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# Genetic Risk, Smoking Behavior And The Question Of False Reassurance



By Robert C. Green, MD, MPH

Thursday, November 17 was the 39th annual [Great American Smokeout](#), sponsored by the American Cancer Society as part of its campaign to reduce what it calls “the largest single preventable cause of disease and premature death in the world.”

Everyone who smokes knows that they should quit in order to benefit their health, but what if you knew that your genetic profile made you less likely to suffer smoking-related health problems? Would you be less motivated to quit smoking?

If you answered “yes,” or “maybe,” then you are falling prey to “false reassurance,” one of the most common concerns about the false determinism that surrounds genetic testing. The idea is that genetic findings of lower risk for anything might de-motivate individuals from good health habits. Learning you are at low genetic risk for heart disease might make it easier to skip the gym, and learning you were at low genetic risk for diabetes might encourage a sugary diet. Such reassurance is, of course, “false” because genetic risk is usually a minor component of overall risk for common diseases. One of the most common theoretical examples of false reassurance postulates that smokers who learned they were at lower genetic risk for smoking-related diseases might be less inclined to quit.

Earlier this year, we published [a paper](#) that examined this very question of false reassurance

around smoking. We had access to survey results from more than 1,000 customers who had received direct-to-consumer genetic testing from [23andMe](#) and [Pathway Genomics](#). Among the results they received were their chances of lung cancer and heart disease after smoking. Some customers received lower risk for these smoking-related outcomes, and we wanted to know whether these customers would be less motivated to quit smoking, or would be more motivated to return to smoking.

We found that among the study participants, 64% never smoked, 29% were former smokers, and 7% were current smokers. As one might expect, the current smokers were quite interested in their genetic risk of smoking-related illness. Six months after receiving their genomic reports, 22% of current smokers reported quitting, and only 1% of former and never smokers reported beginning to smoke. And when we looked at the genetic results for those who reported quitting or those who began to smoke again, there was no correlation between their genetic risk for smoking-related conditions. In other words, we saw no evidence that the genetic information on smoking-related risks had influenced the quit rate.

So while these results certainly do not address concerns about false reassurance in every circumstance, they provide evidence that false reassurance is not operating here. Just one more piece of evidence to counter the many hypothetical dangers of personalized genetic testing!

*For more information, see: Emily Olfson MD, PhD; Sarah Hartz MD, PhD; Deanna A. Carere ScD, CGC; Robert C. Green MD, MPH; J. Scott Roberts PhD; Laura J. Bierut MD; for the PGen Study Group. [Implications of personal genomic testing for health behaviors: the case of smoking](#). *Nicotine & Tobacco Research*. July 12 2016*

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