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Why Do IQ Scores Vary By Nation?
by Katie BakerJuly 26, 2010
Karel Prinsloo / AP

Global differences in intelligence is a sensitive topic, long fraught with controversy and still tinged by the disgraceful taint of pseudosciences such as craniometry that strove to prove the white "race" as the most clever of them all. But recent data, perplexingly, has indeed shown cognitive ability to be higher in some countries than in others. What's more, IQ scores have risen as nations develop—a phenomenon known as the "Flynn effect." Many causes have been proposed for both the intelligence gap and the Flynn effect, including education, income, and even nonagricultural labor. Now, a new study from researchers at the University of New Mexico offers another intriguing theory: intelligence may be linked to infectious-disease rates.

The Idea

The brain, say author Christopher Eppig and his colleagues, is the "most costly organ in the human body." Brainpower gobbles up close to 90 percent of a newborn's energy. It stands to reason, then, that if something interferes with energy intake while the brain is growing, the impact could be serious and longlasting. And for vast swaths of the globe, the biggest threat to a child's body—and hence brain—is parasitic infection. These illnesses threaten brain development in several ways. They can directly attack live tissue, which the body must then strain to replace. They can invade the digestive tract and block nutritional uptake. They can hijack the body's cells for their own reproduction. And then there's the energy diverted to the immune system to fight the infection. Out of all the parasites, the diarrheal ones may be the gravest threat—they can prevent the body from getting any nutrients at all.

The Evidence

Using data on national "disease burdens" (life years lost due to infectious diseases) and average intelligence scores, the authors found a striking inverse correlation—around 67 percent. The countries with the lowest average IQ scores—Equatorial Guinea, Cameroon, Mozambique, Gabon—have among the highest disease burdens. In contrast, nations with low disease burdens top the IQ list, with Singapore, South Korea, China, Japan, and Italy in the lead.

The study controlled for other potential causes of the IQ gap, such as the aforementioned education, agricultural labor, and income levels, as well as climate (colder lands tend to have higher IQ scores, and some theorists have proposed that lower temperatures may evolutionarily select for higher intelligence) and distance from humanity's African cradle, which is the notion that unfamiliar lands might have forced migrating humans to become smarter. However, with the exception of this last theory—which has in any case been challenged—it turns out that "infectious disease remains the most powerful predictor of average national IQ." The study's findings may also help explain the Flynn

effect, which can't be accounted for by evolution (the IQ gains occur over time spans too short for natural selection). So what's going on instead? As nations develop, they improve their population's access to safe drinking water and to vaccines and medicine—all of which lower parasitic infection rates.

The Conclusion

If the study holds up, it could be revolutionary for our understanding of the still-bewildering variation in national intelligence scores—and also a pressing injunction to continue the fight against malaria and other developing-world diseases, which some global-health watchers have recently declared unbeatable.