

People's tweets predict their decisions

People spend a lot of time on the internet: they write on social media, shop for products, listen to music, and click on ads. In my research with Dr. Phillip Wolff at Emory, I ask how much these incidental activities may reveal about people's psychology, especially focusing on people's writing on social media.

It seems clear that your social media posts should reveal your explicitly held attitudes. For example, if you write a lot about sports, you may be a person who likes sports. Less clear, however, is whether your social media posts could reveal deep facts about your psychology, even though you never explicitly wrote about them. Others have found that your social media posts may be predictive of your personality (Youyou, Kosinski, & Stillwell, 2015) and whether you have a mental illness (Eichstaedt et al, 2018), even if people never explicitly wrote sentences such as "I am an extravert" or "I am feeling depressed." Building on these results, we asked whether your social media posts might be predictive of your decision-making.

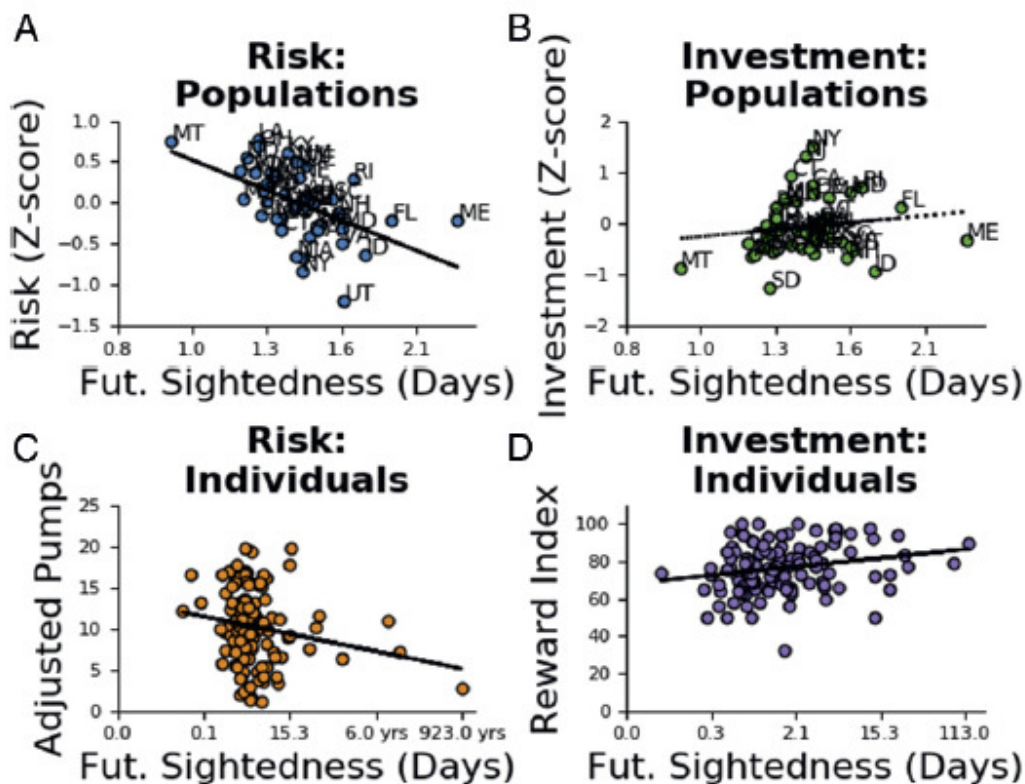


Fig. 1. Relationship between future sightedness and decision-making. (A and B) Future sightedness and decision-making at the population level (study 1). (C and D) Future sightedness and decision-making at the individual level (studies 2 and 3). Horizontal axes are log scaled. (Thorstad R, Wolff P, PNAS, 2018)

First, we asked people to play decision games where they chose between rewards (or potential risks) in the present and future. We asked those same people for access to their tweets. We found that the text of people's

tweets was predictive of their decisions. In particular, we found that people who tended to tweet about the distant future – had a long *future temporal horizon* – were more likely to wait for future rewards, and were more likely to avoid future risks.

Second, we generalized these results beyond individuals to US states. US states can be thought of, collectively, as having decision-making preferences. For example, we aggregated a number of public policy variables to determine the relative level of risk taking in the state, and the relative level of investment in the future in the state. We also mapped the average future temporal horizon of each state based on an analysis of several million geo-located tweets. As with individuals, we found that states with a longer future temporal horizon were more conscious of future risks, although we did not find a relationship with investment behavior in states.

Third, we capitalized on the fact that social media posts extend over time to ask about the stability of future thinking in people's tweets. We found that the distance people tweet into the future is partly a stable trait, as evidenced by increased consistency in temporal horizon of two tweets from the same person, compared to two tweets from different individuals. Nevertheless, we also found that the distance people tweet into the future is partly a malleable state, as evidenced by the fact that as two tweets from the same person became further separated in time, they were less similar in their temporal horizon. In other words, temporal horizon is both a state and a trait.

Together, we think these results show that your tweets can reveal deep facts about your psychology, even when you do not explicitly reveal these facts. Specifically, we found that your tweets were predictive of your decisions, for both individuals and US states. One direction we are currently exploring is whether your writing on social media can be predictive of mental illness. Another direction we are exploring is whether your writing on blogs can reveal the basic mechanisms people use to think about the past and future. The hope is to build a psychological science based on everyday online behavior, in effect “data mining the mind”.

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Publication

[A big data analysis of the relationship between future thinking and decision-making.](#)

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