**Short men have 'reduced chances in life'**

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History tells us of countless short men who have achieved greatness. Napoleon. Deng Xiaoping. Voltaire. Ludwig van Beethoven. James Madison.

Psychologists have speculated, perhaps unflatteringly, that their success may be driven by a kind of paranoid complex that makes them overcompensate - for what they perceive as disadvantages of their stature - by being more aggressive and ambitious than the rest of us.

It turns out their worries may be justified after all.

The average male in Western countries, including the United States, is now just a few inches shy of six feet. That's the tallest that humans as a species have ever been, and the issue of height has become an obsession in everything from political elections to celebrity couplings.

In analyzing genetic and socio-economic data from more than 120,000 people in Britain, ages 37 to 73, researchers came to the strong conclusion that short men do in fact have what they called "reduced chances in life." That includes things such as level of education, income and job class.

The study is published in Wednesday's The BMJ.

This isn't at all the first study to have looked at a possible link between height and success (or lack thereof). A third of Fortune 600 CEOs have been found to be taller than 6'3'', and a University of Florida study found that people who are taller earn more, per inch, than their shorter counterparts. On the other side, studies have shown that short people may be more likely to be of the jealous type and die of heart disease.

Previous research has also shown that growing up poor and not having adequate nutrition or medical care is more likely to make you short, which in turn appears to lead to a more difficult life. But that work has never been able to prove how many of the negative outcomes were due to poverty and how many were due to height.

University of Exeter genetics professor Timothy Frayling, a co-author of the study, called it the "classic chicken and egg question of which comes first."

What distinguishes this new study, beyond its sheer massive size, is that the researchers were able to disentangle the two questions by focusing on the 396 genetic variants that determine height, as well as participants' actual height. The study found that if a man was genetically predetermined to be 3 inches shorter than another man, the shorter man would have an annual income that was $1,600 lower.

## What about women?

The study found that height does not have much of an impact on success for women, but body fat does.

Frayling and his colleagues looked at 69 common genetic variants associated with body mass index or BMI, which is a measure of body fat based on your height and weight, and found that overweight women face similar disadvantages as short men.

If a woman is genetically predetermined to weigh about 14 pounds more than another woman, the heavier woman would have an annual income that is $1,600 less and have a higher level of something called the Townsend deprivation index - which is a measure of what you don't have in life, such as a car or home.

"These findings have important social and health implications, supporting evidence that overweight people, especially women, are at a disadvantage and that taller people, especially men, are at an advantage," the researchers wrote.

In an interview, Frayling said that while the study did not delve into possible causes for the link, modern society's stereotypes about the ideal body shape and size likely play a role.

"There are conscious and subconscious biases about how someone looks," Frayling said. "Does this factor into employment discrimination when they are interviewed for jobs or try to move up the career ladder? Social discrimination when it comes to choosing mates?"

He also said it will be important to look at internally-driven issues, such as low self-esteem and depression.

George Davey Smith, a professor of clinical epidemiology, and Neil M. Davies, a research associate, both from the University of Bristol, speculated in a commentary piece that a "dynastic effect" could also be at play. That refers to the idea that people may have inherited not only their parents' height or propensity for being overweight - but also the consequences of the disadvantages they faced in life due to their stature.

They also pointed out that the desirable body characteristics vary by culture and time and that in some countries having a higher BMI has been associated with more success.

Smith and Davies also mentioned a big caveat in interpreting the study; data was taken from Britain's Biobank study, which includes a higher percentage of highly educated participants than found in the general population, but many of those with college degrees were dropped from the final analysis due to the way one of the education questions was worded.

Frayling emphasized that while the study may sound ominous for short men and overweight women, the study shows an average effect across the population and does not in any way determine one's fate in life.

"There are many, many shorter men and slightly overweight or fat women," he said, "who do better than their taller and thinner counterparts and peers."