Twitter Language Predicts Community Heart Health

The dynamic relationship between healthcare and social media may soon emphasise the ways in which social media tools track psychological measures of community health. A new study which appears in *Psychological Science* claims that emotional aspects of language used on Twitter can predict coronary heart disease "significantly better" than a standard model which combined demographic, health and socioeconomic factors.

University of Pennsylvania scientists, led by Department of Psychology graduate student Johannes Eichstaedt, analysed the language used on Twitter for references to negative emotions, and determined that they corresponded with risk factors for coronary heart disease. Specifically, the tweets which reflected anger, fatigue and stress were associated with health risk factors such as diabetes, hypertension, obesity and smoking. Conversely, relatively more positive tweets indicated a lower risk of heart health problems.

"Language patterns reflecting negative social relationships, disengagement, and negative emotions —especially anger— emerged as risk factors," the authors stated. "Most correlations remained significant after controlling for income and education." The findings support existing research by sociologists which have shown that community health characteristics are stronger predictors of physical health than individual reports.

The Twitter data comprised thousands of tweets from 1,300 counties that contain almost 90 percent of the US population, and were matched with counties' epidemiological data which included heart disease mortality rates. The word *hate* and profane words were frequently linked to heart disease. The research could call more attention to the importance of psychological well-being in general health.

If greater amounts of data can be effectively gathered and tied to real health outcomes, social media will be an invaluable tool in psychological research. The use of social media outlets such as Twitter as a reflection of a community's psychological health may be especially useful in epidemiological studies which measure the success of interventions. Given the role of mental health in physical health, it is not surprising that there is such a strong connection between negative emotions and coronary heart disease.

"Capturing community psychological characteristics through social media is feasible, and these characteristics are strong markers of cardiovascular mortality at the community level," the researchers said.

Margaret Kern, an assistant professor at the University of Melbourne and contributor to the study, said, "Psychological states have long been thought to have an effect on coronary heart disease. For example, hostility and depression have been linked with heart disease at the individual level through biological effects. But negative emotions can also trigger behavioural and social responses; you are also more likely to drink, eat poorly and be isolated from other people which can indirectly lead to heart disease."

Source: University of Pennsylvania

Image Credit: Flickr

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