

Why do we choose the jobs we do? Maybe it's in our genes

By Song Zhaoli

FROM a young age, children start to have ideas about their future occupations. When they reach their twenties, they contemplate their dream careers. Years later, a lot of them may consider a mid-career switch.

Recent statistics across surveys show that the average worker will hold more than 10 jobs in his or her life. One question arises: Why do people choose different jobs?

Some immediate answers that come to mind are the candidate's interest, ability and circumstances. Jobs have different physical, cognitive and emotional demands, and people have varying levels of interest and abilities in coping with those demands. Circumstances, such as exposure to a particular job or the wider market demand, also play a part.

Most people would consider a job's prestige to a certain extent. Researchers have found job attainment as a key component of one's socio-economic status, and in turn, its value as a predictor of one's health and well-being.

Could genes play a part in our choice of jobs? Some genetic researchers study the relations between genes, educational level and income, but the relations between genes, job choice and health remain a little-explored mystery.

Together with my collaborators



The findings suggest that your genes relating to intelligence, compared to your genes relating to physical strength or emotional intelligence (EQ), may have a larger role to play in some important life attainments, such as education attainment, job success and income. PHOTO: ST FILE

from Singapore and Hong Kong universities, we have tried to untangle the genetic and occupation links.

Previously, we used a variety of approaches to address this issue, including looking at studies on twins and data relating to a few specific genes, such as genes that are related to dopamine and serotonin, 2 important neurotransmitters.

More recently, we have started a

research endeavour by using the whole human genome data, which may include information of millions of genetic markers for each individual.

The publicly accessible United Kingdom Biobank dataset provided the first clue. Our research team looked at the genetic data of over 200,000 individuals of European ancestry as well as their job information. Such large datasets were previously not available, but with

the advent of gene technology, big data had allowed us to find new answers.

It turned out that our genes partially accounted for our occupation choices.

We found 39 genetic markers on the whole genome that have significant links to the cognitive, emotional, and physical requirements of a job. Among those markers, most are relevant to the cognitive job requirements, such as reading, analysing, and decision-making. Such genetic markers are also shared with education attainment and income levels.

The findings suggest that your genes relating to intelligence, as compared to your genes relating to physical strength or emotional intelligence (EQ), may have a larger role to play in some important life attainments, such as education attainment, job success and income.

This is not to say that EQ or physical strength is not important. Job success is a combination of many factors and we should still work on self-improvement in need areas.

While people have different expectations and achievements in their early, mid and late-career stages, we did not find any significant genetic difference between those who were less than 55 years old and those who were more than 55 years old in our sample. The sample was limited to senior West-

erners in their mid to late careers, and future studies could look at a sample consisting of individuals at different career stages and in an Asian setting.

More about genes for emotional demand

Some jobs, such as nurses and caregivers, are more emotionally demanding. Alas, the market does not always compensate them for that. The genes for emotional job demand are positively linked to those for education and income, but the association is much weaker compared to other job characteristics. Compared to other job demands such as physical and cognitive demands, emotional demands are also least likely to be inherited.

The findings suggest possible unique biological pathways influencing emotional job requirements and their relationships with education attainment and income.

On the other hand, the genes for physical demands are quite similar to the genes for cognitive demands, but their relationships are in opposite directions.

For example, the genes for physical demands had strong negative correlations with the genes for intelligence, education attainment, and income, suggesting jobs with high physical demands tend to have low cognitive demands and are associated with lower social attainment.

More attention on occupational health

What do all the genetic relations mean for our lives? Most people, including occupational health researchers, assume that the relationships between your job status and well-being are mainly due to the environment. For example, you may have a stressful office environment which does not bode well for your mental health.

When genes partially shape your job choices, the blame is not all on the environment. People should also be aware of the potential health and well-being implications related to such choices.

Overall, in our study, genetic correlations between job characteristics and health revealed a consistent pattern: high cognitive demands and low physical demands were genetically associated with positive health outcomes.

From a public health perspective, society should also provide sufficient protective resources and related policies for different occupations to prevent undesirable health and well-being consequences.

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