

Why is folk medical knowledge rarely useful?

Lessons from online medical product reviews

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Until the late 19th century, cumulative cultural evolution in medicine rarely produced treatments that benefited anyone besides the doctor. This apparent lack of adaptive, beneficial innovations makes medicine an unusual domain of human cultural evolution and raises interesting questions about the conditions in which beneficial/harmful cultural variants emerge and diffuse. Here, I use a dataset of >3,000 online medical product reviews to explore how biases in (A) how people evaluate the usefulness of medical treatments and (B) how these evaluations are shared with other people undermine the evolution of effective therapies. The results indicate that (A) physiological changes that occur after the treatment (e.g., feeling energised after a weight loss pill) play an important role in people's determination of the treatment's value. However, often such physiological changes are not predictive of the desired outcome (e.g., weight loss). (B) People with good outcomes are more likely to share information with others. For example, approximately 90% of online reviewers of weight loss diets have a better outcome than the mean outcome in a clinical trial of the same diet. Thus, ineffective treatments can be culturally successful when they capitalise on people's bias toward sharing "good news stories" or when they generate surrogate effects which people use as evidence of efficacy. Moreover, processes that undermine the usefulness of the medical scientific literature (surrogate outcomes and publication bias) also operate to undermine the usefulness of medical knowledge generated by cumulative cultural evolution in non-scientific contexts.