

“Large Population Studies: The Opportunities and Challenges ”

Dichotomy Between Social Identity and Ancestry in Large Population Studies



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Desired Level of Resolution??

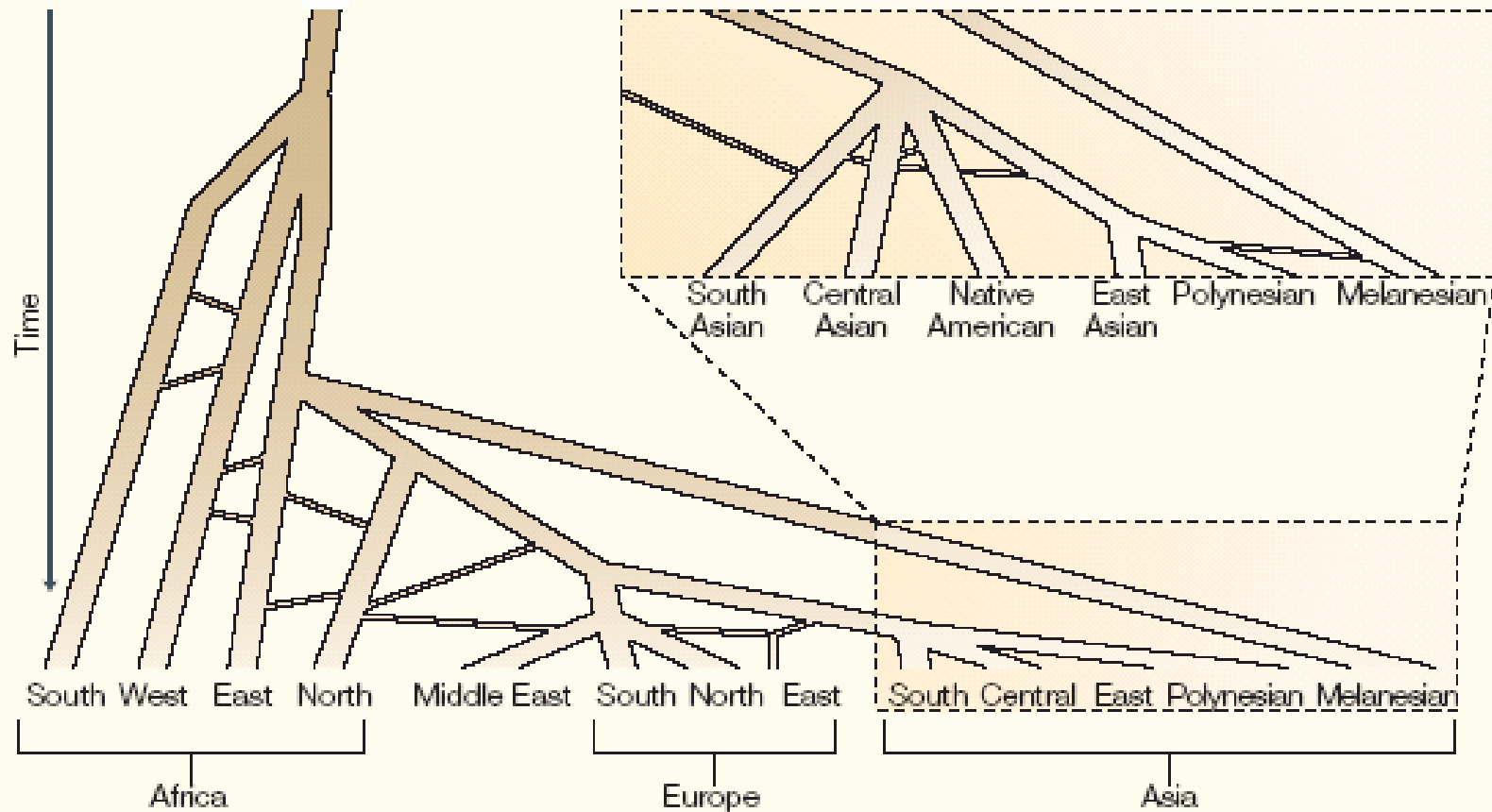
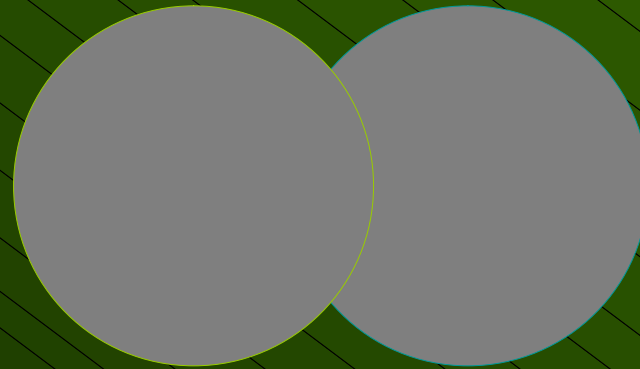


Figure 1 | A schematic tree of evolutionary relationships among the principal human population groups. Primary branch points in human evolution are shown, as well as admixture and gene-flow events (indicated as horizontal or slightly sloping connections between adjacent branches).

Shriver and Kittles – nature review 2004

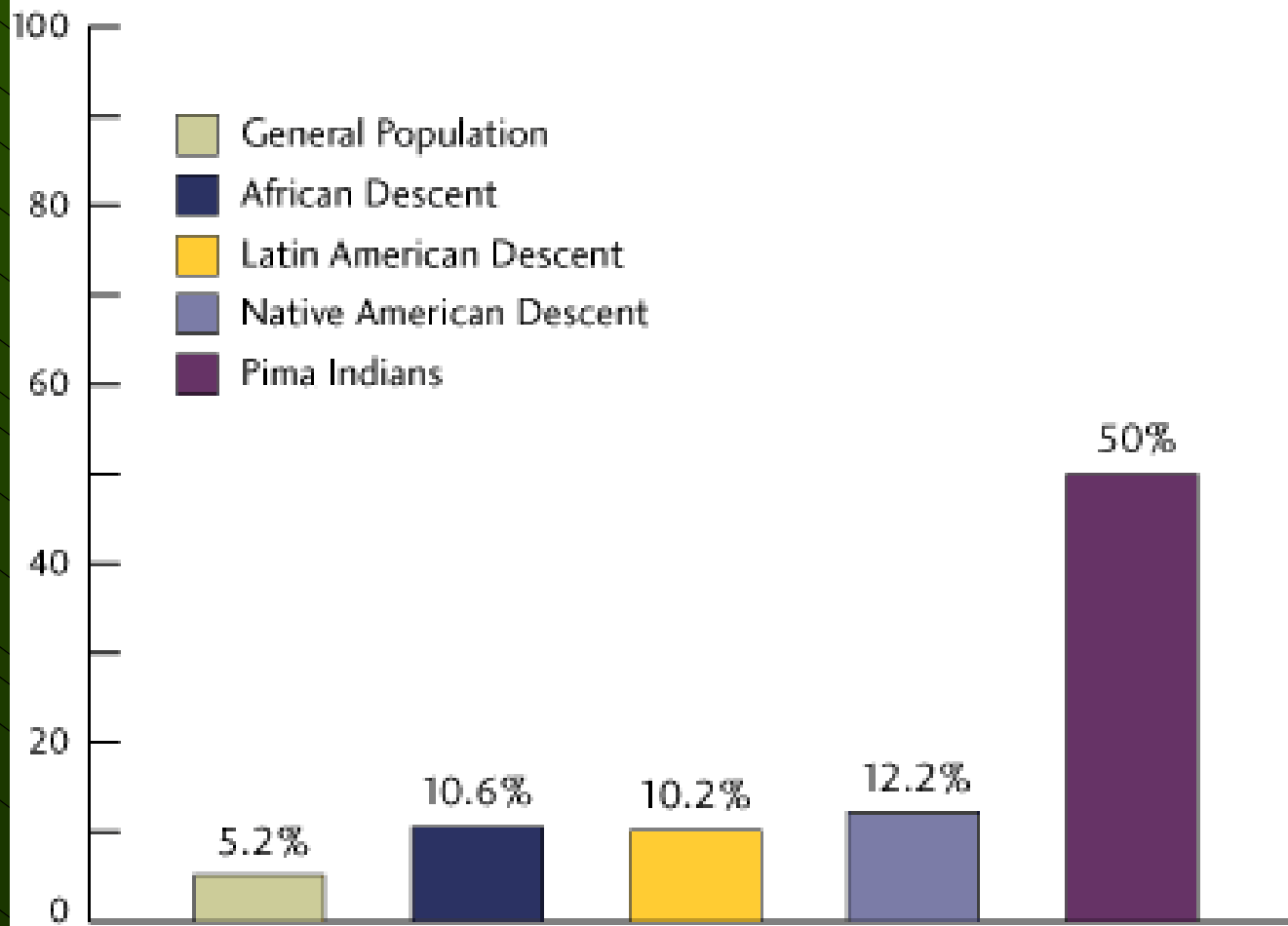
Human Diseases

Understanding Disease Etiology



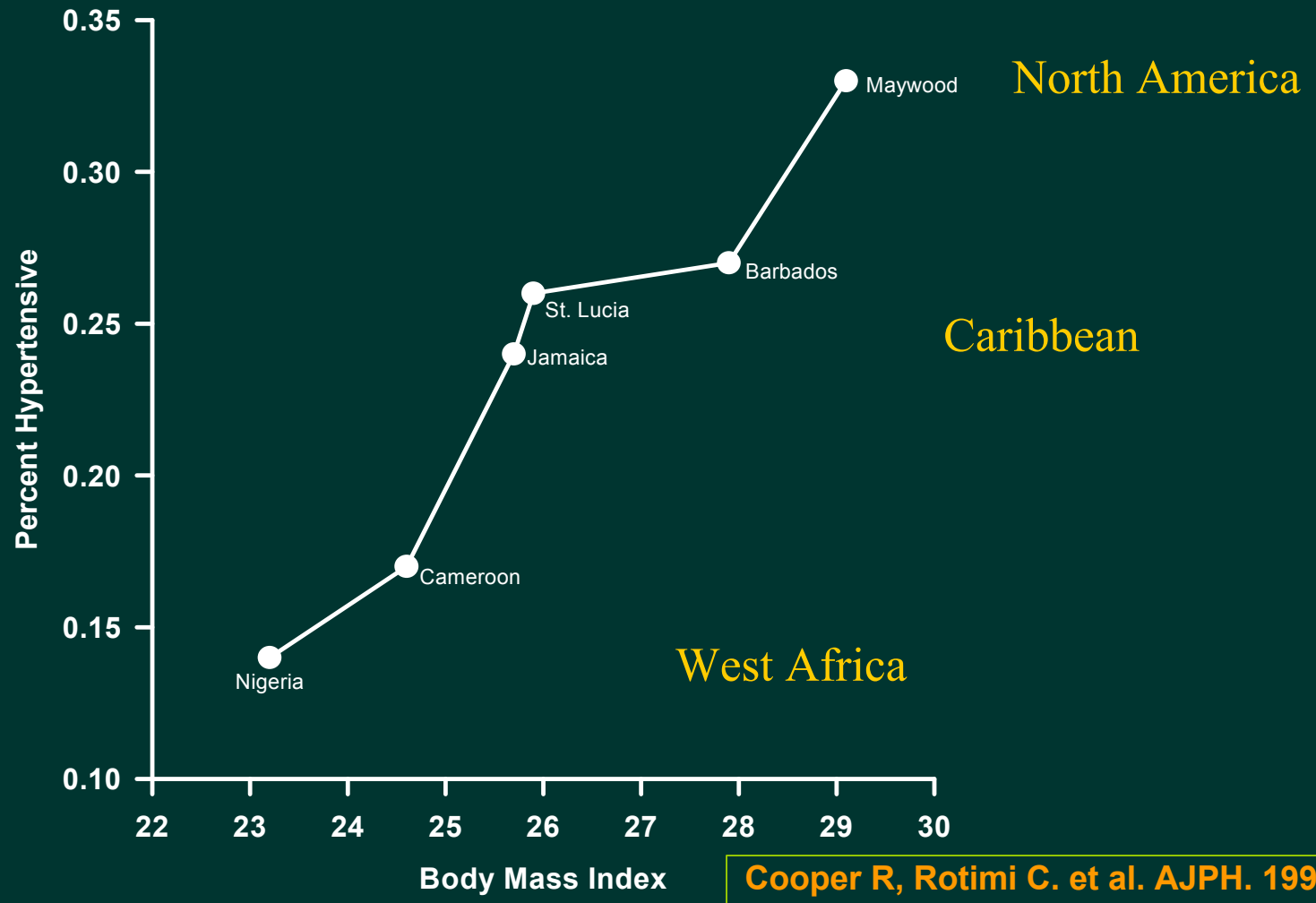
Eliminating Health Disparity

Prevalence of Type 2 Diabetes By Ethnic Groups



http://www.genetichealth.com/DBTS_What_Is_Type_2_Diabetes.shtml

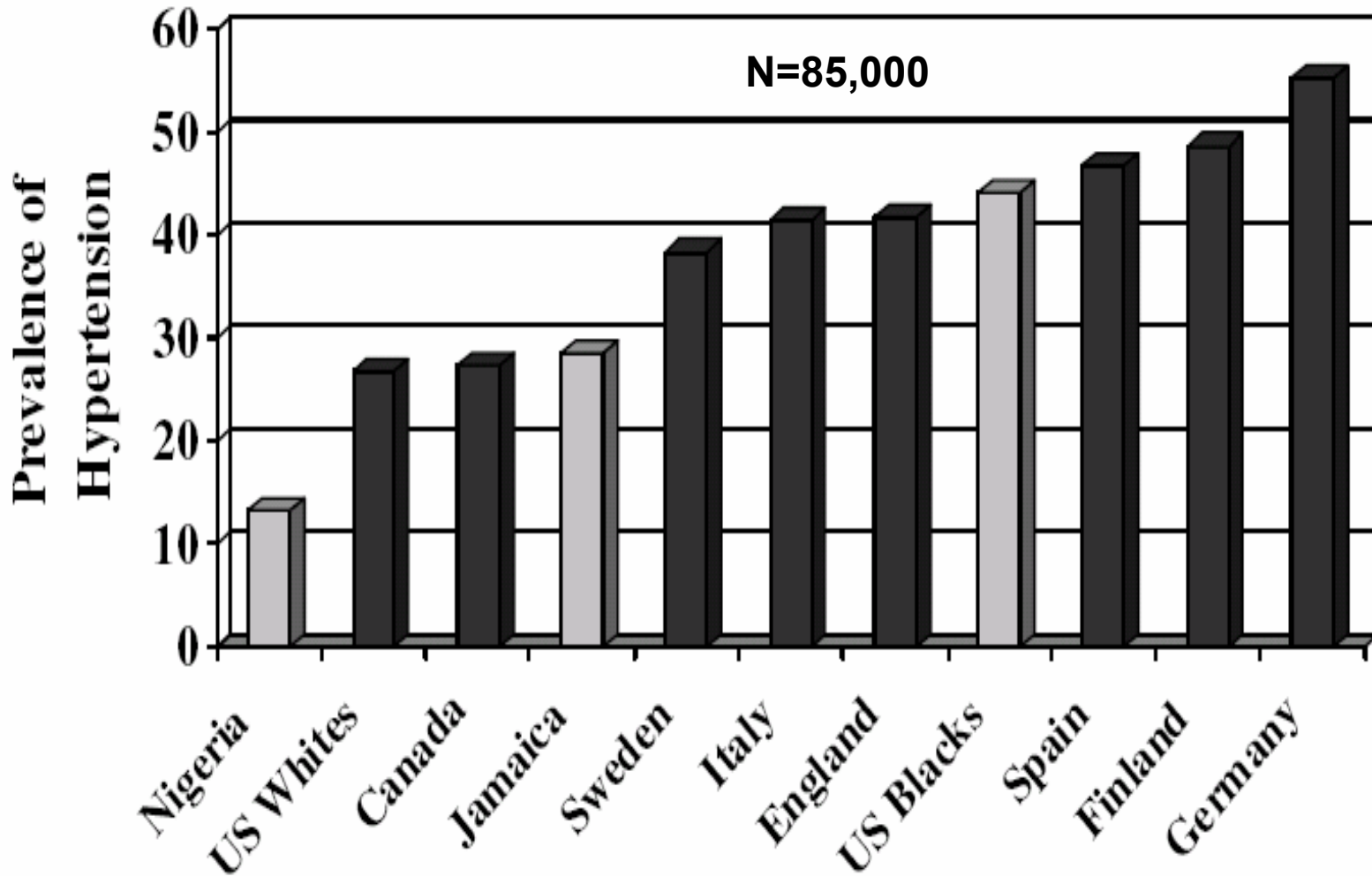
Prevalence of Hypertension by Mean Body Mass Index Among Populations of the African Diaspora



An international comparative study of blood pressure in populations of European vs. African descent

BMC Medicine 2005, 3:2 doi:10.1186/1741-7015-3-2

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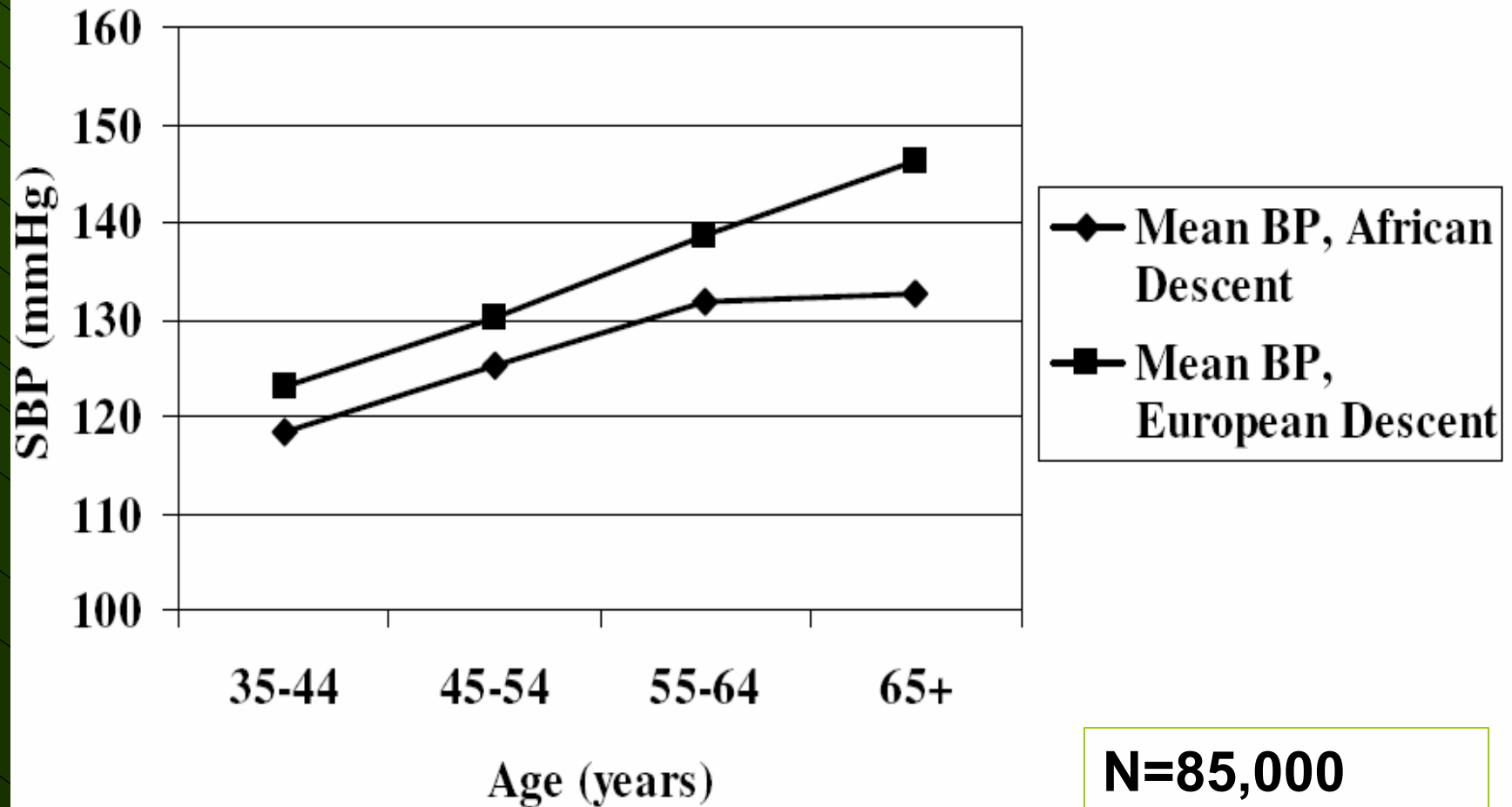


Figure 3

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Dichotomy Between Social Identity and Ancestry in Large Population Studies



Who is Black?
Widely Different
Ancestry



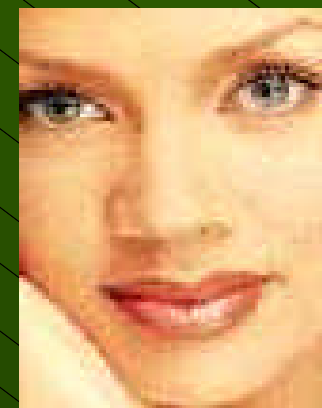
Australian Aboriginals



Surma bribe from Ethiopia



Masi, Kenya



AADM

Study

Ghana

Akan

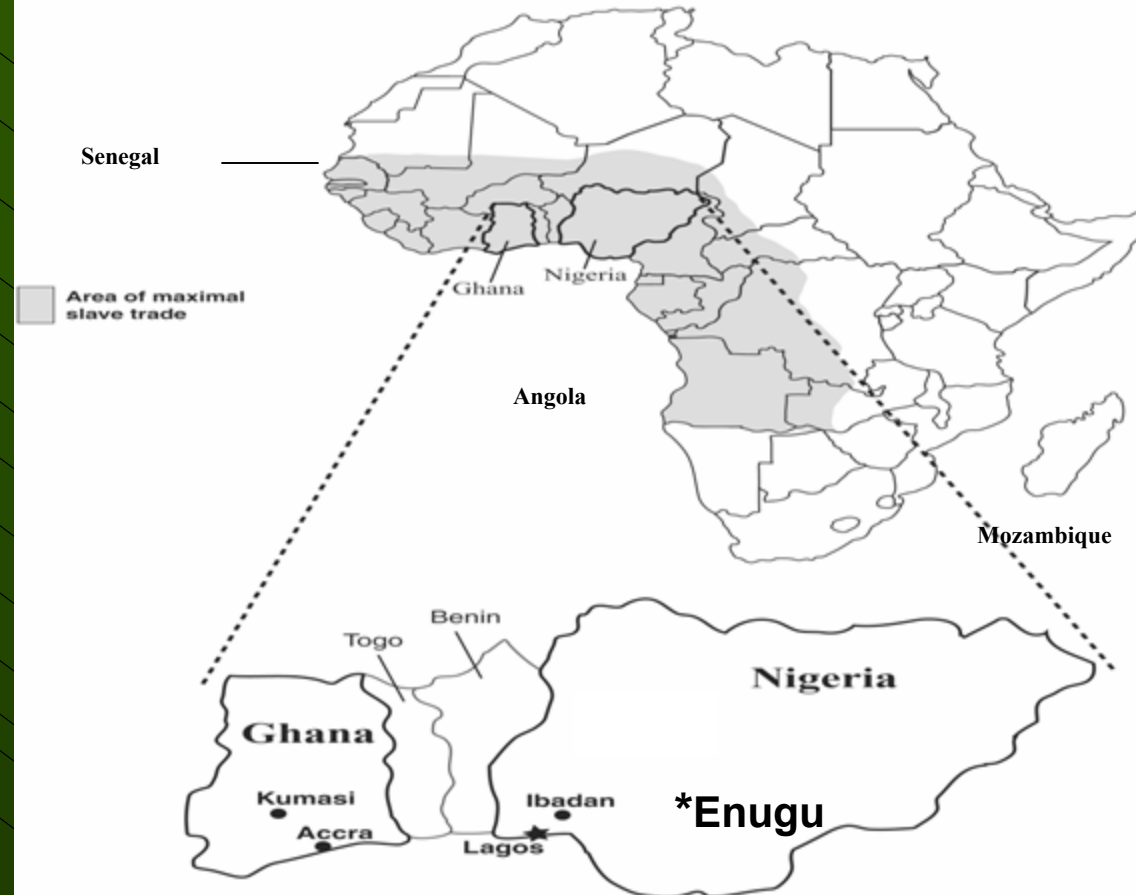
Gaa

Nigeria

Yoruba

Ibos

Figure 1



Confusion: Group identity is confused with group ancestry. The group identity African Americans does not reflect a single path of ancestry.

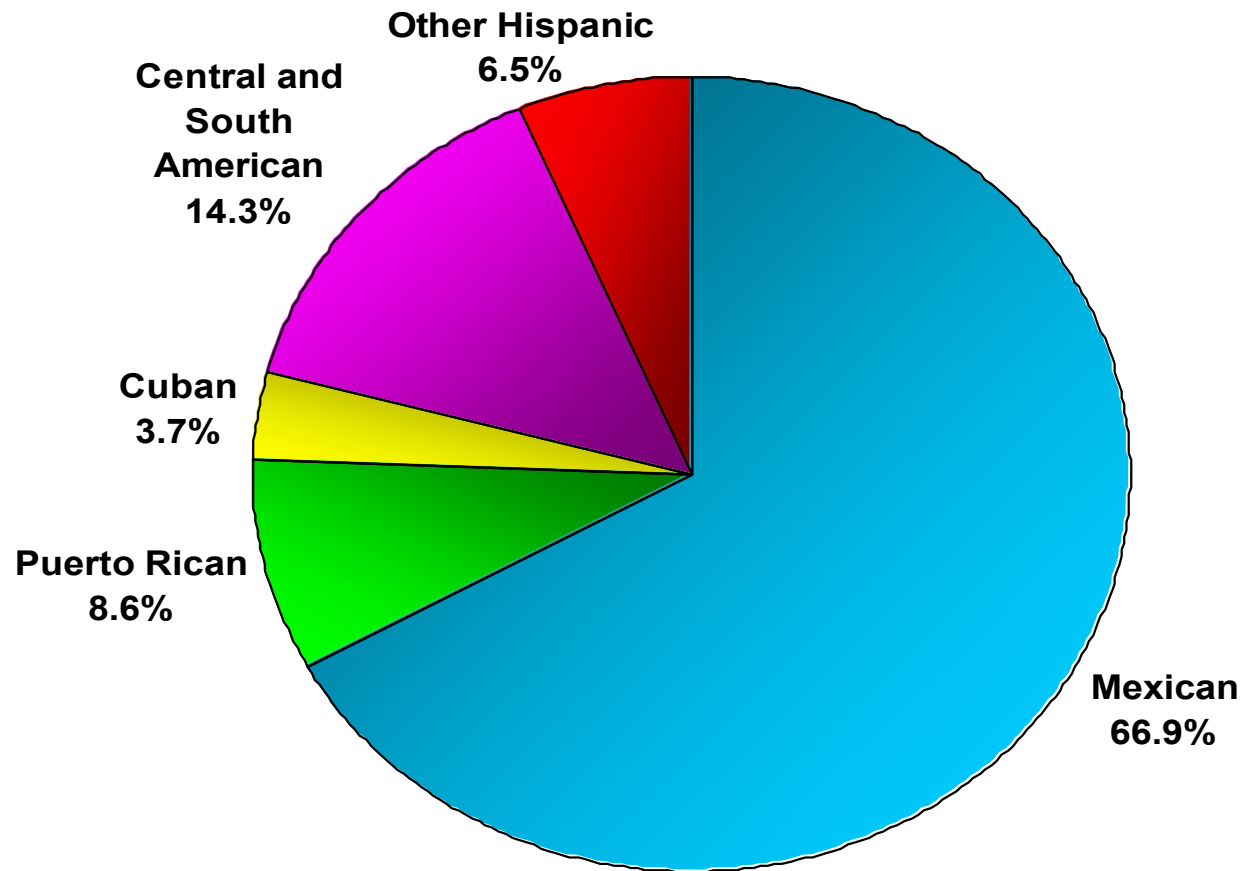
Self-identification is confused with more complex tapestry of ancestry.

Ancestry, Ethnicity, Race and Hispanic Origin

- The concept of race as used by the Census Bureau reflects self-identification and does not denote any clear-cut scientific definition of biological stock.
 - The Census Bureau uses four broad categories of race: 1) White, 2) Black, 3) American Indian, Eskimo or Aleut and 4) Asian or Pacific Islander.
 - Persons of Hispanic origin may be of any race (Hispanic and non-Hispanic).
-

Percent Distribution of Hispanic by Type: 2002

13.3% of the U.S. population is Hispanic (37.4 million)



Source: Current Population Survey, March 2002, PGP-5

Hispanic population by origin or ancestry

	population in thousands	percent
ALL HISPANIC OR LATINO...	35,306	100%
Mexican	20,641	58.5%
Puerto Rican	3,406	9.6
Cuban	1,242	3.5
Other Hispanic or Latino	10,017	28.4
Dominican	765	2.2
Central American	1,667	4.6
Costa Rican.....	69	0.2
Guatemalan.....	372	1.1
Honduran.....	218	0.6
Nicaraguan.....	178	0.5
Panamanian.....	92	0.3
Salvadoran.....	655	1.9
Other Central American.....	104	0.3
South American	1,354	3.6
Argentinean.....	101	0.3
Bolivian.....	42	0.1
Chilean.....	69	0.2
Colombian.....	471	1.3
Ecuadorian.....	261	0.7
Paraguayan.....	9	0.0
Peruvian.....	234	0.7
Uruguayan.....	19	0.1
Venezuelan.....	92	0.3
Other South American.....	58	0.2
Spaniard.....	100	0.3
All Other Hispanic or Latino.....	6,112	17.3

Source: Bureau of the Census, Census 2000

Rio de Janeiro, Brazil

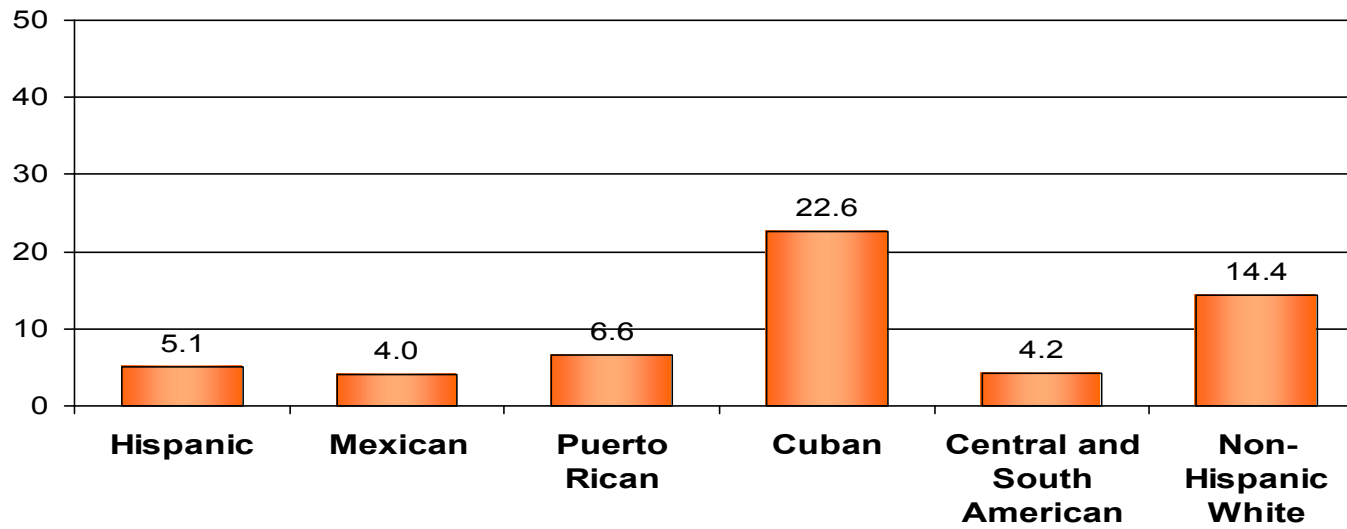
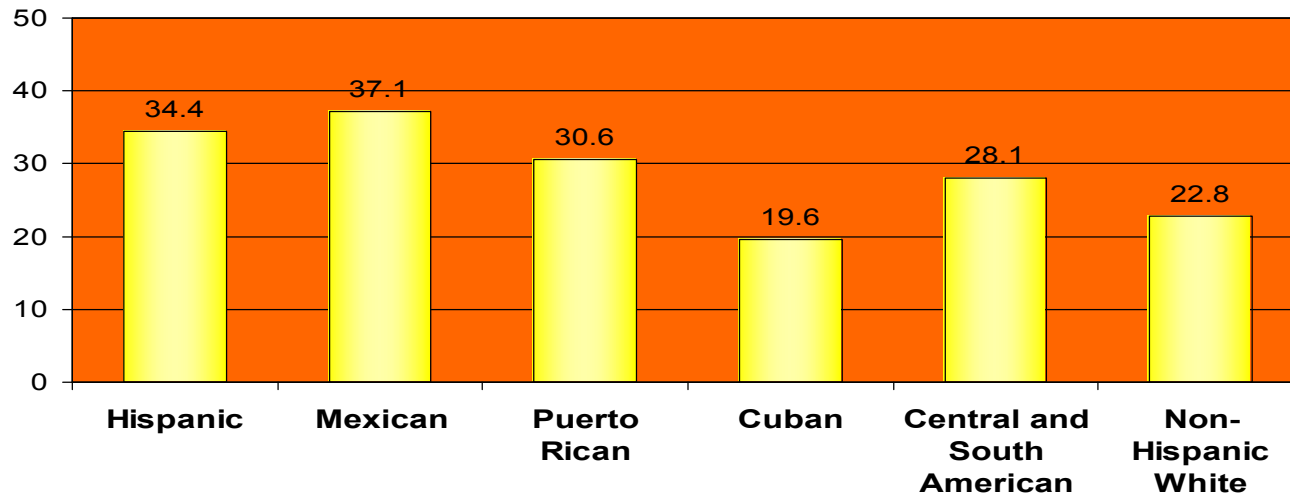
Rio from above.



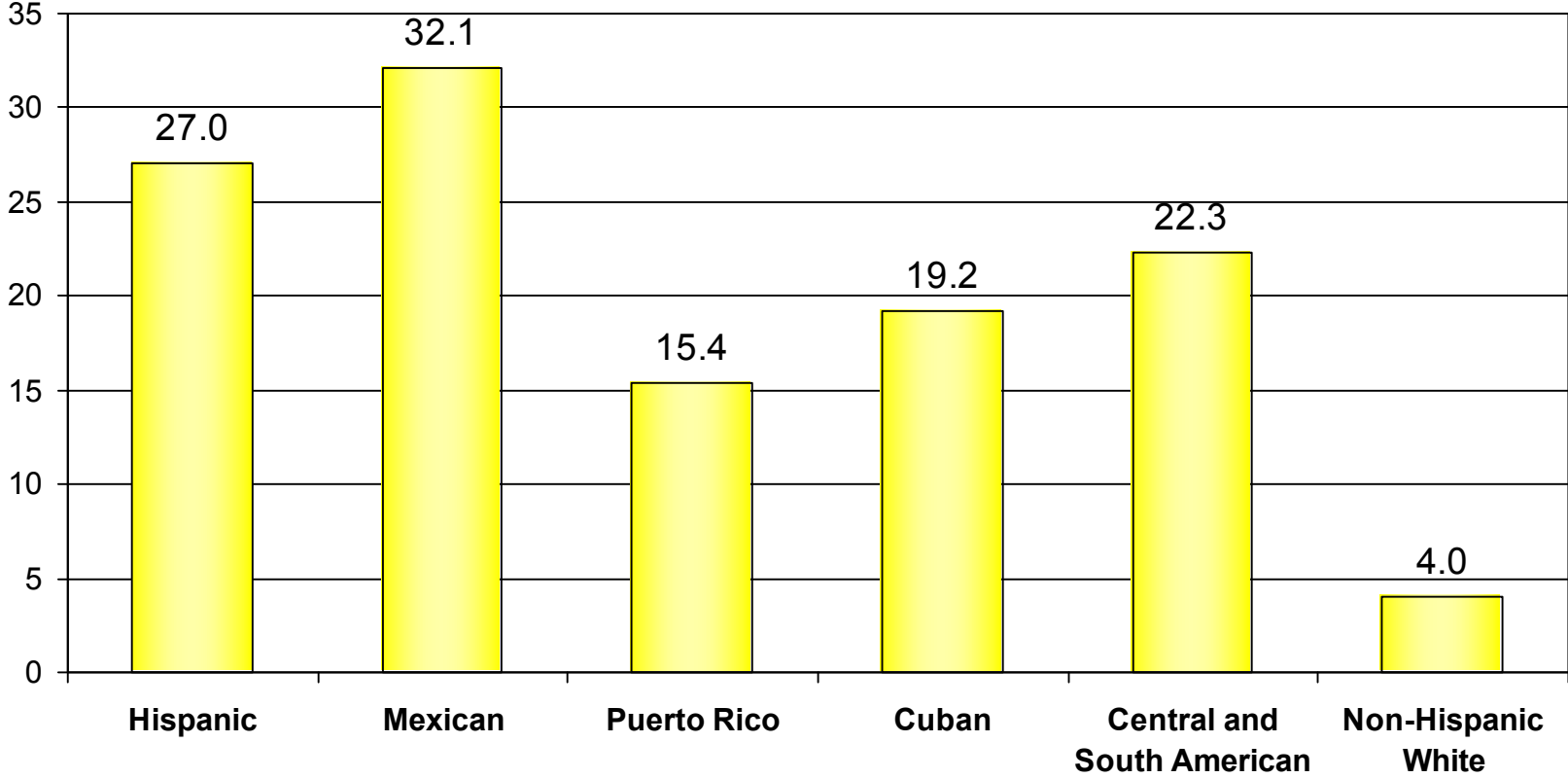
3,000,000 Angolans were brought to Brazil to work on the different sugar, tobacco, cotton, and coffee plantations.

Geographic locations of **Haiti, Cuba, Brazil, and Jamaica** played a major role in the amount of similarities between these cultures and those of W. Africa.

Percent of Population Under Age 18 and 65+ by Hispanic Origin: 2002



Percent of Population with Less Than 9th Grade Completed by Hispanic Origin: 2002



Asian and Pacific Islander Ancestry	Population	Percent of Total Asian and Pacific Islander Population
All Asian	10,242,998	96.3%
--- Asian Indian	1,678,765	15.8%
--- Chinese	2,432,585	22.9%
--- Filipino	1,850,314	17.4%
--- Japanese	796,700	7.5%
--- Korean	1,076,872	10.1%
--- Vietnamese	1,122,528	10.6%
--- Other Asian	1,285,234	12.1%
All Native Hawaiian and other Pacific Islander	398,835	3.8%
--- Native Hawaiian	140,652	1.3%
--- Guamanian or Chamorro	58,240	0.6%
--- Samoan	91,029	0.9%
--- Other Pacific Islander	108,914	1.0%

European-Americans Dropping Ancestral Roots - Except Italian-Americans

In the US the number of individuals who claim German, Irish, English or Polish roots as their heritage have dropped sharply since the last census of 1990.



Members of different European Groups (Danes and Spaniards) wearing clothes that identify their ethnicity

Ethnic Identity in Africa

Why do we assume that individuals who, today, self identify as Yoruba or Luhya or Xhosa have always been a member of that group? Nigeria alone has over 350 linguistic groups.

The sense of identity of the Yorubas, for example, was sustained largely by the myth of common origin of the principal ruling dynasties at the ancient city of Ife and to some extent by the effort of the missionaries to translate the bible to a common language – Yoruba.

The Yoruba identity and, indeed, most identity issues are multi-layered and depending on the question at hand, genetics could be a major or a minor or an irrelevant factor.

We know from oral, historic and other accounts that none of these groups have remained exclusive or historically static

The kingdom of Benin (12th century to 17th century), in what is now Nigeria, produced some of Africa's finest artwork.



Who is telling the story?



When British forces entered Benin City in 1897 they were surprised to find large quantities of cast brass objects. The technological sophistication and overwhelming naturalism of these pieces contradicted many 19th-century Western assumptions about Africa in general and Benin. **The objects must, it was supposed, have been made by the Portuguese, the Ancient Egyptians, even the lost tribe of Israel.** Their status was marked by the establishment of the term 'Benin bronzes', despite their being largely of brass.

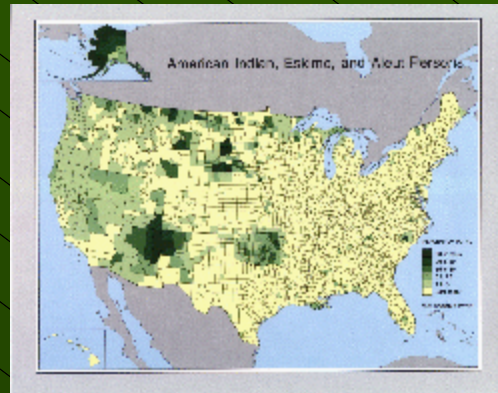
Ethnic Identity in Africa

Whatever the term, it is important to appreciate the fact that identities in Africa are as diverse, ambiguous, complex, modern, and changing as in other parts of the world.

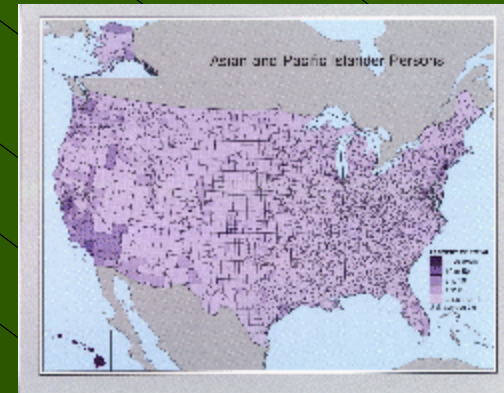
Also, it is important to understand that some of the ethnic identities and divisions now labeled as ancient and unchanging were not there before the colonial presence in Africa.

Where do we sample within the United States?

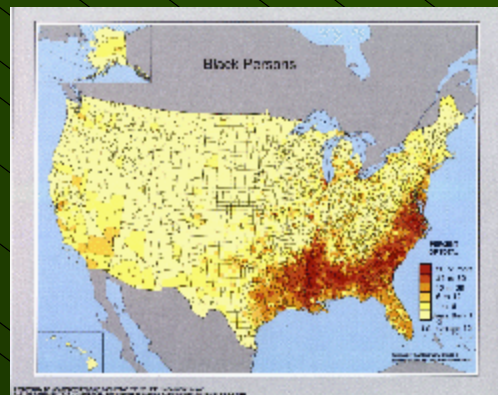
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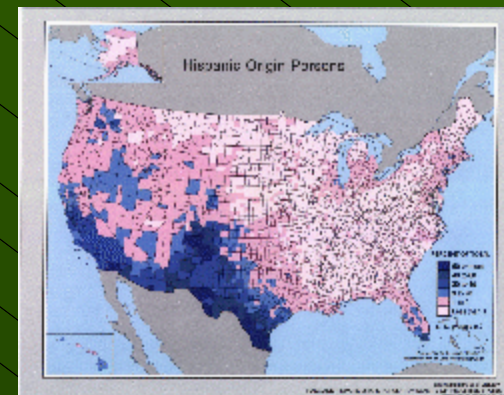
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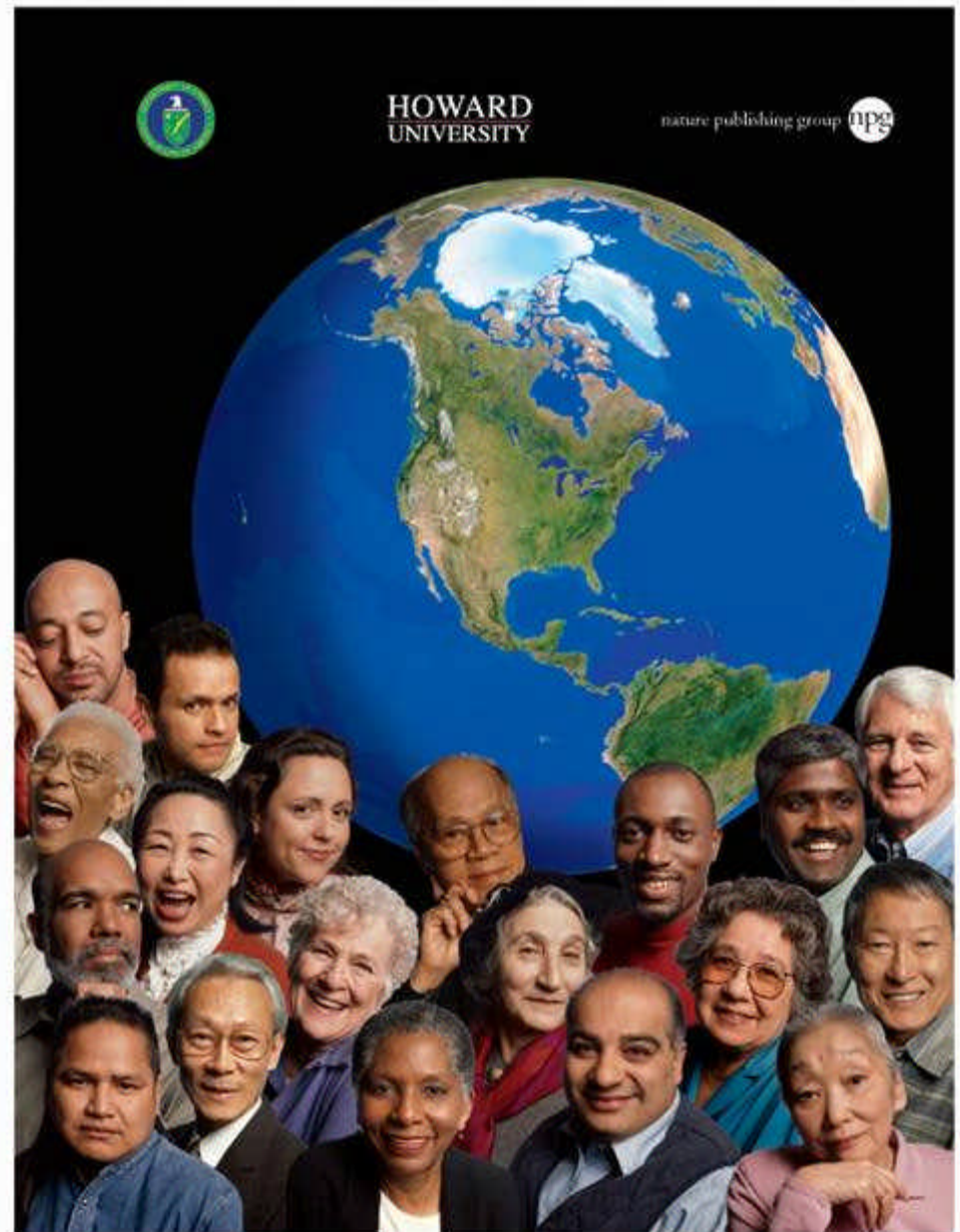
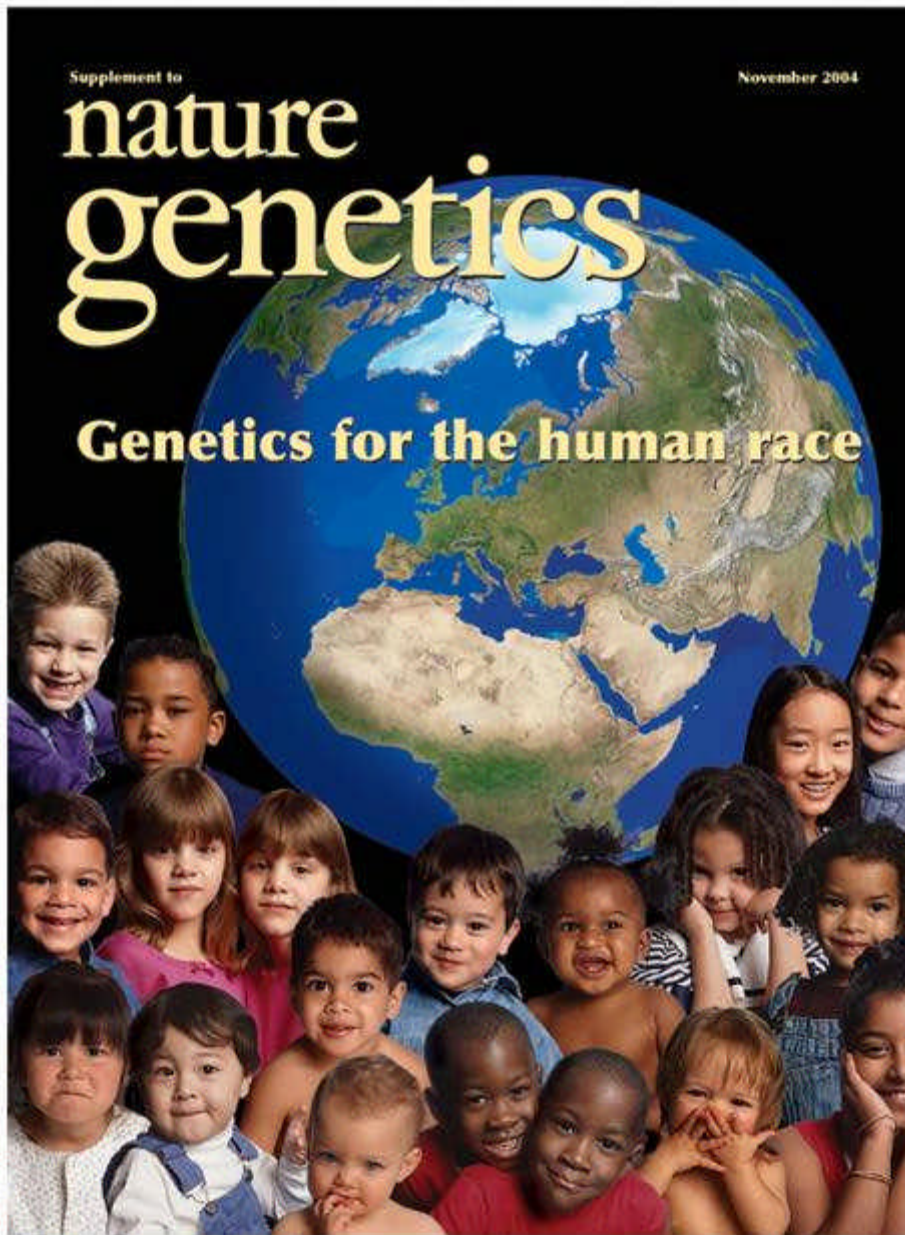
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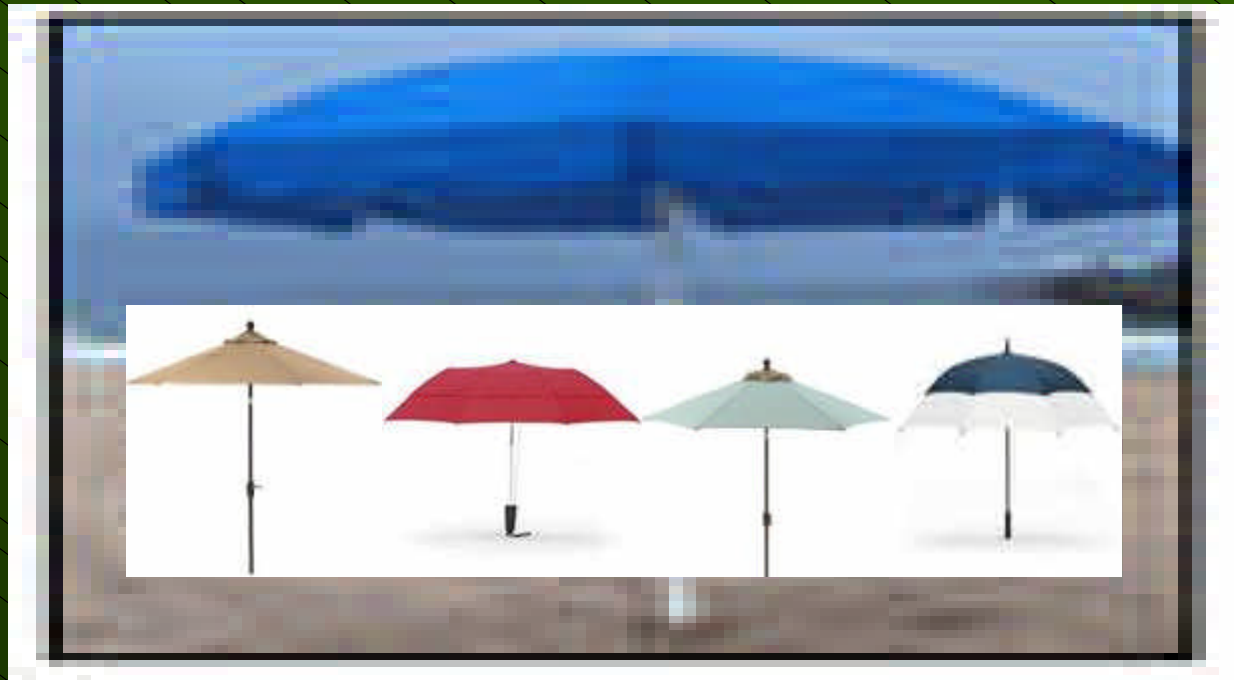
4



1. American Indian, Eskimo, and Aleut Persons
2. Asian and Pacific Islander Persons
3. Black Persons
4. Hispanic Origin Persons



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The historical, anthropological, and linguistic definitions of “populations” with which genetic findings are correlated represent superficial understandings of the dynamic history of present-day ethnic populations and how these populations were formed---*Lundy Braun: Perspective in biology and medicine 2002.*

Future use of drug therapy will not depend on the imprecise indicators as race or ethnicity, but on the individual patient’s genotype.

The idea, then, is not to eradicate or ignore differences but to redefine or move beyond social group label such as “race” to more precise categories of difference with justification for establishing such differences. *M. Rothstein and P. Epps, Pharmacogenomics 2001*
