Where do diseases live? It seems an odd question, but perhaps an important one, because we need to find a disease in order to treat it. Some simple examples show how obvious this is. If someone fractures their ankle, that’s where the pathology is, and we’d be pretty foolish to apply a cast to their wrist. Similarly, someone with a urinary tract infection has disease located in their urine, and we even literally go looking for it with a microscope and agar plates. In fact, all infections have an external pathogen invading a particular location in the body to cause disease. Sometimes the location of the disease is a bit less clear cut. A fractured vertebra may also indicate an escaped prostate cancer, and the hunt is on for other locations.

The pathology of risk has its locations too — osteoporosis is located throughout the skeleton, while cardiovascular risk is even more widespread, located in cholesterol molecules and blood pressure. Maybe these aren’t locations in the same sense, but they are specific targets of particular treatments that we imagine as locations of pathology.

This is our comfort zone as doctors, and has led to a great deal of success in treating and preventing disease. We have been able to locate and target our treatments to body systems, organs, cells, and genes, and this is where we expect to find pathology, perhaps like we expect to find our missing sock in the washing machine or coins down the back of the sofa.

Could this lead us astray? Are there times where the pathology isn’t located in the individual’s body, but is located elsewhere? Is this a problem?

With mental health problems we often act as if they are physical health diagnoses located in the brain, in the same way diabetes is located in the pancreas. We apply the treatments to the individual’s brain in the form of antidepressants or cognitive behavioural therapy. Clearly sometimes this works, but often the pathology isn’t in the individual, it’s in their environment. If you put most humans in circumstances where they experience violence, bullying, or poverty then you will develop the psychological and physical symptoms that look like depression. That’s not to say that treatments applied to the individual don’t work, but they may not be treating the pathology, they are settling some of the symptoms to create room for handling the circumstances.

It’s not spilling any secrets to suggest that mental health is influenced by social circumstances. However, our mental models of physical disease locate the pathology in the person more firmly. There’s a social gradient for many common conditions including diabetes, cardiovascular disease, and renal disease, and of course many of the risk factors for these — smoking or obesity, for example — also have social gradients. Essentially, the more disadvantaged you are, the more likely you are to develop these conditions. By calling this ‘socioeconomic status’ we locate the pathology in the individual. If we called it poverty, for example, the pathology is external, experienced by someone, it’s not their individual status.

While the environment certainly impacts on the body and mind in physical ways, through hormonal, immune, and epigenetic responses, the pathology itself is outside the body. If we don’t recognise the location correctly, we end up treating poverty with statins.

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