LAY ABSTRACT

TITLE: What's the Weight? Estimating Controlled Outcome Differences in Complex Surveys for Health Disparities Research

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Inside our cells, our DNA has protective caps called telomeres. You can think of them like the plastic tips at the end of shoelaces that keep them from fraying. These caps get shorter over time and due to stress on our bodies which can affect our health. Studies have found that, in the United States, people who identify as Black often have longer telomeres than people who identify as White, a finding that may seem surprising given longstanding health inequities. However, this difference is smaller in groups where people have more similar social and economic backgrounds. This has led researchers to question whether these differences are driven by biology, by lived experiences and social environments, or by some combination of these factors?

To better understand these observed differences in telomere length, the research team analyzed data from the National Health and Nutrition Examination Survey (NHANES), a large, nationally representative U.S. health study. Rather than simply comparing telomere length by race, they created a new statistical method that “balances” social and economic factors between surveyed groups before estimating differences in telomere length. They also created a free software tool that other researchers can

download and use. This tool allows them to apply the new method to their own work, which helps the whole scientific community do better research.

When the research team used the new methods to look at the telomere data again, they found that racial differences in telomere length were much smaller after accounting for social and economic conditions. This work is important because it shows that social conditions, rather than just genetics, play a major role in our health. By giving researchers better tools to measure these factors, we can work toward a future with better health for everyone.