Genetic study reveals genes associated with propensity for loneliness and social leanings

July 5 2018, by Bob Yirka

Credit: CC0 Public Domain

A trio of researchers at the University of Cambridge School of Clinical Medicine has uncovered genes that appear to play a role in a person's propensity for loneliness, and to some degree, how social they are. In

their paper published in the journal *Nature Communications,* Felix Day, Ken Ong and John Perry describe their comparison of genetic traits in people listed in a health information database.

Scientists have long suspected that genes play a role in how lonely people feel in a given circumstance—some seem to savor isolation, whereas others find it torture. Likewise, there has been a degree of belief that genes likely also play a role in how social people are. In this new effort, the researchers put these assumptions to the test by conducting searches on a public database, the U.K. Biobank, which stores patient information . Because the health information includes data from surveys enquiring about loneliness and sociability as well as genetic information, the researchers were able to sort by genetic loci.

The researchers found they were able to isolate variations in 15 loci that could be associated with loneliness—people with a given variation, they found, tended to report being lonelier than did others. They also found associations between obesity and loneliness, though they were not able to say which might be contributing to which. The researchers also found associations between 13 loci and social behaviors, such as a tendency to go to the pub regularly or visit with friends. And another 18 loci were associated with participation in religious activities.

The researchers note that they also noticed multiple genetic overlaps—those with genetic variants associated with depression, for example, also sometimes had a genetic tendency for poor vascular health and obesity. They emphasize that they are not suggesting that genes alone account for how lonely a given individual might feel, or how sociable—instead, they are suggesting genes likely play at least some small part. They also acknowledge that their results were based on individuals self-reporting their loneliness or social activities, which, they note, means more studies will need to be conducted before their results can be confirmed.

More information: Felix R. Day et al. Elucidating the genetic basis of social interaction and isolation, *Nature Communications* (2018). DOI: 10.1038/s41467-018-04930-1

Abstract

The negative impacts of social isolation and loneliness on health are well documented. However, little is known about their possible biological determinants. In up to 452,302 UK Biobank study participants, we perform genome-wide association study analyses for loneliness and regular participation in social activities. We identify 15 genomic loci (P