings of relaxation and calm (e.g. Akil & Cicero; Piazza & LeMoal; Marinelli & Piazza).
- Paradoxically these drugs may also further activation of the HPA axis – thus individuals may be psychologically released from stress, but they are not physically released from the effects of stress (Dallman, 2003)

# General Hypotheses

- **Weak:** Poor health behaviors mask the stress response cascade of neural and hormonal events that have long-term effects on the development of mental disorders. Individuals are not able to report on stress-related symptoms that are ameliorated by poor health behaviors, though the physical cascade continues.
- **Strong:** Poor health behaviors through their actions on the HPA axis and other parts of the brain actually interfere with the cascade of neural and hormonal events that ordinarily would lead long term to mental disorders.

# Summary

- Disparities in physical health and mental health statuses and services do exist - but we do not know exactly why - Law of Small Effects
- The differences between physical & mental health disparities by race/ethnicity are not easy to understand
- But one route by which these differences may be mediated is through behaviors used by some race/ethnic groups to cope with the psychological consequences of stressful life conditions
- These behaviors are influenced by gender, culture and environmental opportunities (affordances)

# Summary

- Specifically, behavioral coping strategies, in the face of chronic stressful conditions, that may be effective in “preserving” African American mental health, may simultaneously contribute, along with structural inequalities and stressful life conditions, to observed physical health disparities in morbidity and mortality among some race and ethnic groups (Jackson, 2002; Jackson & Knight, 2006; Jackson, Knight & Rafferty, under review).
- And this effect may be mediated by the stress response network (Dallman et al, 2003)

# Summary

- “Habitually attempting to relieve stress-induced dysphoric effects of the CRF- (corticotropin-releasing factor) driven (neurons) central chronic stress-response network may make one feel better, but is likely to be bad for long-term health”  
(Dallman et al, 2003)

# Summary

- Blacks have early-learned, environmentally mediated, effective coping strategies to deal with stressful conditions of life.
- These behaviors may be effective, perhaps through the chronic stress-response network, in impeding the biological cascade to mental disorders, resulting in positive mental health disparities for Blacks in comparison to non-Hispanic Whites
- These behaviors contribute, however, along with poor living conditions, lack of resources, and environmentally produced stress, over the life-course, to negative race disparities in physical health morbidity and mortality

# Conclusions

## What Framework Addresses

- Consistent Negative Physical Health Disparities for Blacks vs. Whites
- Positive Mental Disorder Disparities for Blacks vs. Whites
- Major Effects of Chronic Stressors
- Gender Differences in Poor Health Behaviors
- Patterns of Change over the Life-Course in Physical and Mental Health and Poor Health Behaviors

# Conclusions

- Physical health and psychiatric disorder disparities are not reducible in any simplistic way to differences in social and economic statuses among groups (Report of the Surgeon General, 2001)
- Complex, multi-faceted -- racial, ethnic, culturally, environmentally, gendered, and life-course, influenced
- Succinctly and perversely, blacks in comparison to whites may buy their reduced rates of psychiatric disorders with higher rates of physical health morbidities and early mortality, contributing to the consistent disparities observed

# Conclusion

- Poor Neighborhoods and Housing as Root Causes
- Implications for Interventions and Treatment
- Implications for Local and National Public Policy, e.g. employment and taxation policies, housing, child-care, welfare, etc.

Thank You