

## Are our behaviors solely determined by our genes?

By David H. Nguyen, Ph.D.

**“If we concede to this DNA-centric view of human behavior – that is, we are just victims of our genetics: our genes are the only important influences on our behavior – then we put ourselves at risk of participating in harmful societal attitudes.”**

**D**uring the tsunami and nuclear meltdown at Fukushima, Japan in 2011, the world stood shocked by the civility with which the Japanese people conducted themselves. CNN talk show host Piers Morgan was dumbfounded by the fact that the Japanese people were not rioting and looting. Among the many pressing questions he had for journalists working in Japan, he seemed most perplexed about the absence of these destructive behaviors. Indeed, the Japanese people waited patiently in line for food and water, even yielding these supplies to the elderly. It was the perfect societal response to a large-scale disaster. Now, some might be tempted to throw up their hands and say that there must be a genetic reason as to why the Japanese people are so good. These genetic explanations are a means of explaining biological phenomena, including behavior, but

may also be a means by which a person justifies less-than-noble personal behaviors. Before we get too carried away by the greatness of Japanese culture and genetics, it is worth noting that during World War II, fascist-Japanese soldiers and scientists were so cruel to their captives that Japan was forced to disband its own military after losing the war (I say “fascist-Japanese” in order to be fair to the Japanese as a whole; just as not all Germans were Nazis).

The discussion about how much our genes control our biology would not be complete without talking about the role that tissue structure plays in controlling biology. Carriers of the BRCA1 or BRCA2 mutations (pronounced “brah-kha” 1 or 2) have high rates of breast or ovarian cancer. Note, however, that though the vast majority of DNA-bearing cells in their body have a mutated

BRCA gene, cancers other than breast and ovarian are rare in this population of people. Why is that? Well, because the context of the tissue is just as important as the presence of the mutation in determining if and when a cancer will develop. By context, I mean whether the tissue is old or young, injured or scarred, grows or stays the same, along with other factors. Thus, DNA sequence is important, but it’s not the only thing that is important in determining our biology.

Aside from being a cool biology topic, the over-emphasis of genetics has major impacts on society, especially social injustices. If we concede to this DNA-centric view of human behavior – that is, we are just victims of our genetics: our genes are the only important influences on our behavior – then we put ourselves at risk of participating in harmful societal attitudes.

◆ **We surrender the tremendous potential that the mind has in helping to heal the body.**

- ◇ Surgeons don't like to operate on the elderly who no longer have the will to survive, because those patients just don't heal like other elderly people who still want to live.
- ◇ To the utter frustration of pharmaceutical companies, the placebo effect of a sugar pill can sometimes heal a patient almost as well as an expensive drug.
- ◇ Schools don't invest in counseling programs that provide stress management rooms for young children who are unable to cope with stressful situations because of the domestic violence that they witness at home.
- ◇ Medical centers don't invest in counseling programs to help enslaved or abused people to reintegrate into society as healthy individuals.

◆ **We make ourselves vulnerable to racism and sexism based on an incomplete understanding of genetics.**

- ◇ We allow ourselves to believe that certain groups of people deserve to suffer more, be ignored, be exploited, or to be expendable, based on their "genetics."
- ◇ We give certain groups of people preferential treatment, while shunning the needs of others because we think that's what it means to be intellectually sophisticated.

*Cancer InCytes* is a public health and social justice e-magazine that focuses on the healthcare needs of disadvantaged populations. This includes various groups of abused people: the homeless, enslaved people, migrant farm workers, civilians in war-torn countries, etc. The scope of the magazine is broad and interdisciplinary because we realize that the problems within social injustice are too complex to be solved by medical research alone. At the root of why social injustice persists are harmful attitudes about people. Our understanding of science should help improve society, not be part of the problem.

Sincerely,



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