

“Are some of us more equal?” Racial and Ethnic disparities in Pain Outcomes in the United States”

Salimah H. Meghani, PhD, MBE, RN, FAAN^{a, b, c}

Associate Professor, University of Pennsylvania

^aDept of Biobehavioral Health Sciences , School of Nursing

^bNew Courtland Center for Transitions and Health, School of Nursing

^cAssociate Fellow, Center for Bioethics



Outline



- **Review evidence on pain treatment disparities in the U.S. by race/ethnicity**
- **Offer some perspectives to think about the issues of race/ethnicity in the context of socioeconomic status (SES)**
- **Make a case for why the race/ethnicity effect in pain care is important and compelling despite limitations of this construct and body of literature.**

Pain



- Pain's fiscal cost in US: \$530- 635 Billion/year¹
- Equals the GDP of 125 lowest income countries combined²
- Incremental/ positive relation of pain & healthcare cost/utilization
 - Those with “moderate pain” generate “per capita” HC expenditures of \$4,516 higher than a person in “no pain”; those with “severe pain” generate expenditures \$3,210 higher than those with “moderate pain”¹.

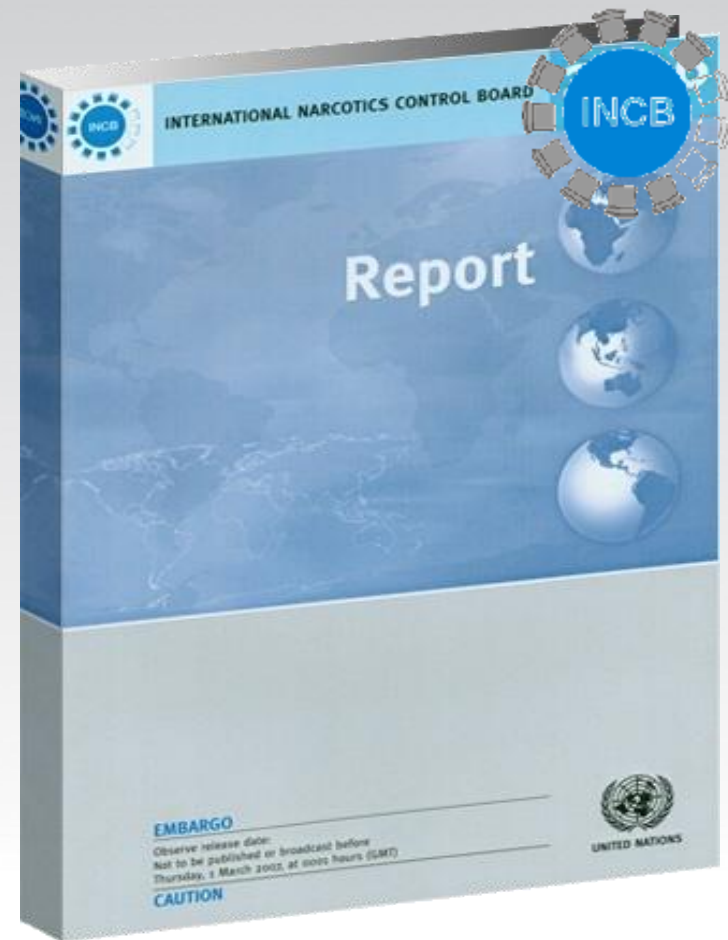
1. IOM, Relieving Pain in America 2011. National Academies Press.

2. Meghani; Raw data: International Monetary Fund, World Economic Outlook Database, April 2011. Accessed Dec 27, 2012.

U.S.' Capacity to Manage Pain

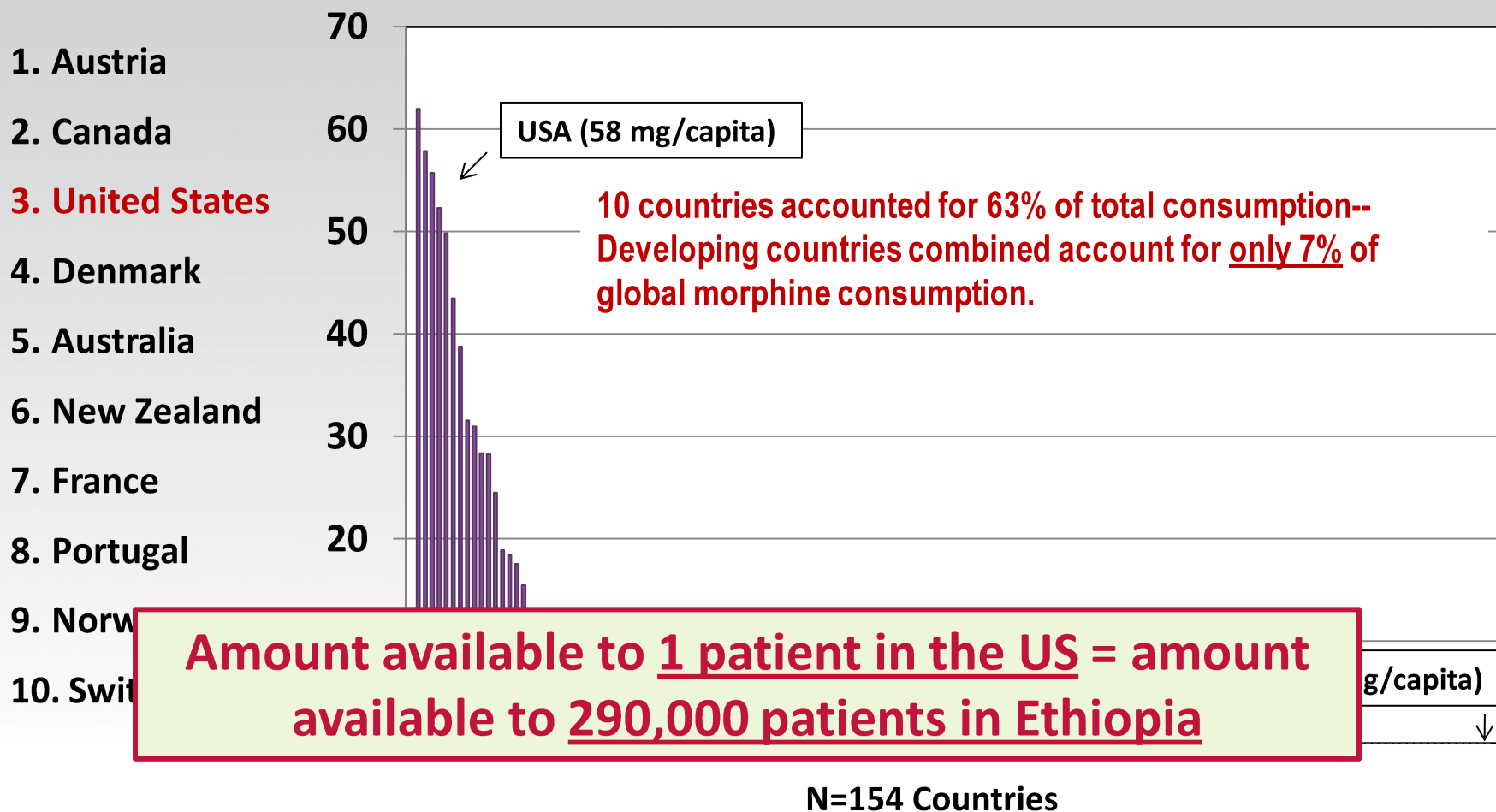


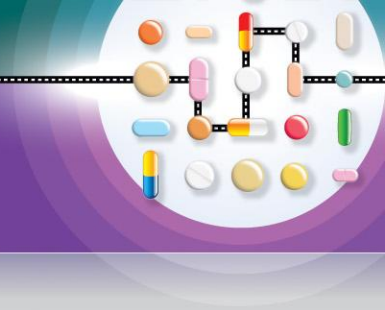
- The International Narcotics Control Board (INCB) uses “*morphine consumption*” in a country as a proxy to gauge “country’s access to pain medications”^{1,2}



1. INCB. http://www.incb.org/incb/en/annual_report_1995.html. Accessed September 8, 2010.
2. WHO. *WHO Tech Rep Ser.* 1990;804;1-75.

Consumption of Opioids for Medical Use by Rich and Poor Nations





**Does Availability in the U.S = Availability
for ALL?**

“We Don’t Carry That”..... NYC



“WE DON’T CARRY THAT” — FAILURE OF PHARMACIES IN PREDOMINANTLY NONWHITE NEIGHBORHOODS TO STOCK OPIOID ANALGESICS

1

R. SEAN MORRISON, M.D., SYLVAN WALLENSTEIN, PH.D., DANA K. NATALE, M.A., RICHARD S. SENZEL, M.R.P.,
AND LO-LI HUANG, B.A.

Results Pharmacists representing 347 of 431 eligible pharmacies (81 percent) responded to the survey. A total of 176 pharmacies (51 percent) did not have sufficient supplies of opioids to treat patients with severe pain. Only 25 percent of pharmacies in predominantly nonwhite neighborhoods (those in which less than 40 percent of residents were white) had opioid supplies that were sufficient to treat patients in severe pain, as compared with 72 percent of pharmacies in predominantly white neighborhoods (those in which at least 80 percent of residents were white) ($P < 0.001$).

Conclusions Pharmacies in predominantly nonwhite neighborhoods of New York City do not stock sufficient medications to treat patients with severe pain adequately. (N Engl J Med 2000;342:1023-6.)

©2000, Massachusetts Medical Society.

The Michigan Experience.....

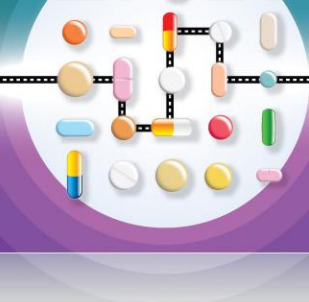


Differences in Prescription Opioid Analgesic Availability: ¹ Comparing Minority and White Pharmacies Across Michigan

Carmen R. Green,* S. Khady Ndao-Brumblay,* Brady West,[†] and Tamika Washington*

Perspective: Michigan pharmacies in minority zip codes were 52 times less likely to carry sufficient opioid analgesics than pharmacies in white zip codes regardless of income. Lower income areas² and corporate pharmacies were less likely to carry sufficient opioid analgesics. This study illustrates barriers to pain care and has public health implications.

© 2005 by the American Pain Society



What about Workers' Compensation?

- **WC = Federally mandated insurance system administered by states**
- **Goal: To provide “fair” compensation to workers injured in the course of their employment regardless of their occupation, income, and type of health insurance.**
- **Low back pain is the most common form of Workers' Compensation claim.**

Unequal Access in Equal Access System



John T. Chibnall, PhD, and Raymond C. Tait, PhD

- **African Americans are less likely than Caucasians to receive a diagnosis of disc injury** (Chibnall et al., 2005).
- **Even among those who received the diagnosis, whites were 110% more likely than African Americans to undergo surgery for back pain** (Chibnall et al., 2006).
- **African Americans with regional backache are less likely to be compensated across Workers' Compensation variables including medical treatment, temporary disability, & case settlement** (Chibnall et al., 2005).

Unequal Access in Equal Access System



John T. Chibnall, PhD, and Raymond C. Tait, PhD

• **In the absence of legal representation, African Americans incur strikingly lower temporary disability costs of only \$352 when compared to the cost incurred by Caucasians (\$5,040) (Tait et al., 2001).**

****No difference in the presence of legal representation****
(Tait et al., 2001).

What about Clinical Disparities in Analgesic Treatment?



- **Racial/ethnic minority patients are:**
 - **Less likely than white patients to receive “any” pain medication¹⁻³**
 - **More likely to receive lower doses of pain medications⁴**
 - **More likely to have longer wait times to receipt of analgesics in the Emergency Department⁵**
 - **Less likely to receive opioids as treatment for pain⁶⁻⁸**
 - **Less likely to be treated in a manner consistent with the WHO recommendations⁴**
 - **Some studies have not found evidence of disparities**

1. Bernabei R, et al. *JAMA*. 1998;279:1877-1882.

2. Kposowa AJ, Tsunokai GT. *Race & Society*. 2002;5:193-223.

3. Won A, et al. *J Am Geriatr Soc*. 1999;47:936-942.

4. Cleeland CS, et al. *Ann Intern Med*. 1997;127:813-816.

5. Epps CD, et al. *Pain Manag Nurs*. 2008;9:26-32.

6. Pletcher MJ, et al. *JAMA*. 2008;29:70-78.

7. Chen I, et al. *J Gen Intern Med*. 2005;20:593-598.

8. Heins A, et al. *J Opioid Manag*. 2006;2:335-340.

Politicizing Evidence?



Pain Medicine

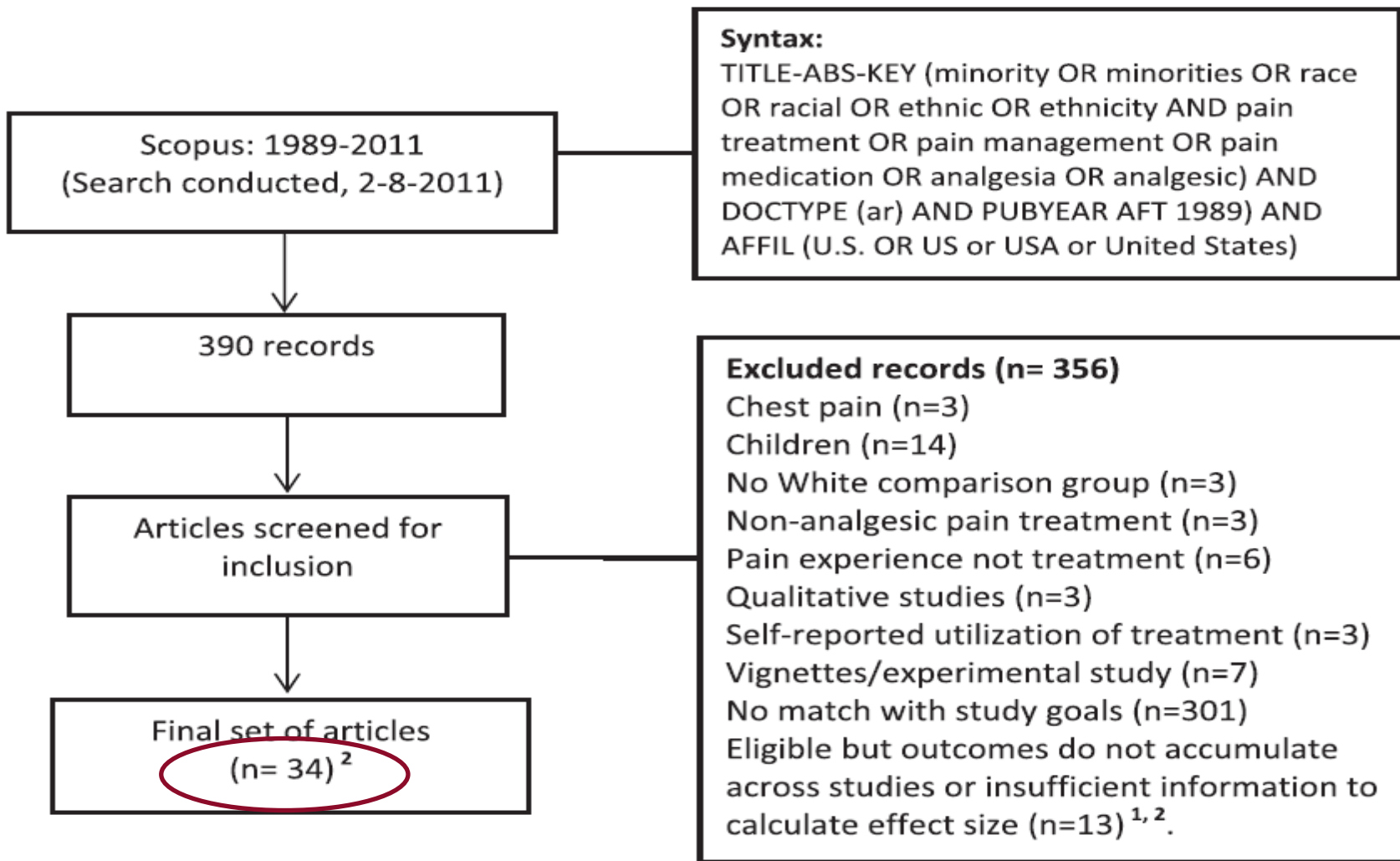


Pain Medicine 2012; 13: 150–174
Wiley Periodicals, Inc.

Time to Take Stock: A Meta-Analysis and Systematic Review of Analgesic Treatment Disparities for Pain in the United States

Salimah H. Meghani, PhD, MBE,* Eeseung Byun, PhD(c),* and Rollin M. Gallagher, MD, MPH†

Cumulative Evidence on Analgesic Rx Disparities ?

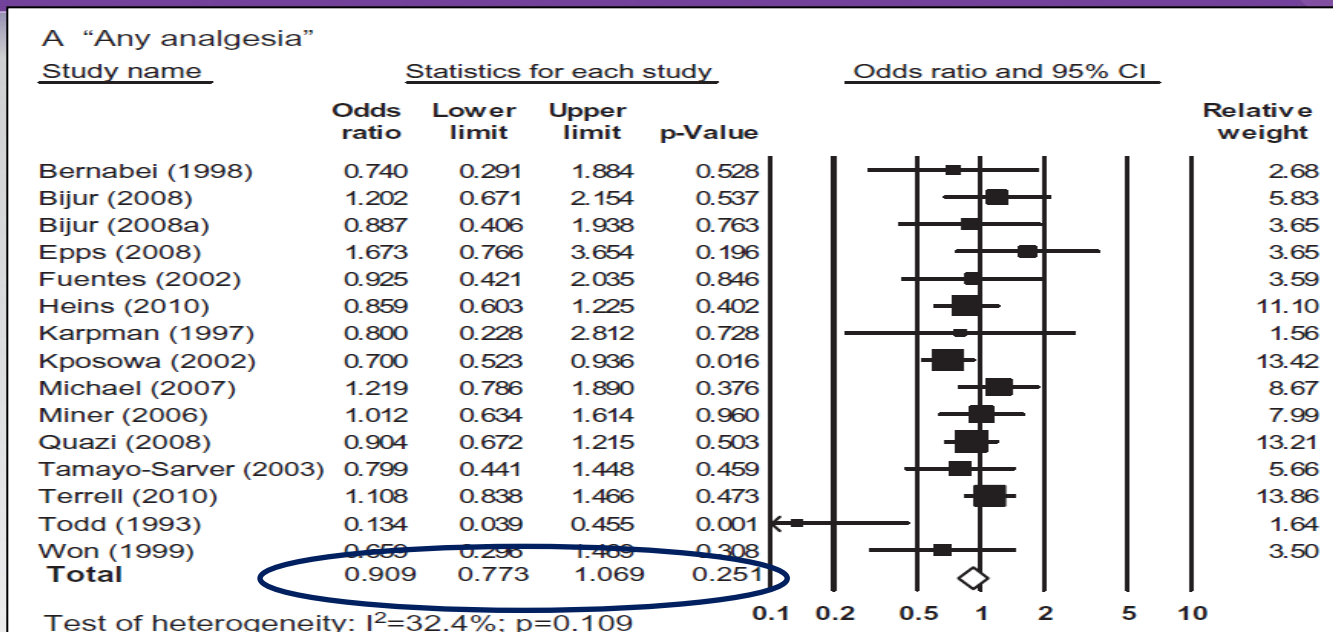


Odds for Receiving Analgesia for Hispanics/Latinos v. Whites



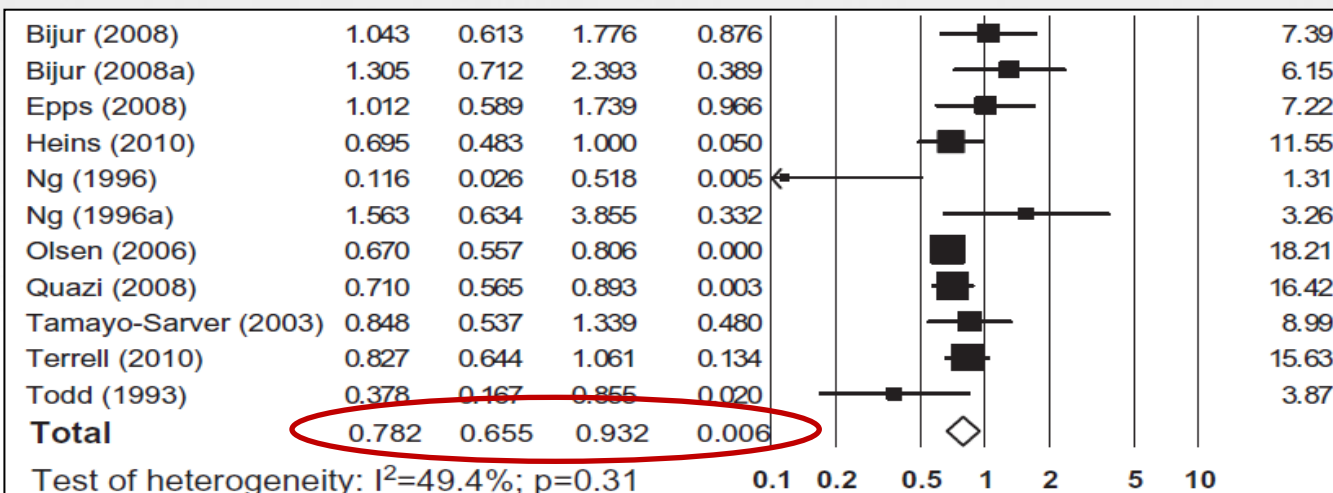
“Any”
Analgesia

(NS)



“Opioid”
Analgesia

22%
↓

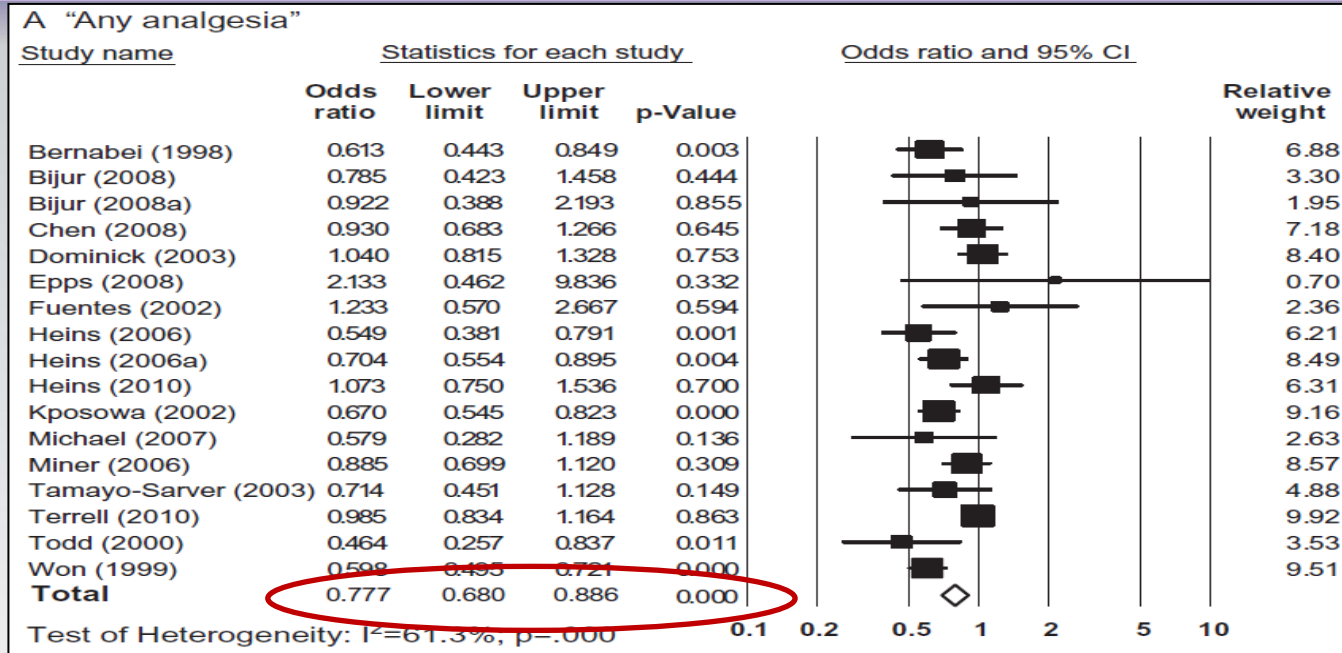


Odds for Receiving Analgesia for Blacks v. Whites



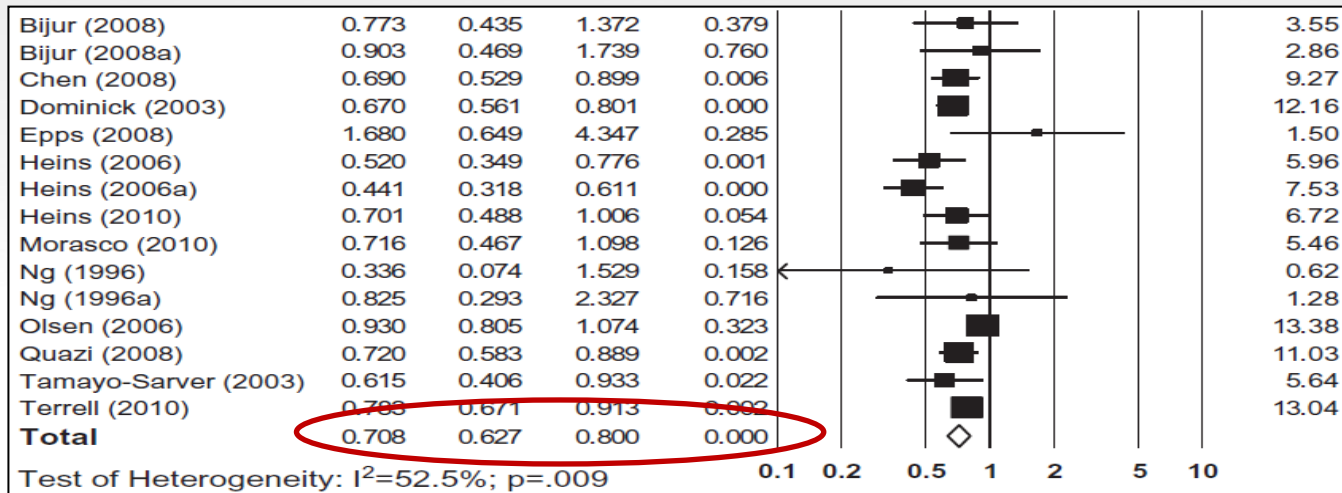
“Any”
Analgesia

23%
↓



“Opioid”
Analgesia

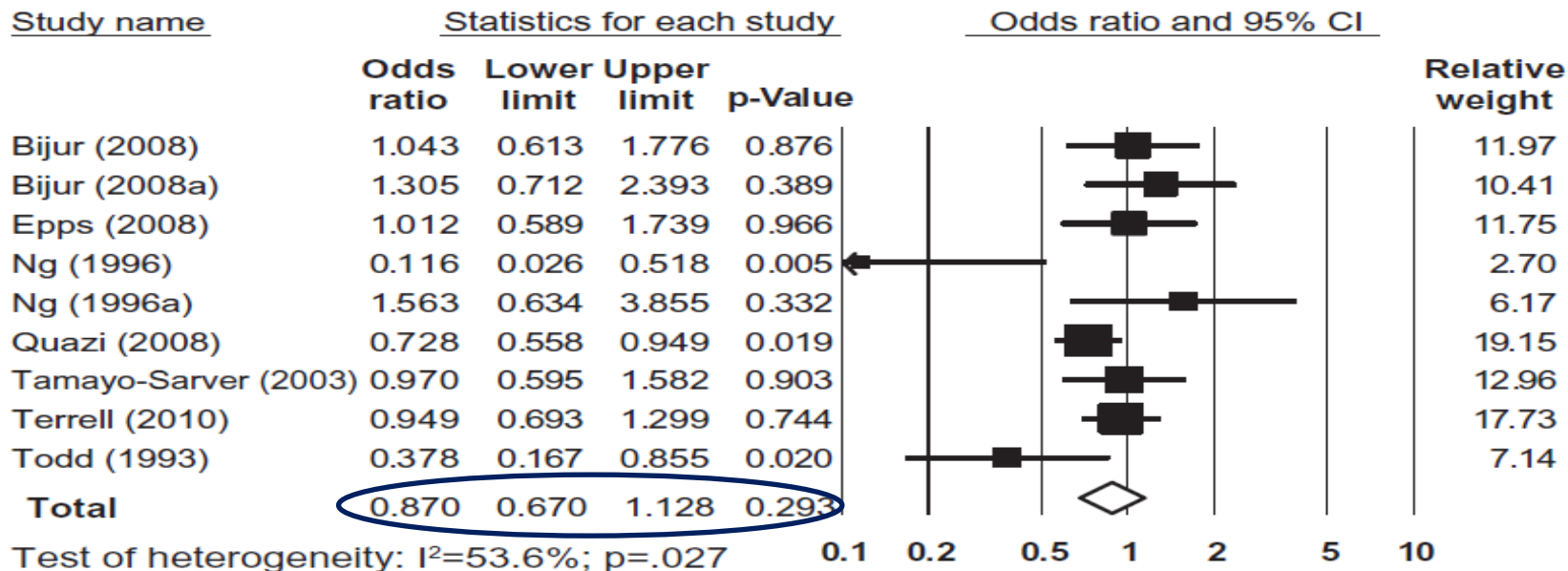
29%
↓



Is Race/Ethnicity Effect for Opioids Moderated By “Pain Type” for Hispanic/Latinos?

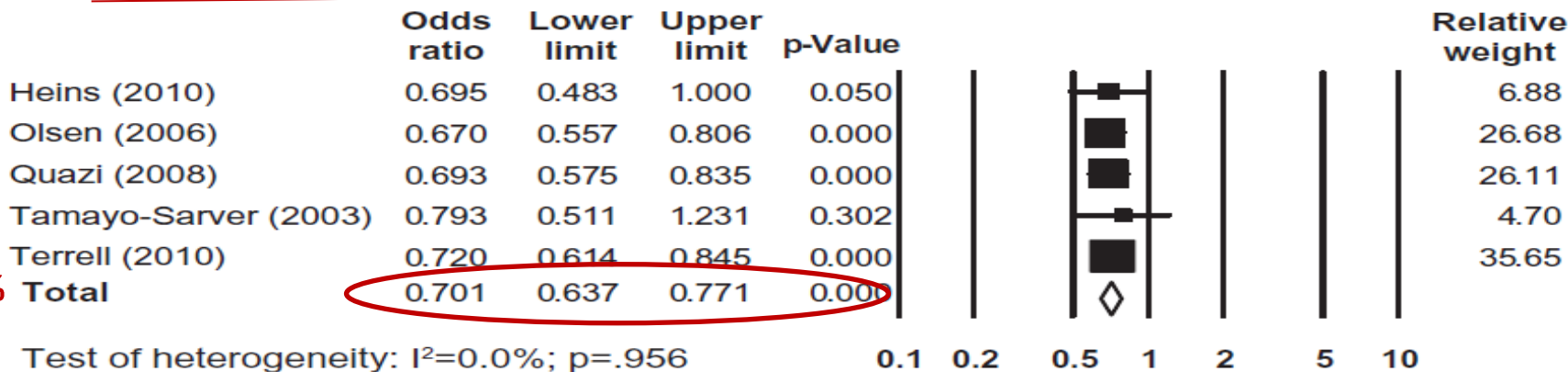


A “Traumatic/surgical” pain



(NS)

B “Non-traumatic/non-surgical” pain^{1,2}

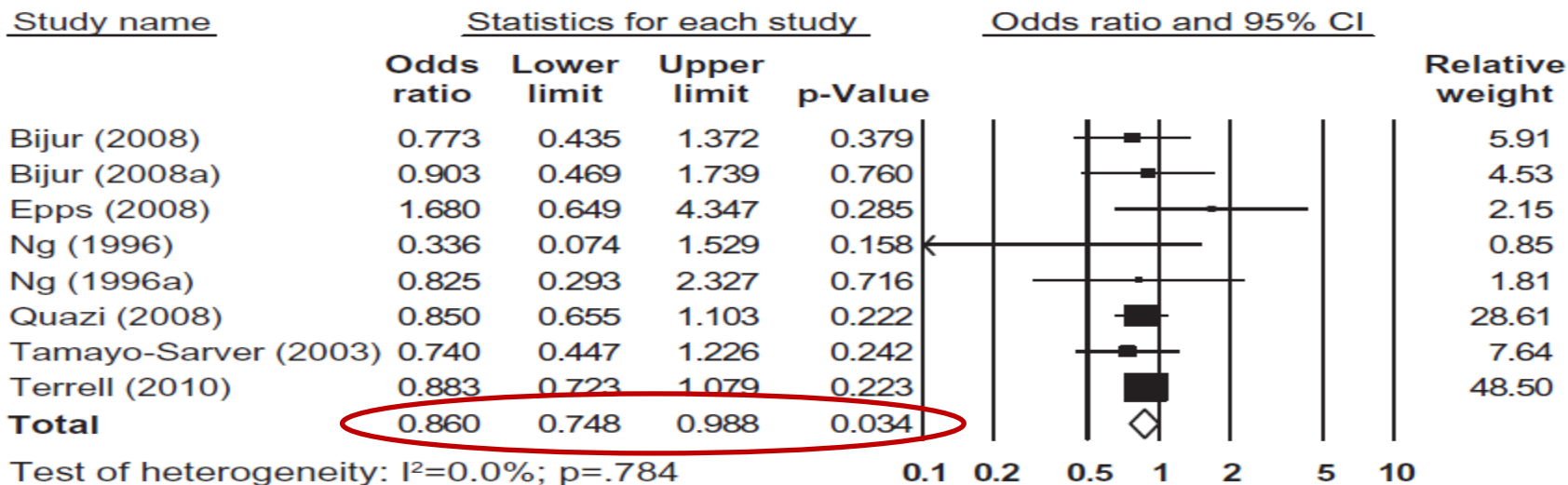


30% ↓

Is Race/Ethnicity Effect for Opioids Moderated By “Pain Type” for Blacks/African Americans?

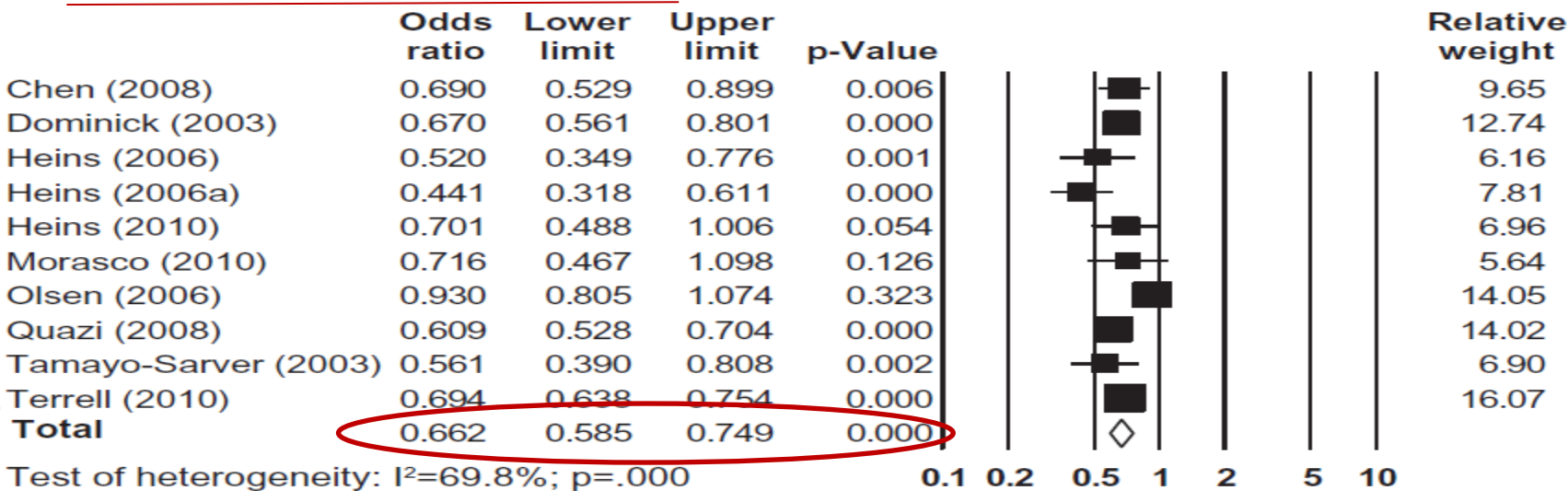


A “Traumatic/surgical” pain¹



14%
↓

B “Non-traumatic/non-surgical” pain²



34%
↓

Main Conclusions



- **Racial disparities in analgesic treatment exists**
- **Magnitude of disparities varies by:**
 - **Subgroups**
 - **Treatment goals**
 - Opioids vs. Non-opioids
 - Traumatic pain vs. non-traumatic
- **WHY?**

Theories of Implicit Bias (Social Cognition)



- Humans have *limited capacity to process complex information*.
- Act as “*cognitive misers*” when circumstances exceed cognitive reserves.
 - Rely on “rules of thumb” and “heuristics” that are easy to process.
 - E.g., “social constructions”, “pre-conceived categories”.
- These processes are “*automatic*” do not occur out of tardiness/ill-intention, but necessity to maintain efficiency.
- BUT outcomes are suboptimal and biased!

Fiske, S.T. & Taylor, S.E. Social Cognition. 2nd ed., McGraw-Hill, Inc., 1991.

Dual process modeling: A useful framework to understand clinical disparities



- **Automatic stereotypes**

- **Unconscious implicit** beliefs/expectations about a group (stereotype activation)
- Stereotype influencing behaviors (stereotype application)
- *Do not serve any treatment goals*

- **Goal-modified stereotypes**

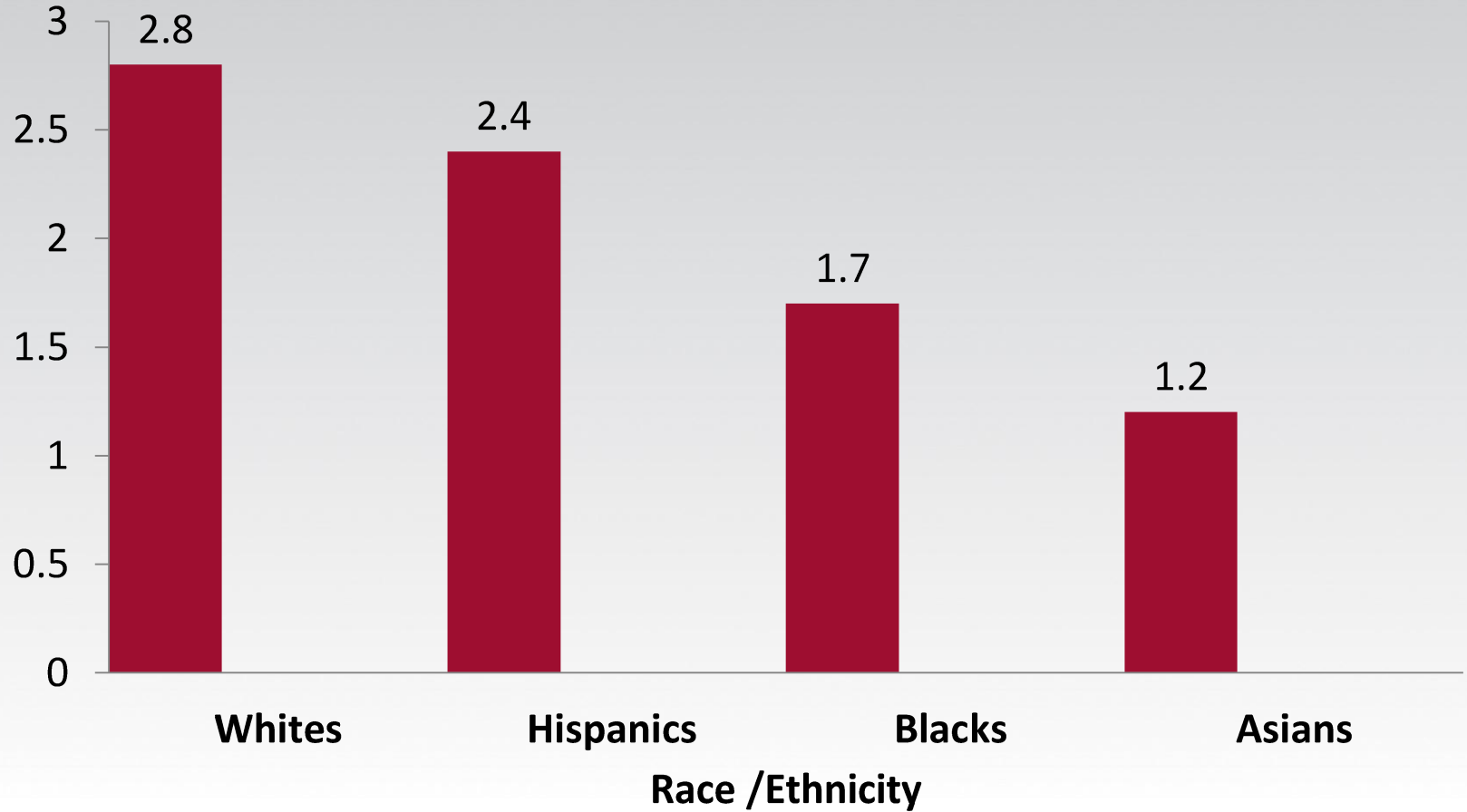
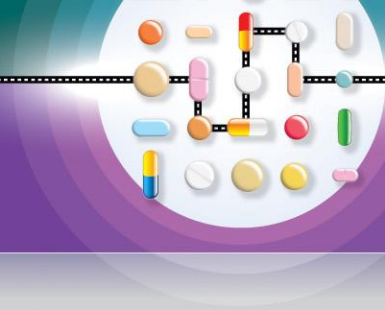
- *Serves some treatment/comprehension goal*
 - E.g., statistical stereotype based on population *distribution of data or “its perception.”*

Quiz

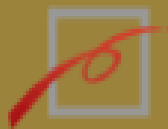


- Rank order the following groups according to their “abuse” of prescription opioids
- Whites
- Hispanics
- Blacks
- Asians

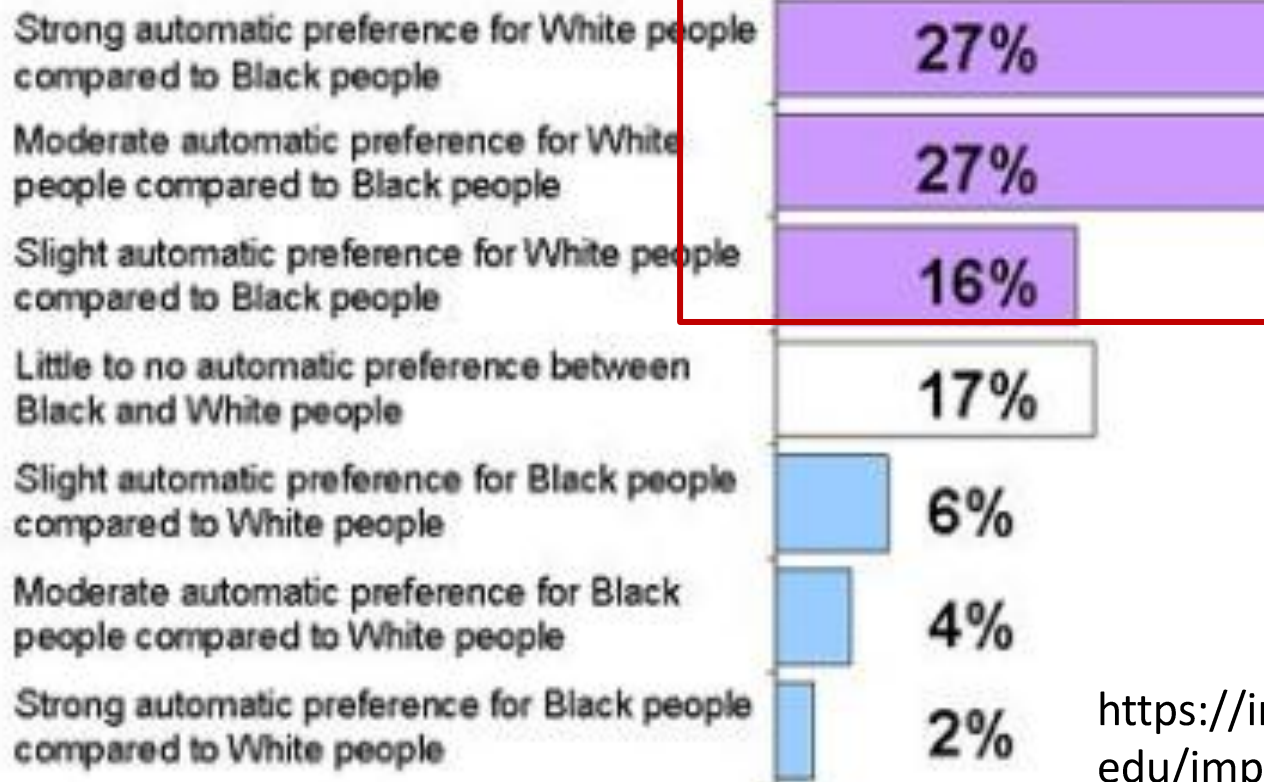
Non-Medical Use of “Prescription Drug” by Race/Ethnicity in the U.S.



Source: National Survey of Drug Use and Health; SAMHSA



Percent of web respondents with each score

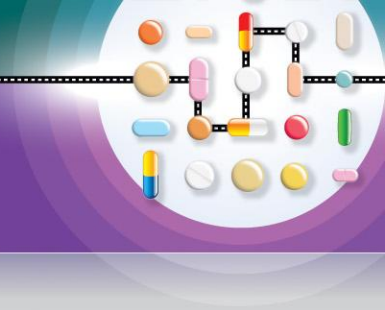


70%

[Click for detailed summary](#)

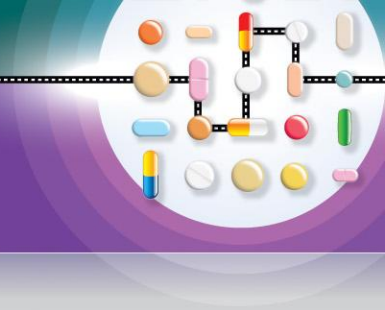
<https://implicit.harvard.edu/implicit/research/>

Did We “Control” for SES?



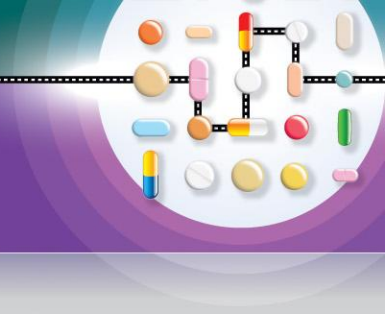
- **Did not.. Could not..**
- **Heterogeneity in employing SES**
 - **SES variable not uniformly collected**
 - **(Personal income, family income, insurance types, educational levels, occupational status, language proficiency, health literacy)**

Race a Proxy for SES?



Let's assume that SES variable was uniformly available...

A Word of Caution about “Statistical Control”



Statistical control = When all else is equal

**i.e., Does race matter when other variables
(e.g., SES) are held “constant”**

A Word of Caution about “Statistical Control”



Population-Based Survey of Pain in the United States: Differences Among White, African American, and Hispanic Subjects

Russell K. Portenoy,^{*} Carlos Ugarte,[†] Ivonne Fuller,[‡] and Gregory Haas[§]

Self-Reported Pain and Utilization of Pain Treatment Between Minorities and Nonminorities in the United States

Salimah H. Meghani and Eunhee Cho

Population-Based Survey of Pain in the United States: Differences Among White, African American, and Hispanic Subjects

Russell K. Portenoy,* Carlos Ugarte,[†] Ivonne Fuller,[‡] and Gregory Haas[§]

Table 6. Multivariate Associations between Demographic Characteristics of the Respondents and Disabling Pain*: Odds Ratios from Binary Logistic Regression (95% Confidence Intervals for Odds Ratios)

		95% CI FOR		
	ODDS RATIO	ODDS RATIO	P VALUE	
Sex				
Female	1.00			
Male	0.88	0.66–1.17		.38
Age group				
≥45 y	1.00			
<45 y	0.93	0.69–1.25		.63
Income				
>\$75,000	1.00			
\$25,000–\$75,000	1.68	0.94–2.98		.08
<\$25,000	2.54	1.39–4.64		.00
Community type				
Rural	1.00			
Urban	0.99	0.72–1.36		.94
Suburban	0.72	0.48–1.07		.10
Race or ethnic group				
Hispanic	1.00			
White	0.93	0.60–1.43		.74
African American	0.92	0.60–1.42		.71

Reference
group





Population-Based Survey of Pain in the United States: Differences Among White, African American, and Hispanic Subjects

Russell K. Portenoy,^{*} Carlos Ugarte,[†] Ivonne Fuller,[‡] and Gregory Haas[§]

320

Survey of Pain in the US: Racial and Ethnic Differences

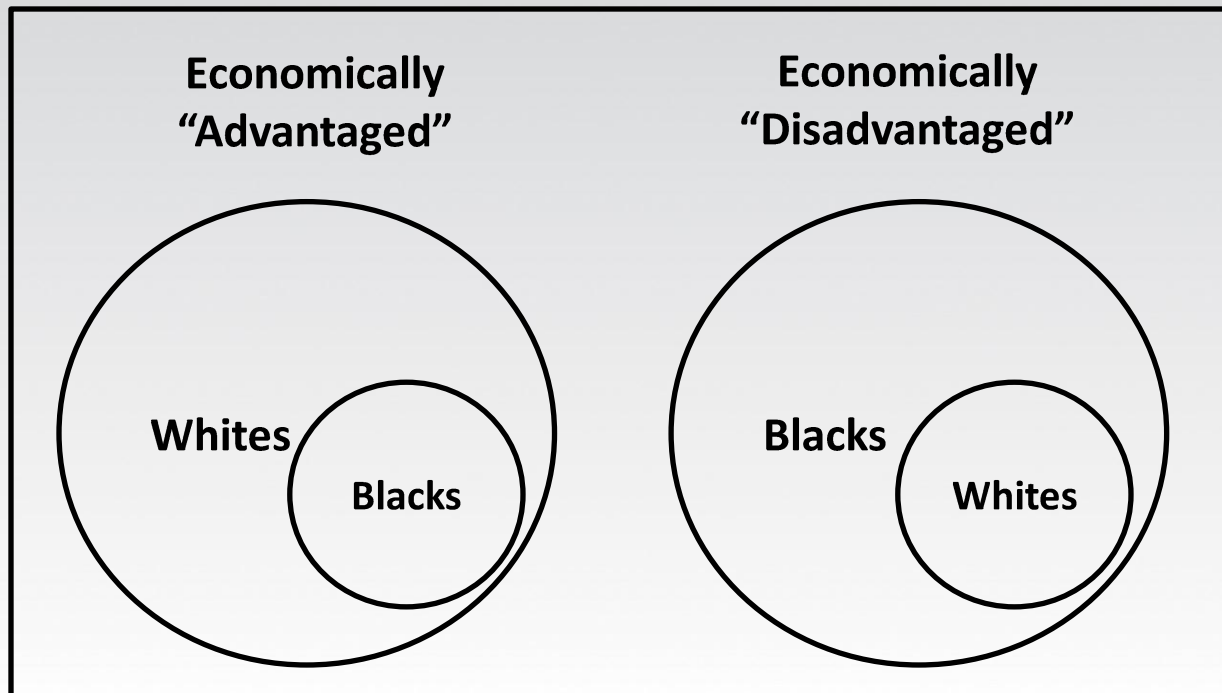
Table 1. Demographics

	<i>OVERALL</i> (<i>N</i> = 1335)	<i>WHITE</i> (<i>N</i> = 454)	<i>AFRICAN</i> <i>AMERICAN</i> (<i>N</i> = 447)	<i>HISPANIC</i> (<i>N</i> = 434)	<i>PAIRWISE COMPARISONS</i>
Income, N (%)					
< \$25,000	535 (40)	125 (28)	195 (44)	215 (50)	C vs AA, [‡] C vs H [†]
\$25,000–\$74,999	489 (37)	197 (43)	155 (35)	137 (32)	C vs AA, [*] C vs H [†]
≥ \$75,000	101 (8)	63 (14)	15 (3)	23 (5)	C vs AA, [‡] C vs H [†]
Do not know	210 (16)	69 (15)	82 (18)	59 (14)	NS

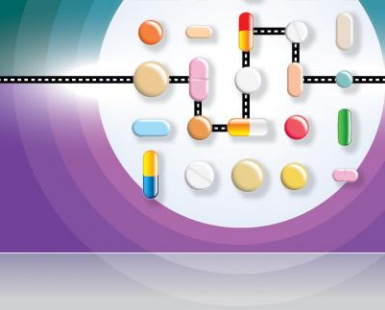
The problem of “all else equal” analysis is that... “all else” is not equal..



Distribution of Race and Income



Race is Causally Prior to SES in the U.S.



“SES is not just a confounder of racial differences in health but part of causal pathway by which race affects health. Race is an antecedent and determinant of SES”

Williams, DR (1996, p. 177)

American Apartheid: Segregation and Making of Underclass



- Concentrated disadvantages
- Perpetuated by historical federal policies, real state/lending norms, and maintained by racism
- Affects equality of social access and opportunities
- Perpetuates all social disparities including health
- Residential segregation stable overtime

Access to Pain Treatment is No Exception....



Differences in Prescription Opioid Analgesic Availability: ¹ Comparing Minority and White Pharmacies Across Michigan

Carmen R. Green,* S. Khady Ndao-Brumblay,* Brady West,[†] and Tamika Washington*

Perspective: Michigan pharmacies in minority zip codes were 52 times less likely to carry sufficient opioid analgesics than pharmacies in white zip codes regardless of income. Lower income areas² and corporate pharmacies were less likely to carry sufficient opioid analgesics. This study illustrates barriers to pain care and has public health implications.

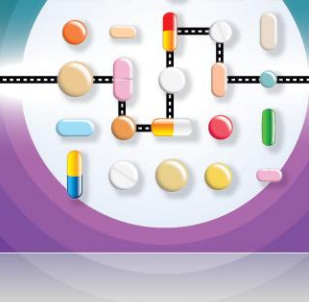
© 2005 by the American Pain Society

Of the 965 randomly selected zip codes, 96.6% were classified as either $\geq 70\%$ white residents or $\geq 70\%$ minority residents. Only 3.4% of all zip codes were not amenable to this classification, confirming “an important level of geographic segregation by race and ethnicity”.



What Does This Mean for the Patients?

Salimah H. Meghani, PhD

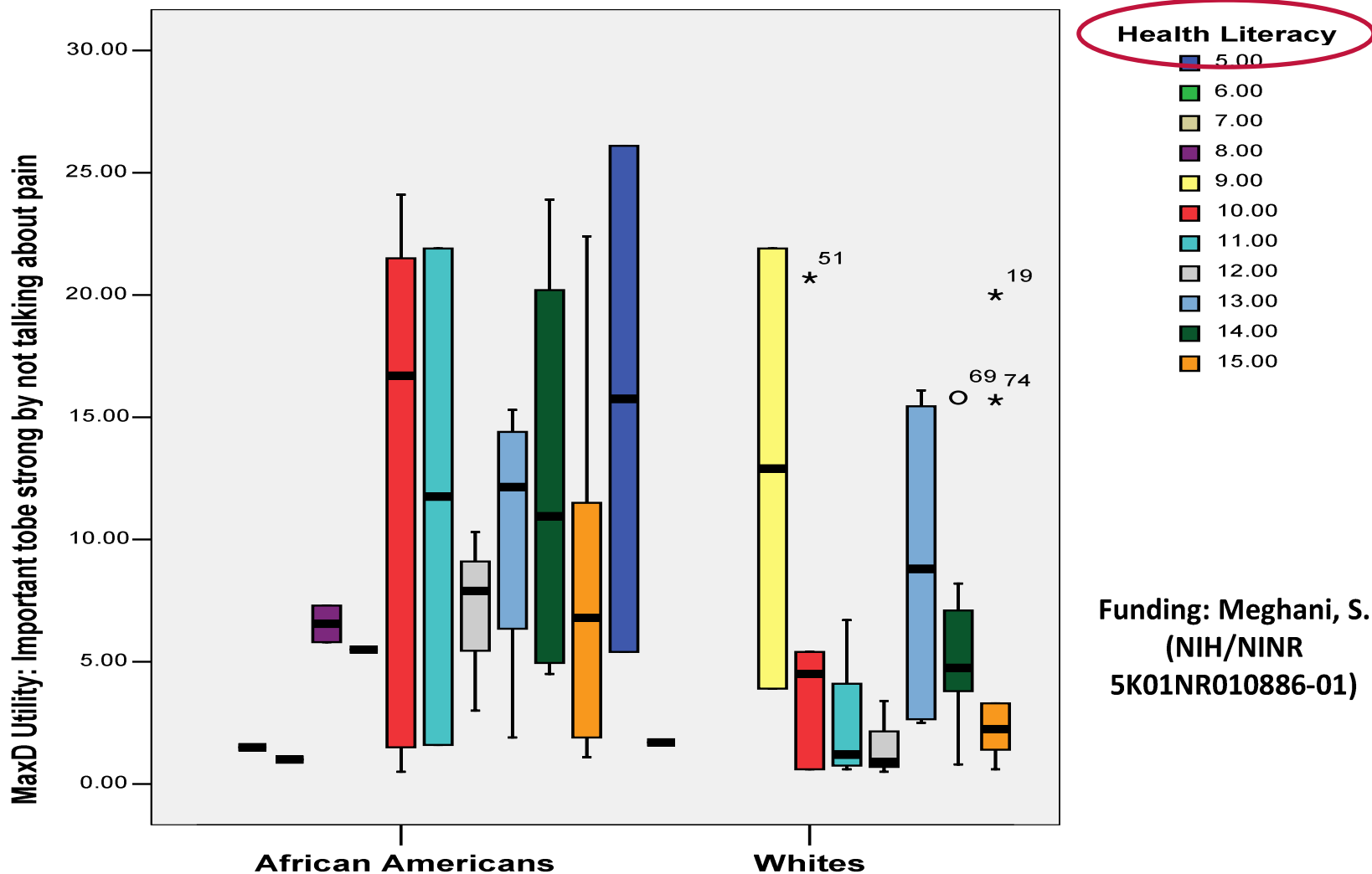


Implicit Bias and Feeling Believed

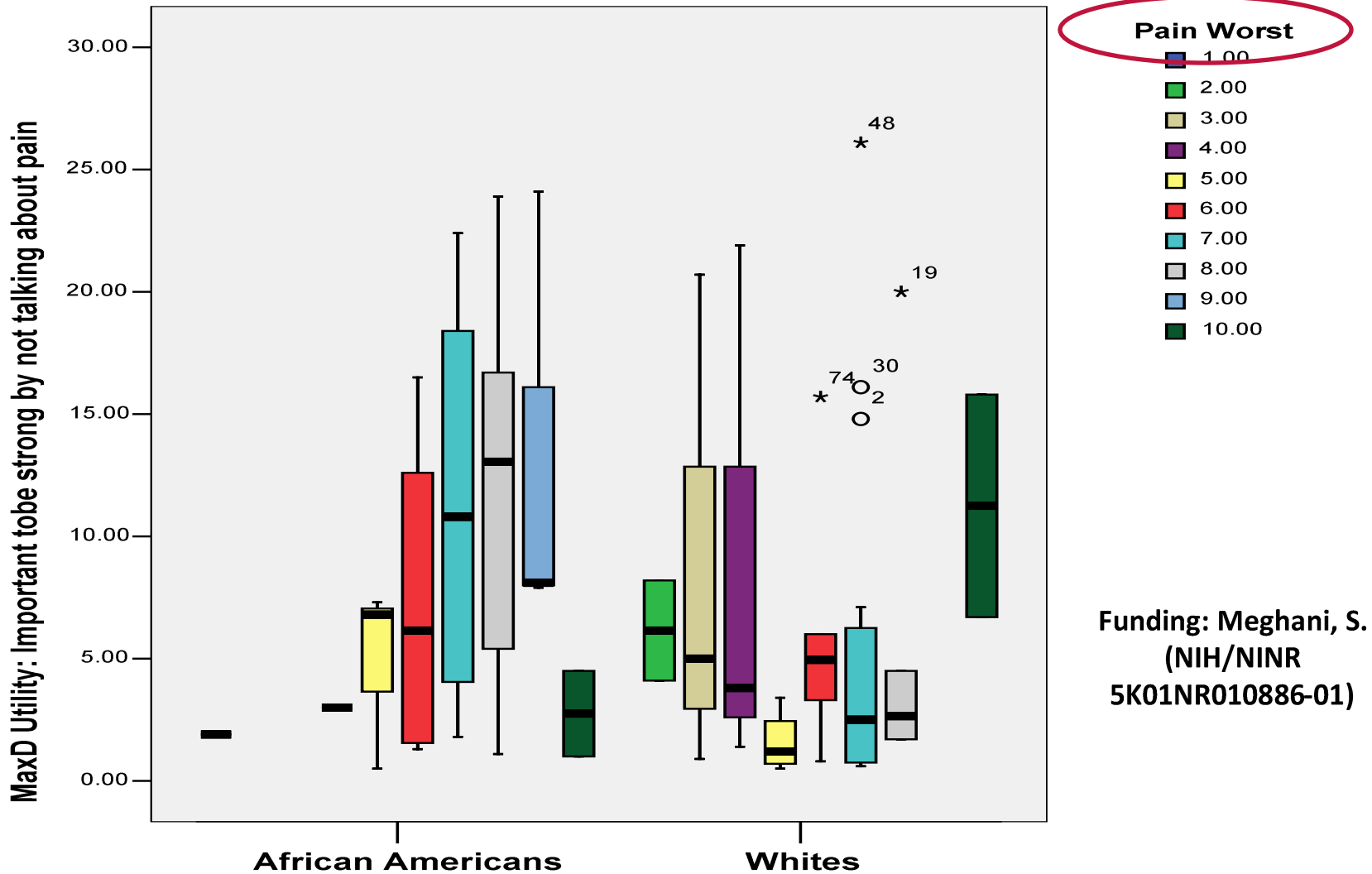
- *“The only thing I just want to add is that a lot of black people feel, especially when we’re in pain, that we aren’t believed, and that is the main problem with us. **And we accept that, that we’re not gonna be believed. So therefore we don’t make that a major issue. And then when anything is offered to us, the first thing that’s being thrown up in our face is that, well, it’s got a street value, you know. You don’t need to hear that.**”*

(African American patient with lung cancer, age 47)

Negotiation of pain treatment with providers



Negotiation of pain treatment with providers

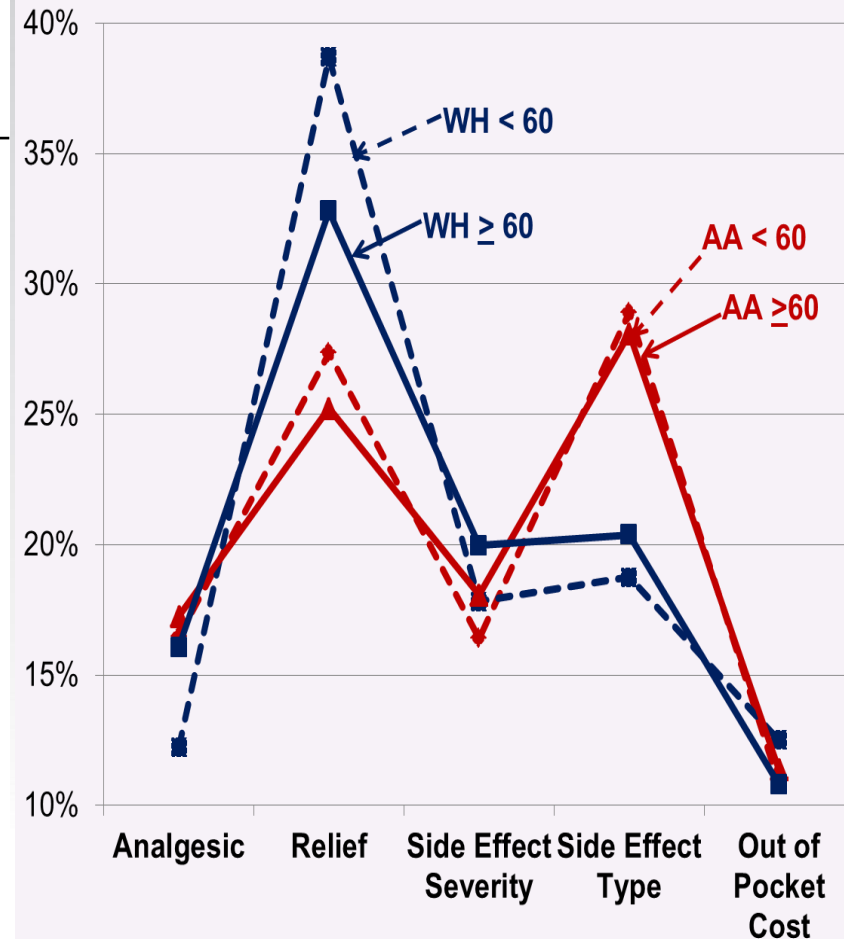


Pain and Side-effects are not adequately managed in African Americans



Pain & Adherence Variables*	AA <60 (n=77)	WH <60 (n=92)	AA ≥60 (n=25)	WH ≥60 (n=47)	p-value
“Worst pain” last week	7.69	6.65	7.60	5.79	.000
“Least pain” last week	4.51	2.87	3.84	2.62	.000
Pain-related functional interference	40.22	35.45	34.64	30.19	.008
# of analgesic barriers	9.03	6.93	7.92	5.21	.000
MEMS® adherence	52.35	73.18	54.48	74.94	.000

Choice-based Conjoint Analysis analgesic decision-making (N=241)

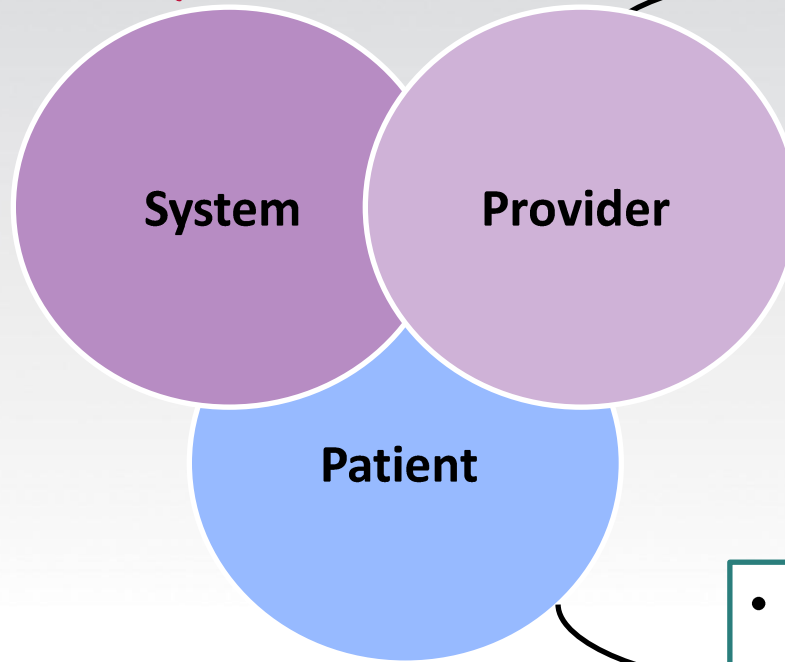


Bringing It All Together...



**Macro-level Factors
"Overt-Access"**

**Social
determinants
(Poverty,
Availability in
neighborhoods)**



**Micro-level Factors
"Covert-Access"**

**Implicit bias/
Communication**

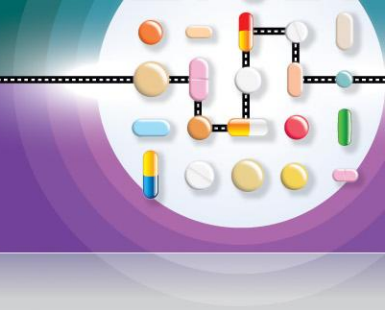


- **Patients' negotiation/**
- **Communication**

Bringing It All Together...



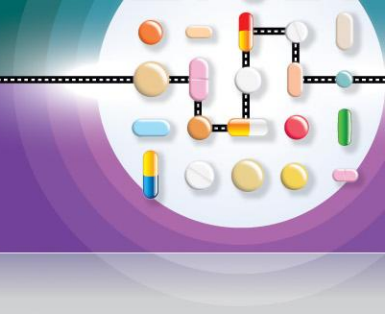
- **Despite U.S.'s tremendous capacity to manage pain, pain remains under-treated**
- **Race and ethnicity matters in pain treatment outcomes**
- **Not all minorities have the same “types” or “levels” of risks**
- **The fact that more minorities are disproportionately affected by low SES in itself is a “race effect”**
- **Need to be careful about all-else-equal analysis as “all else” is not equal**
- **Need more deliberate efforts to identify personal biases and stereotypes that renders “irrelevant characteristics” relevant in clinical pain treatment decision-making.**



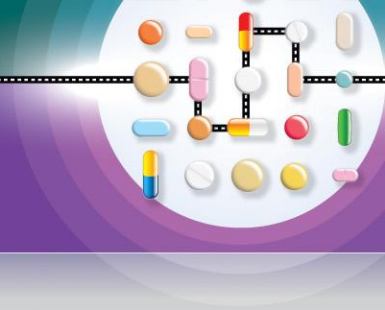
Extra Slides

4 Constructs of Interest..

- **Race & Ethnicity**
- **Socioeconomics**
- **Pain**
- **Disparities**



Race & Ethnicity...



- **Race**
 - **Social construct that describes groups based on physical characteristics (e.g., skin color)**

- **Ethnicity**
 - **Sense of identity based on common cultural origins (e.g., transmission of common beliefs or expectations)**

Race & Ethnicity

(OMB Directive 15, effective 01/02)



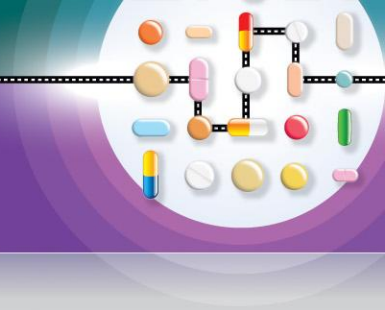
Ethnicity

- **Hispanic/Latino**
- **Non-Hispanic**

Race

- **White**
- **Black/African American**
- **Asian**
- **American Indian/Alaska Native**
- **Native Hawaiian/Pacific Islander**
- **Multiracial**

Socioeconomics (SES)...



- **Refers to heterogeneous sets of variables**
 - **Income levels**
 - Personal, household, family
 - **Insurance types**
 - Private, public insurance (e.g., Medicaid), self-pay, no insurance, and degree of managed care environment
 - **Education levels**
 - **Health literacy**
 - **Employment status**
 - **Residential characteristics**
 - Minority versus white neighborhoods
 - Zip code/census block/neighborhood income
 - **Types of facilities where care is received**
 - Metropolitan shortage area for health providers; urban/rural



That We Understand “Disparities...”

Disparities “in Defining” Disparities...

NIH (2004)

- “...differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States”¹

IOM (2002)

- “...racial or ethnic differences in the quality of health care that are not due to access-related factors or clinical needs, preferences and appropriateness of intervention”²

1. NCMHD. http://ncmhd.nih.gov/our_programs/strategic/pubs/Volume1_031003EDrev.pdf. Accessed September 8, 2010.

2. Egede LE. *J Gen Intern Med*. 2006;21:667-669.