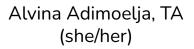
Behaviour and Genetic Determinism









Naoimi Nhen Hunter, TA (she/her)



Daphne Martschenko Guest Speaker (she/her)

### Learning Goals

- Recognize how genetics research can be misused to justify genetically determinist and essentialist viewpoints and the associated impacts
- Describe current efforts by the research community to combat the misuse/misinterpretation of research, and articulate strategies that individual scientists can employ



- Be respectful of conflicting opinions
- Commit to learning and growing
- Compassionate listening
- No talking over anyone
- Make space, take space
- What is said in the room, stays in the room (confidentiality)
- Use "I"statements for sensitive topics
- Don't equate people with stereotypes
- Don't rush to judge others

# Introduction to Genetic Determinism

## Sensitive Topics Acknowledgment

It's okay to take a break or step away and take care of yourself.

Today will cover some difficult topics that may bring up the racially motivated mass shooting in Buffalo, NY.

Please prioritize your well-being and check in with yourself. Step outside, take a break, take a deep breath, do what is best for you in processing.

### Definitions

**Genetic Determinism:** The tendency to infer a person's characteristics and behaviors as based on their perceived genetic make-up (Dar-Nimrod & Heine, 2011). The tendency to think of genetic attributions as being fixed, immutable, and "dividing people into homogenous and discrete groups" regardless of time or context (Heine et al., 2017, p. 137).

### Published: 13 April 2021

# Pygmalion in the genes? On the potentially negative impacts of polygenic scores for educational attainment

Lucas J. Matthews 🖂, Matthew S. Lebowitz, Ruth Ottman & Paul S. Appelbaum

Social Psychology of Education 24, 789–808 (2021) Cite this article

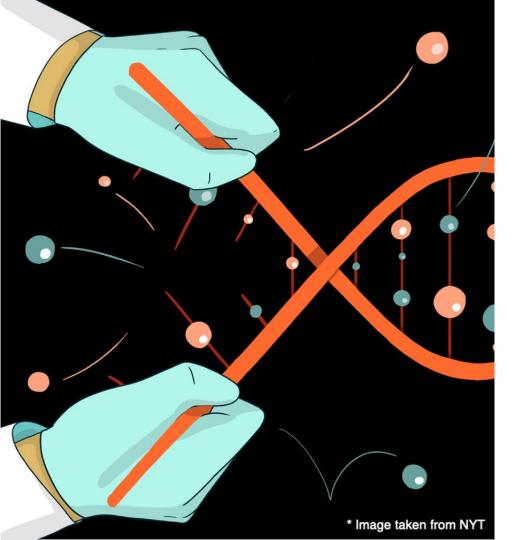
459 Accesses | 2 Citations | 29 Altmetric | Metrics

Participants prompted to answer multi-choice questions as though they had received their own low-percentile score, compared to a control condition, scored significantly lower on measures of self-esteem and of self-perceived competence, academic efficacy, and educational potential.

### Definitions

**Genetic essentialism:** A reductionist view of human beings and their behavior as essentially consisting of their genes (Australian Law Reform Commission, 2010)

**Racial genetic essentialism:** The belief that racial groups and their defining core essences are determined by genes (Yaylacı et al, 2019)



### Conflation of genetic ancestry and race

Genetic ancestry tests (GATs) have been shown to shape a person's racial self-identification in ways that vary across race, sociocultural context, and other characteristics (Guo et al. 2014; Johfre, Saperstein, and Hollenbach 2021; Nelson 2008).

1 in 5 individuals surveyed said that their racial identity changed after receiving their GAT results (Roth and Lyon 2018).

GATs are increasingly being used by lay-people as 'proof' of racial membership (Brubaker 2016b; Morning 2018).

### Definitions

**Strategic essentialism:** Genetic essentialism is strategically rather than uniformly practiced (Condit, 2019). People draw upon multiple categories and causal factors in strategic ways based on the context (Condit, 2019), making them strategic essentialists.



# THE SOCIAL LIFE OF DNA

RACE, REPARATIONS, AND RECONCILIATION AFTER THE GENOME

### Alondra Nelson

"Eye-opening, provocative, and deeply humane." —Isabel Wilkerson

# Activity: discussion

(10 mins) Group reading, led by Daphne

(10 mins) Large group share out

- In each of the two readings, are there examples of genetic determinism or essentialism? What are they?
- To your knowledge, what have researchers done to combat the misuse or misinterpretation of their research? Do you think they could do more?

# Group reading pt. 1

"We're just constrained in whom we can help with what kinds of problems. If instead we try to change people who aren't ready and able to change given the opportunity, we're back to a situation in which powerful competing forces, acting through both genes and the nonshared environment, overwhelm the magnitude of the intervention that seeks to produce change. Expecting to see a major impact from outside interventions is usually unrealistic." (Murray, 2020, p. 287)

"An acceptance of the constraints imposed by human nature should guide the administration of the civil and criminal justice systems, the regulation of business, the powers granted to bureaucrats—the operations of just about every social, cultural, economic, and political institution." (Murray, 2020, p.353)

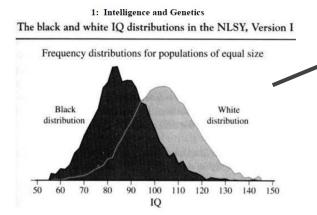
Human Diversity THE BIOLOGY OF GENDER, RACE, AND CLASS Charles Murray New York Times Bestselling author of Coming Apart

## Group reading pt. 2

### Excerpt from Buffalo shooter's manifesto:

Blacks are considered to be the same species of human as all other races, which is true since they can interbreed and have fertile children. But I would argue that they are a different subspecies of human. Whites and Blacks are separated by tens of thousands of years of evolution, and our genetic material is obviously very different. Physical factors are the most distinguishable difference, such as noticeable differences in skin pigmentation, fat storage, bone and skull shape and length, and differences in brain size, most notably in the prefrontal cortex.

Physical traits do not matter that much in the society of advanced human civilization. It has mattered in the past when humans had to plow the land and relied on their physical abilities to do work. But in this age of technology physical attributes matter less and less. I believe that the most important part of a human is the brain. The human brain is an amazing tool and is the reason why we as humans are predators of all and prey of none. It is obvious that people differ in cognitive abilities, this is undeniable and a proven fact. People with a "higher intelligence" often succeed in life by getting higher education and more professional careers, which often leads to greater contributions to human development in their lifetime. There is an undeniable difference between the brains of races and I will be explaining some of the differences below.



# "Our intellectual landscape has been disrupted by the equivalent of an earthquake." Intelligence and Class Structure in American Life The Controversia New York Time: Bestseller With a New Afterword by Charles Murray

(1994)

Blacks are considered to be the same species of human as all other races, which is true since they can interbreed and have fertile children. But I would argue that they are a different subspecies of human. Whites and Blacks are separated by tens of thousands of years of evolution, and our genetic material is obviously very different. Physical factors are the most distinguishable difference, such as noticeable differences in skin pigmentation, fat storage, bone and skull shape and length, and differences in brain size, most notably in the prefrontal cortex.

Physical traits do not matter that much in the society of advanced human civilization. It has mattered in the past when humans had to plow the land and relied on their physical abilities to do work. But in this age of technology physical attributes matter less and less. I believe that the most important part of a human is the brain. The human brain is an amazing tool and is the reason why we as humans are predators of all and prey of none. It is obvious that people differ in cognitive abilities, this is undeniable and a proven fact. People with a "higher intelligence" often succeed in life by getting higher education and more professional careers, which often leads to greater contributions to human development in their lifetime. There is an undeniable difference between the brains of races and I will be explaining some of the differences below.

"We're just constrained in whom we can help with what kinds of problems. If instead we try to change people who aren't ready and able to change given the opportunity, we're back to a situation in which powerful competing forces, acting through both genes and the nonshared environment, overwhelm the magnitude of the intervention that seeks to produce change. Expecting to see a major impact from outside interventions is usually unrealistic." (Murray, 2020, p. 287)

"An acceptance of the constraints imposed by human nature should guide the administration of the civil and criminal justice systems, the regulation of business, the powers granted to bureaucrats—the operations of just about every social, cultural, economic, and political institution." (Murray, 2020, p.353)

### Group reading: Genetic Determinism

"It is not within our power to do much to change personalities or abilities or social behaviors by design on a large scale...School systems in large urban areas are notorious for tolerating chaotic classrooms in a handful of schools in the most impoverished part of town. There's no excuse for it. Children who are eager to learn are prevented from doing so, with lifelong consequences, and yet an outside intervention can completely cure that problem in a day: Install strict rules of in-class conduct, and promptly and without exception eject disruptive students from the classroom. Teachers will be able to teach and the remaining students will be able to learn.

The difficulty, of course, is what to do with the students who have been ejected. Solving their problems is a matter of changing their personalities, abilities, or social behavior, or a combination of all three, and that's what the first premise of the syllogism says we don't know how to do. (Murray, 2020, p. 286)

We're just constrained in whom we can help with what kinds of problems. If instead we try to change people who aren't ready and able to change given the opportunity, we're back to a situation in which powerful competing forces, acting through both genes and the nonshared environment, overwhelm the magnitude of the intervention that seeks to produce change. Expecting to see a major impact from outside interventions is usually unrealistic. (Murray, 2020, p. 287)

An acceptance of the constraints imposed by human nature should guide the administration of the civil and criminal justice systems, the regulation of business, the powers granted to bureaucrats—the operations of just about every social, cultural, economic, and political institution. (Murray, 2020, p.353)

Human Diversity THE BIOLOGY OF GENDER, RACE, AND CLASS Charles Murray New York Times Bestselling author of Coming Apart

## Activity: discussion

(10 mins) Large group share out

- In each of the two readings, are there examples of genetic determinism or essentialism? What are they?
- To your knowledge, what have researchers done to combat the misuse or misinterpretation of their research? Do you think they could do more?

### comment

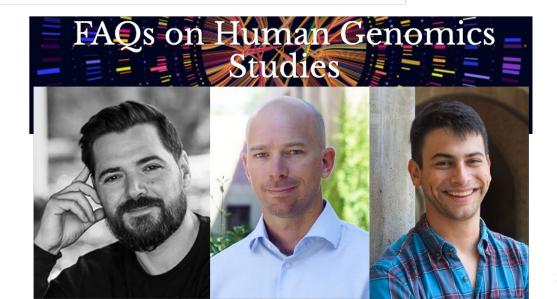
Check for updates

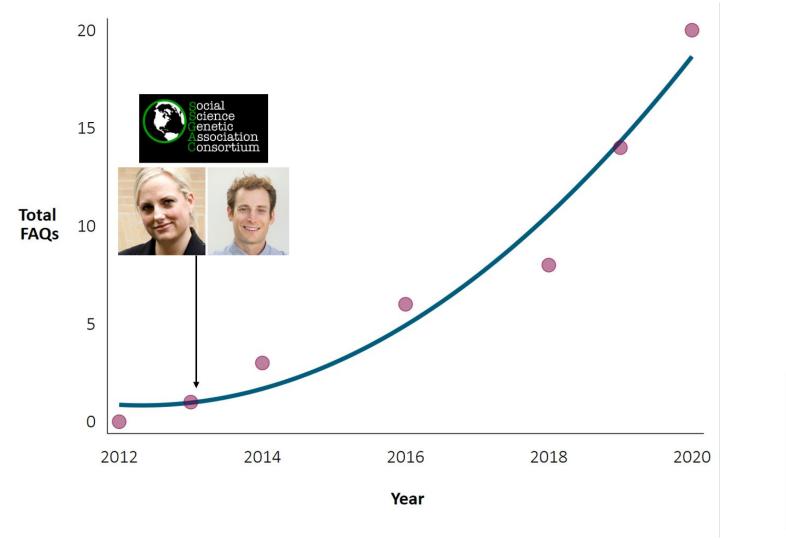
# FoGS provides a public FAQ repository for social and behavioral genomic discoveries

Here we introduce 'FAQs on Genomic Studies' (FoGS), an open-access repository of explanatory documents that accompany genomic analyses in social and behavioral genomics. For fields such as social and behavioral genomics that are shaped by an ugly history and uncertain future, socially and ethically responsible research and research communication are crucial. FoGS amplifies one such approach towards responsible research communication.

Daphne Oluwaseun Martschenko, Benjamin W. Domingue, Lucas J. Matthews and Sam Trejo









### Genetic Associations with Mathematics Tracking and Persistence

What did the study examine? This study examined the relationship between individuals' genetics and progress in high school mathematics courses as shown by difficulty of the math courses they took and persistence in studying math. Link to the study.

What year was it published? 2020

Key findings:

1. On average, students with more education-related genetic variants took more advanced math classes in the 9th grade.

2. On average, students with more education-related genetic variants stayed in math for longer.

3. Students with fewer education-related genetic variants were less likely to drop out of math if they attended a school where most parents had graduated from high school, demonstrating the importance of social and environmental factors.

Corresponding author of FAQ: K. Paige Harden (harden@utexas.edu)



Posting frequency of scientific memes increases following shootings and political events

### THE SPREAD OF A MEME

On the online forum 4chan, the dissemination of quotes, figures and tables pulled from mainstream 2020 US scientific research seems to have risen since 2016. election as suggested by two examples. **US** Capitol "Truth about race" poster Building Murder of Buffalo — Manipulated table George Floyd insurrection shooting An array of results from research papers presented as a scientific poster and used to promote racism. 0.75 Cumulative fraction of posts 0.5 A table derived from manipulated results of a genome-wide association study\* on educational 0.25 attainment. 0 -02 05 08 11 02 05 08 11 02 05 08 11 02 05 08 02 05 08 11 02 05 08 11 Month 08 11 2016 2017 2018 2019 2020 > 2021 2022 > onature \*J. J. Lee et al. Nature Genet. 50, 1112-1121 (2018)

Carlson et al, 2022

### **2018 GWAS on Educational Attainment**

The latest findings on genetics and intelligence show that biological factors contribute to the gap in intelligence between European and African populations Recent studies have found more than 200 genetic variants that are present in at least one third of the European population [1]. at least 100% more common in Europeans than Africans [2] known to increase intelligence with genome-wide statistical significance [3] and known to influence genes linked to the nervous system [4]. prospecifically, genes linked to the hippocampus, brain, limbic system, central nervous system, cerebral cortex, cerebrau parahippocampal gyma, telencephalon, temporal lobe, brain stem, prosencephalon, fixembencephalon, occipital lobe, cerebratium, visual cortex, parafell lobe, retra, basel gangla, neural tem cells, copus stratum, and thetell lobe adde han Africano
 adde han Africano n193438 (T) n219343 (T) n219348 (A) n329348 (A) n329348 (A) n428248 (A) n428248 (A) n428244 (A) n428244 (A) n428344 (A) n429344 (A) n370344 (T) n3704421 (T) n372442 (T) S3P5. more likely to have this allele than Alticans
 1195. more likely to have this allele than Alticans
 2355. more likely to have this allele than Alticans
 2015. more likely to have this allele than Alticans 201% Hore likely to have this allele than Atrican
 200% more likely to have this allele than Atrican cars are 194%, more likely to have this alivin than Alticane a 385% more likely a 338% more likely rs10476217 (0) 143% more likely 11742142 (A) a 316%, more likely rs761718 (A) rs601742 (A) rs6013278 (T) rs6021232 (T) rs609168 (A) rs615352 (C) rs1616678 (A) rs1616678 (A) rs1666447 (T) rs1606445 (A) rs1656538 (A) rs10740140 (A) rs10786832 (T) rs10821080 (T) rs108021877 (A) rs10863246 (A) rs10863246 (A) rs10863246 (T) rs10950137 (D) rs11125721 (A) rs 2504% more likely to 195% more likely 112% more likely are 112% many blody to have are 132% more blody to have or 9311% more blody to have are 2346% more blody to have are 132% more blody to have are 102% more blody to have 102% more blody to have are 1356% more blody to have ans are 188%, more likely to any are 960%, more likely to rs11210384 (T) E rs11576865 (A) E is aliele that Abican a 134% more likely to 1 popos are 990%, more likely to 1 popos are 101% more likely to 1 popos are 310% more likely to 1 popos are 210% more likely to 1 popos are 240% more likely to 1 then Africans mit165864 (A) Di han Africans mit168992 (T) Di han Africans mit178984 (T) Di han Africans mit1778944 (T) Di han Africans mit1799421 (T) Di han Africans mit181966 (D) Di han Africans mit1219692 (A) Di 1144708 JC . 767% more likely to h his allala than Abicana rs1167800 (G) rs1167827 (A) rs1291817 (A) rs1291823 (A) rs1217885 (T) are 178%, more likely to h are 187%, more likely to h are 60%, more likely to h are 619%, more likely to h are 106%, more likely to h Lans. 49633313 (Å) cons. 4963333 (Å) cons. 4963343 (Å) cons. 496334 m1406238-(C) 122% more likely in rs12146618 (T) E rs12208753 (A) E e 139% more likely to 158% more likely 1487441 (8) and any 156%, more likely 299% more likely h rs12404085 (T) E rs12401181 (T) E · 787% more likely point an 1975, more likely to point an 2005, more likely to point an 1975, more likely to point an 1975, more likely to point an 1987, more likely to point an 1975, more likely to point an 1975, more likely to point an 1985, more likely to ans are 182% more likely ans are 585% more likely · 202% more likely? his allele than Abicane · 1125 more likely to m12548560 (A) m12667360 (A) m12701207 (T) m12712764 (T) m12772894 (T) m12799722 (A) peans and 2025 more likely to points and 120% more likely to points and 180% more likely to points and 180% more likely to points and 180% more likely to m1621162 (C) a 644% more likely ra1886180 (A ra1728798 (T ra1883867 (C ra186352 (A t 119% more likely to t 112% more likely to 277% more likely to 1924% more likely to 
 Hitcam
 ex129922 (2)
 List

 Hitcam
 ex129934 (1)
 List

 Hitcam
 ex129934 (1)
 List

 Hitcam
 ex129934 (1)
 List

 Hitcam
 ex129934 (1)
 List

 Hitcam
 ex129134 (4)
 List

 Hitcam
 ex149344 (1)
 List

 Hitcam
 ex1493600 (1)
 List

 Hitchicam
 ex1493600 (1)
 List
 122% more likely to 1 122% more likely to 1 1943095 (A) a 234% more likely points are 234%, more likely to poons are 2145%, more likely to poons are 1245%, more likely to points are 235%, more likely to points are 2719%, more likely to points are 2719%, more likely to points are 2344% more likely to points are 435%, more likely to rs2000827 (A) rs2049741 (T) rs2064131 (A) opeans are 1402% more likely to opeans are 180% more likely to opeans are 180% more likely to a 2021, more likely to 1 a 122% more likely to 1 . 162% more likely to I paana ara 482% mere ikaiy to poana ara 122% mere ikaiy to poana ara 284% mere ikaiy to poana ara 284% mere ikaiy to poana ara 264% mere ikaiy to poana ara 264% mere ikaiy to poana ara 262% mere ikaiy to 17875 mare likely101
 29975 mare likely101
 29975 mare likely101
 19975 mare likely101
 19976 mare likely101 100% more likely 112% more likely rs7199601 (A) rs7403957 (A) · 279% more likely % rs17106817 (T) ( rs17266087 (T) a 145% more likely \$3430925 (T) eans are 292% more likely 485% more likely to e 1218% more likely rs17246047 (1) E rs17608413 (7) E rs34383480 (A) E rs54139371 (A) E rs54139184 (7) E rs54146203 (A) E rs56146203 (A) E rs56146203 (A) E \*2543400 (A) a 535% more likely to · 109% more likely rs2616333 (T) rs2640964 (T) rs2678897 (O) rs2710691 (T) 128% more likely = 2005% more likely a 231% more likely to 229% more likely 2007% more likely 2007% more likely a 336% more likely to h to 108% more likely to h and the alter the African All 1979 (1) European an 2015, many listing to have the alter the African and the African African African African African African African African and African A 2885668 (A) is any 178%, more likely to have this abrie than Micross name are 139% more likely to have norm are 121% more likely to h com an 1125 more likely to t com are 2015 more likely to t com are 16295 more likely to t

According to the list above, Europeans populations are much more likely to have specific genes that are linked to the brain than Africans. These genes have a direct influence on expected behavior and brain development, which may have factors in the individual's expected fluid and crystallized intelligence. The Buffalo shooter's manifesto included a pseudo-scholarly table showing that these variants from the 2018 GWAS were more common in Europeans than in Africans

SNP	Distribution
rs159428 (T)	Europeans are 4192% more likely to have this allele than Africans
rs589249 (A)	Europeans are 658% more likely to have this allele than Africans
rs602512 (A)	Europeans are 388% more likely to have this allele than Africans
rs604149 (A)	Europeans are 403% more likely to have this allele than Africans
rs685958 (A)	Europeans are 733% more likely to have this allele than Africans

## Tracing the origins of the EA3 table

<6 weeks after EA3 was published in 2018, the following thread was posted to 4chan:



20KiB, 597x519, heatenings.jpg View Same Google iqdb SauceNAO Trace 🛓 

 HAPPENING Anonymous
 ID:nBM2I7K6
 Sat 15
 Sep 2018
 19:15:02
 No.185839794
 View
 Reply
 Original
 Report

 Quoted By: >>185840173
 >>185840858
 >>185841179
 >>185841680
 >>18584176
 >>185841921
 >>185841961
 >>185841900
 >>185842033
 >>185842225
 >>185842222
 >>185842222
 >>185842222
 >>185842541
 >>185842641
 >>185842900
 >>185843003
 >>185843190
 >>185843255
 >>185843325
 >>185843325
 >>185843325
 >>185843325
 >>185843325
 >>185843325
 >>185843350
 >>185843350
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500
 >>185844500

For fuck's sakes /pol/

I found goundbreaking genetic evidence for racial differences but I can't do anything about it. If someone here is a scientist, go run the numbers and get it published at the risk of ruining your career but saving humanity.

There's a study that has thousands of genes associated with intelligence listed in their supplementary data. They studied 1 million individuals. Not only are the correlations insanely strong, but most of the genes codify for the nervous system, so it's almost undeniable.

The thing is, the study doesn't mention race or ancestry. So, I made a list of all the genes (there are a lot of tables, I went through all of them, and then removed the duplicates), and got their frequencies in different human populations from a famous database. I am too scared to even name them because I don't want all the information taken down, but any geneticist should know what I am talking about.

So I am running the numbers, and I wanted to see the correlation between Italians and Brits, and I got a result higher than 95%. That was okay, no big deal, no surprises there. Then I run the correlation for Nigerians (Yoruba) and Brits, and I was expecting maybe 85-90% at worst. I almost fall off my chair. The correlation was in the low 60%!

Ever heard how races are supposed to be 99.9% equal? That's true if you look at the hundreds of millions of genes that do nothing special and basically every single person has. But if you look at the thousands of genes known to influence intelligence, the variation is absolutely insane. Even I couldn't believe it. I used more than 4000 genes for anyone trying to replicate this.

I don't know what to do with this. I am not a scientist, I just got into this as a hobby. I don't want to publish my version of the database because I don't want the information to be tainted and be discredited for coming from 4chan. So please, build your own database, I will give you all the hints you need if you're a geneticist.

[343 / 52 / 155]

#### GENES, RACE AND INTELLIGENCE

The latest findings on race, genes and intelligence show that the gap in intelligence between Europeans and Africans is caused partly by irreducible genetic factors. These findings conclusively put an end to the theory that the gap is caused solely by socioeconomic factors.

The following genes are present in at least one third of the European population and are known to increase intelligence with genome-wide levels of significance:

SNP	Distribution
rs708913 (A)	Europeans are 341% more likely to have this gene than Africans
rs1044258 (T)	Europeans are 470% more likely to have this gene than Africans
rs1487441 (A)	Europeans are 156% more likely to have this gene than Africans
rs1800668 (A)	Europeans are 59% more likely to have this gene than Africans
rs2099744 (A)	Europeans are 123% more likely to have this gene than Africans
rs2364543 (T)	Europeans are 113% more likely to have this gene than Africans
rs2899319 (A)	Europeans are 214% more likely to have this gene than Africans
rs4314918 (A)	Europeans are 337% more likely to have this gene than Africans
rs6535809 (A)	Europeans are 650% more likely to have this gene than Africans
rs6546856 (T)	Europeans are 418% more likely to have this gene than Africans
rs7963801 (T)	Europeans are 2985% more likely to have this gene than Africans
rs9388490 (T)	Europeans are 121% more likely to have this gene than Africans
rs11793831 (T)	Europeans are 350% more likely to have this gene than Africans
rs13428598 (T)	Europeans are 417% more likely to have this gene than Africans
rs17048855 (A)	Europeans are 595% more likely to have this gene than Africans

The following genes are present in at least one third of the African population and are known to decrease intelligence with genome-wide levels of significance:

SNP	Distribution
rs1245213 (A)	Africans are 233% more likely to have this gene than Europeans
rs1346075 (T)	Africans are 65% more likely to have this gene than Europeans
rs1972863 (A)	Africans are 126% more likely to have this gene than Europeans
rs2416114 (T)	Africans are 91% more likely to have this gene than Europeans
rs2420551 (A)	Africans are 399% more likely to have this gene than Europeans
rs4325706 (T)	Africans are 81% more likely to have this gene than Europeans
rs4640173 (A)	Africans are 118% more likely to have this gene than Europeans
rs6736129 (A)	Africans are 163% more likely to have this gene than Europeans
rs7019796 (T)	Africans are 134% more likely to have this gene than Europeans
rs8138473 (T)	Africans are 103% more likely to have this gene than Europeans
rs9755750 (A)	Africans are 162% more likely to have this gene than Europeans
rs9939991 (A)	Africans are 135% more likely to have this gene than Europeans

#### Key points:

- These genes are known to influence mainly the hippocampus, brain, limbic system, central nervous system, cerebral cortex, cerebrum, parahippocampal gyrus, telencephalon, temporal lobe, brain stem, prosencephalon, rhombencephalon, occipital lobe, cerebellum, visual cortex, parietal lobe, retina, basal ganglia, neural stem cells, corpus stratum and frontal lobe.
- These genes alone account already for roughly two thirds of one standard deviation in cognitive ability.
- These genes are at least 60% more likely to exist in one population than in the other, can be found in at least one third of
  either population, and positively affect Europeans or negatively affect Africans. More than 200 genes that meet these
  requirements can be conservatively estimated to exist.
- The differences between populations might be even larger since the African sample included cohorts with European admixture.

#### References:

- Lee, James et al. "Gene discovery and polygenic prediction from a genome-wide association study of educational attainment in 1.1 million individuals "Nat Genet. 2018 Aug;50(8):1112-1121. doi: 10.1038/s41588-018-0147-3. Epub 2018 Jul 23. Supplementary data.
- The 1000 Genomes Project Consortium, "A global reference for human genetic variation", Nature 526, 68-74 (01 October 2015) doi:10.1038/nature15393. Superpopulations.

# Tracing the origins of the EA3 table

### September 15, 2018

View Same Google iqdb SauceNAO Trace 🛓 genes race intelligence.png, 146KiB, 1058x1447

Anonymous ID: YsHRBApP Sat 15 Sep 2018 21:05:07 No.185847979 AReport
Quoted By: >>185848032 >>185848173 >>185848197 >>185848286 >>185848328 >>185849654 >>185851666 >>185856098 >>185857881

I am going through this. The data is pretty damning when you check the effect sizes. I don't have time to do more than this, I

I am going through this. The data is pretty damning when you check the effect sizes. I don't have time to do more than this, only checked one of the tables in the study. There's easily over 200 genes like this.

# Tracing the origins of the EA3 table

#### GENES, RACE AND INTELLIGENCE

The latest findings on race, genes and initial genes show that the gap in intelligence between Europeans and Atricans is searced party by indexible genetic factors. These findings conducively put an end to the theory that the gap is caused solely by socioeconomic factors.

#### The following genes are present in at least one third of the European population and are known to increase intelligence with genome-wide levels of significance.

SNP	Distribution
rs708913-(A)	Europeans are 341% more likely to have this gene than Africans
rs1044258 (T)	Europeans are 470% more likely to have this gene than Africans
rs1487441 (A)	Europeans are 156% more likely to have this gene than Africans
rs1800668 (A)	Europeans are 59% more likely to have this gene than Africans
rs2090744 (A)	Europeans are 123% more likely to have this gene than Africans
rs2364543 (T)	Europeans are 113% more likely to have this gone than Africans
rs2899319 (A)	Europeans are 214% more likely to have this gene than Africans
rs4314918 (A)	Europeans are 337% more likely to have this gone than Africans
rs6535809 (A)	Europeans are 660% more likely to have this gene than Africans
rs6546856 (T)	Europeans are 418% more likely to have this gene than Africans
rs7963601 (T)	Europeans are 2985% more likely to have this gene than Africans
rs9368490 (T)	Europeans are 121% more likely to have this gene than Africans
rs11703831 (T)	Europeans are 350% more likely to have this gene than Africans
rs13428598 (T)	Europeans are 417% more likely to have this gene than Africans
(A) (A) (A)	Europeans are 696% more likely to have this gene than Africans

#### The following genes are present in at least one third of the African population and are known to decrease intelligence with genome-wide levels of significance

SNP	Distribution
rs1245213-0A3	Africans are 233% more likely to have this gene than Europeans
rs1346075 (T)	Africans are 65% more likely to have this gene than Europeans
rs1972863 (A)	Africans are 128% more likely to have this gone than Europeans
rs2416114 (T)	Africans are 91% more likely to have this gene than Europeans
rs2420551 (A)	Africans are 399% more likely to have this gene than Europeans
rs4325706 (T)	Africans are \$1% more likely to have this gene than Europeans
rs4640173 (A)	Africans are 118% more likely to have this gene than Europeans
rs6736129(A)	Africans are 163% more likely to have this gone than Europeans
rs7019796 (T)	Africans are 134% more likely to have this gene than Europeans
rs8138473 (T)	Africans are 103% more likely to have this gone than Europeans
rs9755750 (A)	Africans are 162% more likely to have this gene than Europeans
rs9030901 (A)	Africans are 135% more likely to have this gene than Europeans

#### Key points:

- These genes are shown biofiliarios reactivity the hippocampus, heah, thebit system, cantral services system, cantral contex, centrum, paratipipocamput gruns, lainevenhain, semporti laine, brain stem, reasonceghshon, rhombencephaion, eccipital lobe, cerebalum, visual contex, parietal lobe, netina, basal gangta, neural stem cells, corpus statuam and fontal lobe.
- These genes alone accountilateopy for roughly two thirds of one standard deviation in cognitive schity.
   These genes are at least 50% more likely is exist in one population than in the other, can be found in at least one third of entry opculation, and possible y affect E surgeaves or regarily affect Africans. More than 200 genes that meet these requirements into is conservatively estimated to accur.
- The differences between populations might be even larger since the African sample included cohorts with European administration

#### References

 Lee, James et al. "Gene discovery and polygenic greatism from a process wide association study of eta cational attainment in 1. million individuals." NaciGenet. 2018 Aug;50(8):1112-1121. doi: 10.1038/s41588.016.01473. Exub 2018 Jul 23. Supplementary forged: Censorium, "A global inference for human genetic variation", Nature 526, 86-74 (01.0clober 2015) doi:10.1038/secter.5303.Superprovide.eta.

#### September 15, 2018

GENES, RACE AND INTELLIGENCE

The latest findings on race, genes and intelligence show that the gap in Intelligence between Europeans and Africans is caused parity by irreducible genetic factors. These findings conclusively put an end to the theory that the gap is caused solely by socieeconomic factors.

[UPDATED]

The following genes are present in at least one third of the European population and are known to increase intelligence with genome-wide levels of significance.

SNP	Distribution
rs159428 (T)	Europeans are 4192% more likely to have this gene than Africans
\$589249 (A)	Europeans are 658% more likely to have this gene than Africans.
rs802512 (A)	Europeans are 388% more likely to have this gene than Africans.
(5604149 (A)	Europeans are 403% more likely to have this gone than Africans
rs685958 (A)	Europeans are 733% more likely to have this gone than Africans
rs761718 (A)	Europeans are 659% more likely to have this gene than Africans.
rs801742 (A)	Europeans are 433% more likely to have this gene than Africans.
rs803379(f)	Europeans are \$66% more likely to have this gene than Africans
s1050847 (T)	Europeans are 539% more likely to have this gene than Africans
\$1083845 (A)	Europeans are 574% more likely to have this gene than Africans
s1167827 (A)	Europeans are 1092% more likely to have this gene than Africans
s1291823 (A)	Europeans are 1050% more likely to have this gene than Africans
\$1408579 (T)	Europeans are 1487% more likely to have this gene than Africans
s1519799 (A)	Europeans are 589% more likely to have this gene than Africans
s1521162 (C)	Europeans are 925% more likely to have this gene than Africans
s1963395 (A)	Europeans are 544% more likely to have this gene than Africans
\$2005827 (A)	Europeans are 1490% more likely to have this gene than Africans
s2084131 (A)	Europeans are 468% more likely to have this gene than Africans
s2221534 (A)	Europeans are 584% more likely to have this gene than Africans
s2885198 (A)	Europeans are 468% more likely to have this gene than Africans
53748400 (T)	Europeans are 569% more likely to have this gene than Africans
\$3809912(1)	Europeans are 553% more likely to have this gene than Africans
54242099 (A)	Europeans are 683% more likely to have this gene than Africans
\$4370753 (T)	Europeans are 1141% more likely to have this gene than Africans
\$4508164 (T)	Europeans are 526% more likely to have this gene than Africans

Merc: H000224 (A), 6174/2020 (A), 6174/220 (A), 6181/220 (A), 6480/647 (A), 6495/647 (A), 6875/647 (A), 6675/647 (A), 6675/64 (A), 667

#### Key points:

- The effect size of these genes can account for roughly a full standard deviation in cognitive ability.
   These genes are at least 100% more likely to exist in Europeans, can be found in at least one third of Europeans, and
- positively affect Europeans More than 300 genes that meet these requirements can be estimated to exist. These genes as income to informe many the hospecampus, brain, tambic system, central nervous system, central contex, centrorum, parahippocampai gynus, teinnosphalon, temporal lobe, brain stem, prosencephalon, intermitencephalon, occipital lobe, centrollow, visual contex, partient lobe, reinn, based agrangia, neural stem cells,
- corpus striatum and frontal lobe The differences between populations might be even larger since the African sample included cohots with European admontus

#### References:

- Lee, James et al. "Gene discovery and polygenic prediction from a genome-wide association study of educational attainment in 1 million individuals." Nat Cenet. 2018 Aug;50(8):1112-1121. doi: 10.1038/41588.018.0147.3. Epub 2018 Jul 23.
- Supplementary data The 1000 Genomes Project Consortium, "A global reference for human genetic variation", Nature 526, 68-74 (01 October 2015) doi:10.1038/nature15385. Superinculations
- ски на полни накие солно. Задеериданноти

September 16, 2018

The following genetic variants are present in at least one third of the European population and are known to increase intelligence with genome-wide levels of significance.

SNP (allele)	Distribution
rs159428 (T)	Europeans are 4192% more likely to have this allele than Africans
rs589249 (A)	Europeans are 658% more likely to have this allele than Africans
rs602512 (A)	Europeans are 388% more likely to have this allele than Africans
rs604149 (A)	Europeans are 403% more likely to have this allele than Africans
rs685958 (A)	Europeans are 733% more likely to have this allele than Africans
rs761718 (A)	Europeans are 669% more likely to have this allele than Africans
rs801742 (A)	Europeans are 433% more likely to have this allele than Africans
rs803379 (1)	Europeans are 866% more likely to have this allele than Africans
rs1050847 (T)	Europeans are 539% more likely to have this allele than Africans
rs1083845 (A)	Europeans are 574% more likely to have this allele than Africans
rs1167827 (A)	Europeans are 1092% more likely to have this allele than Africans
rs1291823 (A)	Europeans are 1050% more likely to have this allele than Africans
rs1408579 (T)	Europeans are 1487% more likely to have this allele than Africans
rs1519799 (A)	Europeans are 589% more likely to have this allele than Africans
rs1521162 (C)	Europeans are 925% more likely to have this allele than Africans
rs1963395 (A)	Europeans are 544% more likely to have this allele than Africans
rs2005827 (A)	Europeans are 1490% more likely to have this allele than Africans
rs2084131 (A)	Europeans are 468% more likely to have this allele than Africans
rs2221534 (A)	Europeans are 584% more likely to have this allele than Africans
rs2885198 (A)	Europeans are 468% more likely to have this allele than Africans
(s3748400 (T)	Europeans are 569% more likely to have this allele than Africans
rs3809912 (T)	Europeans are 563% more likely to have this allele than Africans
rs4242099 (A)	Europeans are 683% more likely to have this allele than Africans
rs4370753 (T)	Europeans are 1141% more likely to have this allele than Africans
rs4508164 (T)	Europeans are 526% more likely to have this allele than Africans

These valuarits are known to influence genes linked to the hippocampus, brain, limbic system, central nervous system, cerebral cortax, cerebrum, parshippocampaig yorus, biencephalon, temporal blob, brain stem, procescephalon, mbomencephalon, occipital lobe, cerebellum, visual cortex, parietal lobe, retina, basal ganglia, neural stem cells, corpus striatum, and frontal lobe.

The 1000 Genomes Project Consortium "A global reference for human genetic variation" Nature 526, 68-74 (01 October 2015) doi:10.1038/nature15393. Superpopulations. Europeans and Africans.

- Lee, James et al. "Gene discovery and polygenic prediction from a genome-wide association study of educational attainment in 11 million individuals". Nat Genet 2018 Aug;50(8):1112-1121. doi: 10.1038/s41588-018-0147-3. Epub 2018 Jul 23.
- Supplementary data EduYears excluded

#### September 19, 2018

The latest findings on genetics and intelligence show that biological factors contribute to the gap in intelligence between European and African populations.
Recent studies have faund seen et lans 240 genetic variants that are: persons it all least non-third of the European population (1), all heart 140, more common in Europeans than Atlances (2), boom to increase intelligence with provide values distribution significance (3), and increase intelligence that the provide statistical significance (3), and increase the theory genes black of the mervices spaces (3).
Non-specifically genes limited to the hippocampus, brain, limits system, central hervise system, central coffex, central man, participacempti genes, teenceptetor, temporal link, both stem, presenceptator, charlemenghates, conjecti link, centralesty, visual context, partici link, many genesity, count reserves, copys stitutur, or you total linke.

	many Mark in have they after than Alexand		many likely to have this above that down and		many libers in he
	more likely to have this pick than Alicense		nore likely to have the side then different		more likely to be
100000000143	nore likely in here his sink that Alexans		more likely to have this plate that difference		more likely to be
~128704 LAA	many likely in here the she's frage Alexand		more likely to have first allele from differents		more likely to be
	nors likely to have this alick that Alicenty		more likely to have the pick than divicants		more likely to be
					more likely to he
msT3642*1 (T)	more they to have this alote that Alticants		more likely to have this old to have different		
	more likely in time this piece than John more				more likely in he
	more likely to have this plots that Alexans		more likely to have the plate that Allocate		
	more they in have his shire that Alexand		more likely to have this able from discours		more they to be
	were they to have it is able that Alternation		ware likely to have this above that Albitants.		more likely to be
	. ears likely in have this allele that Alternation		more likely in hour this older than life and		more likely to be
	. nore they to have the above that Alexand		more likely to have this after than Alexans		marie litery to he
	many they in have free aliety from Alexand		more likely to have firs about from divisions		more likely in he
	mana likely to have this pipe that Alticant		were likely to have this allots that .We are		more likely to be
	nors they to have this side that Alticants		more likely to have this pieter than 40 kpms		more likely to he
	mare they in have the site that discuss		more likely in how that sinte that differents		mana libaig in he
	stars likely to have this alam that Alexand		store likely to have the place that Allocant		non likey to to
			nors likely to have the side they diverse		more likely to be
	nors Maty to have this alkie that Alticans		more likely to have this about that Albicana		more likely to be
	mare likely to have its piete that Ationany		more likely to have this place that divisions		more likely to be
	more they in have his give has Alexand		nore likely to have the piete that diffs are		more likely to be
	were they're have this alive that Alterant		more they to have this side that Africans		more they to he
	nore likely in here his she's from Alternet				more likely to be
	nors likely to have the side that Alexand		nore likely in have the plate than drive and		more likely to be
	ware they to have the also that Alexand		more likely to have this after than Africana		more they to he
					more likely in he
	mark they to have the above from the area		Are light that his shit has All and		more likely to be
	more they to have the able that Alexand		more thely to have the above has all sums.		more they to for
	ners likely to have the place that Alexand		nore likely to have the place that -line and		non-Heylon
	ware they to have the plete that Atricana		more likely to have the above that divicants		more likely to he
	many linght to have the whole that Alexand		noral lines to have for able for Alle and		many literatura
	more they to have his above has drivens.		more likely to have the abde that Alinavia		many likely to be
					more likely to he
	HORD MADE THAT THE ARM THE ATLANT.		more little to how this plan that different		more likely 10 To
	ears that to have the plate that discard		more likely to have this above that differents		



September 21, 2018

# How does genetic determinism manifest itself?

## Activity: discussion

- Group discussion on 3 traits (educational attainment, athleticism, sexuality)
- Each group will be assigned 1 trait (2 reading materials)
- Educational attainment:
  - The Bell Curve (1994)
  - The Genetic Lottery (2021)
- Athleticism:
  - The Guardian (2000)
  - The Atlantic (2012)
- Sexuality:
  - A linkage between DNA markers on the X chromosome and male sexual orientation. Hamer et al. (1993)
  - Large-scale GWAS reveals insights into the genetic architecture of same-sex sexual behavior. Ganna et al. (2019)

## Activity: discussion

(10 mins) Independent reading

(10 mins) Small groups discussion within traits (3 traits: educational attainment; athleticism; sexuality)

- According to the reading, to what extent are we defined by our genes versus our experiences? Are these arguments supported by science? Do you agree or disagree with the reading material?
- What impact might the arguments presented by reading materials have? Who might they impact?

(10 mins) Large group discussion

- Summarize the arguments presented in your readings
- What are the potential implications these readings might have on society (e.g. harms or benefits)?
- Should research on this trait be done at all?

### Trait 1: Educational attainment

### The Bell Curve, Richard Herrnstein and Charles Murray (1994)

"This was reflected in the NLSY as well: Holding education constant, similar proportions of blacks, Latinos, and whites are found in the various occupational categories.

To what extent does controlling for IQ produce the same result?...If one ethnic group has a lower average IQ than another ethnic group, this will be reflected in their occupations, other things equal...

Sociologist Linda Gottfredson has examined this question for blacks and whites. If, for example, black and white males were recruited without discrimination into careers as physicians above a cutoff of an IQ of 112 (which she estimates is a fair approximation to the lower bound for the actual population of physicians), the difference in the qualifying population pools would place the black-white ratio at about .05—about one black doctor for every twenty white ones...

We confirm Gottfredson's conclusions with data from the NLSY by going back to the high-IQ occupations we discussed in Chapter 2..." (p 320-2)

NLSY: National Longitudinal Survey (conducted by US Bureau of Labor Statistics)

### The Genetic Lottery, Paige Harden (2021)

"On the right side of figure 1.1, I have graphed data from a paper in Nature Genetics, in which researchers created an education polygenic index...The story looks much the same: those whose polygenic indices are in the top guarter of the "genetic" distribution were nearly four times more likely to graduate from college than those in the bottom guarter.

The data on family income on the left, despite being correlational, is considered critically important as a starting point for understanding inequality...The data on family income is also considered by many to be prima facie evidence of unfairness-an inequality that demands to be closed. But what about the data on the right?

In this book, I am going to argue that the data on the right, showing the relationship between measured genes and educational outcomes, is also critically important, both empirically and morally, to understanding social inequality. Like being born to a rich or poor family, being born with a certain set of genetic variants is the outcome of a lottery of birth...And, like social class, the outcome of the genetic lottery is a systemic force that matters for who gets more, and who gets less, of nearly everything we care about in society." (p 7-10)

### **Trait 1: Educational attainment**

The Genetic Lottery, Paige Harden (2021)

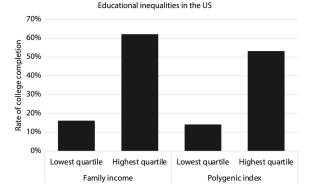


FIGURE 1.1. Inequalities in rates of college completion in the US based on differences in family income versus differences in measured genetics. Data on college completion by income drawn from Margaret W. Cahalan et al., *Indicators of Higher Education Equity in the United States: 2020 Historical Trend Report* (Washington, DC: The Pell Institute for the Study of Opportunity in Higher Education, Council for Opportunity in Education (COE), and Alliance for Higher Education and Democracy of the University of Pennsylvania (PennAHEAD), 2020), https://eric .ed.gov/?id=ED606010. Data on college completion by polygenic index from James J. Lee et al., "Gene Discovery and Polygenic Prediction from a Genome-Wide Association Study of Educational Attainment in 1.1 Million Individuals," *Nature Genetics* 50, no. 8 (August 2018): 1112–21, https://doi.org/10.1038/s41588-018-014-73; additional analyses courtesy of Robbee Wedow. Polygenic index analyses include only individuals who share genetic ancestry characteristic of people whose recent ancestors all resided in Europe; in the US, these people are very likely to be racially identified as White. The distinction between race and genetic ancestry will be described in more detail in chapter 4.

### Trait 2: Athleticism

### The Guardian, 2000

Danish sports scientists spent eighteen months in the Kenyan town of Eldoret, the capital of the north-western province where the Kalenjin tribe live. Twelve of the world's top 20 distance runners are Kalenjin and their seemingly effortless victories in 800-metre races and marathons have sparked a passionate debate about genetic advantage.

The scientists compared Kenyan athletes' style and physique with Danish runners. The African athletes' heart rates were remarkably slow, even when running at more than 15mph over long distances.

High altitude - the Kalenjin live on a plateau 7,000ft above sea level increases the number of red blood cells which carry oxygen around the body and is thought to explain the low heart rate.

Experts, the programme says, went on to observe that the Africans had 'birdlike legs, very long levers which are very, very thin', that enabled them to 'bounce and skip' over the ground, taking off after each footfall far faster than the Europeans.

They 'flowed through the running motion' compared with the Danes, who 'landed heavily and sunk into the ground and almost had to pull themselves forward. They are "pullers", whereas the Kenyans are "bouncers".'

### The Atlantic, 2012

Running, like any sport, is inherently physical, and physical traits inform athletic success. Just because Larry Bird and Michael Jordan are tall doesn't mean they aren't first and foremost great athletes. Part of Olympian Michael Phelps' record-breaking swimming is his <u>unusual body shape</u>, which is genetically inborn; you can't train for longer arms. All athletes owe some of their success to their own physical traits, but because Kalenjin runners share those traits across an ethnic group, and because that ethnic group is part of the story of colonialism and white exploitation of blacks for their physical labor, it's harder to talk about. But that doesn't make their athleticism any less amazing.

### **Trait 3: Sexuality**

### Hamer et al. (1993)

The role of genetics in male sexual orientation was investigated by pedigree and linkage analyses on 114 families of homosexual men. Increased rates of same-sex orientation were found in the maternal uncles and male cousins of these subjects, but not in their fathers or paternal relatives, suggesting the possibility of sex-linked transmission in a portion of the population. DNA linkage analysis of a selected group of 40 families in which there were two gay brothers and no indication of nonmaternal transmission revealed a correlation between homosexual orientation and the inheritance of polymorphic markers on the X chromosome in approximately 64 percent of the sib-pairs tested. The linkage to markers on Xq28, the subtelomeric region of the long arm of the sex chromosome, had a multipoint lod score of  $4.0 \ (P = 10^{-5})$ , indicating a statistical confidence level of more than 99 percent that at least one subtype of male sexual orientation is genetically influenced.

### Ganna et al. (2019)

#### RESULTS

In the discovery samples (UK Biobank and 23andMe), five autosomal loci were significantly associated with same-sex sexual behavior. Follow-up of these loci suggested links to biological pathways that involve sex hormone regulation and olfaction. Three of the loci were significant in a meta-analysis of smaller, independent replication samples. Although only a few loci passed the stringent statistical corrections for genome-wide multiple testing and were replicated in other samples, our analyses show that many loci underlie same-sex sexual behavior in both sexes. In aggregate, all tested genetic variants accounted for 8 to 25% of variation in male and female same-sex sexual behavior, and the genetic influences were positively but imperfectly correlated between the sexes [genetic correlation coefficient ( $r_g$ ) = 0.63; 95% confidence intervals, 0.48 to 0.78]. These aggregate genetic influences partly overlapped with those on a variety of other traits, including externalizing behaviors such as smoking, cannabis use, risk-taking, and the personality trait "openness to experience." Additional analyses suggested that sexual behavior, attraction, identity, and fantasies are influenced by a similar set of genetic variants  $(r_{g} > 0.83)$ ; however, the genetic effects that differentiate heterosexual from samesex sexual behavior are not the same as those that differ among nonheterosexuals with lower versus higher proportions of same-sex partners, which suggests that there is no single continuum from opposite-sex to same-sex preference.

# How can researchers combat the harms of genetic determinism?

### Activity: Make a FAQ!

- After reading, generate questions you have (or that a potential reader would have)
- Compare to paper's FAQ

### Genetic correlates of social stratification in Great Britain

Abdel Abdellaoui <sup>CC</sup>, David Hugh-Jones, Loic Yengo, Kathryn E. Kemper, Michel G. Nivard, Laura Veul, Yan Holtz, Brendan P. Zietsch, Timothy M. Frayling, Naomi R. Wray, Jian Yang, Karin J. H. Verweij & Peter M. Visscher <sup>CC</sup>

Nature Human Behaviour 3, 1332–1342 (2019) Cite this article

7758 Accesses | 95 Citations | 583 Altmetric | Metrics

### Activity: Make a FAQ!

(10 mins) Independent reading

(5 mins) Drafting questions with your partner

(5 mins) Compare to actual FAQ

(5 mins) Discuss in small groups

(5 mins) Large group discussion

## Activity: Make a FAQ!

Discussion prompts with a partner

- 1. Were the questions you asked answered? Were the answers satisfying?
- 2. How did you perceive the language in the manuscript and in the public-facing FAQ in the supplement? Are there places it could be different/improved?
- 3. Do you think the FAQ is sufficient to address confusion?
- 4. Should a study like this be done differently (or not at all)?

# Activity: self-reflection and action (15 minutes)

What can we do as researchers to combat the harms of genetic determinism?

### Next session: Sex, Gender Identity, Sexuality, and Disability

- 1. Distinguish the relationship between biological sex, gender identity, and sexuality through discussion of the role genetics plays in these concepts.
- 2. Examine the medicalization (called a disorder) of identities and how it impacts society, medicine, and research.
- 3. Critique genetics studies and practices from a disability-rights perspective.



Justin Gomez-Stafford, TA (he/they)

