"Is Exercise Contagious? Peer Effects in a Global Health Behavior"

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Abstract:
We leverage naturally occurring exogenous variation in weather patterns across geographies to identify and characterize social contagion in exercise behaviors across a global social network. We estimate these contagion (or peer) effects by combining daily global weather data, which creates exogenous variation in running behaviors among friends, with a fine-grained dataset that records the social network ties and daily exercise patterns of 1.1 million individuals who ran 350 million kilometers in the Nike+ fitness tracking network between 2009 and 2013. Our analysis shows that exercise is socially contagious and that its contagiousness varies with the relative activity of and gender relationships between friends. Less active runners influence more active runners, while the reverse is not true. Men are influenced by both men and women, while women are only influenced by other women. We also find that while the Embeddedness and Structural Diversity theories of social contagion explain the influence effects we observe, the Complex Contagion theory does not. These results suggest that interventions designed to account for social contagion and human health interdependence will spread behavior change in networks more effectively than policies that ignore social spillovers.