

“The dipherpox controversy”: The cultural evolution of a vaccine-related narrative and its influence in vaccine decisions

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Although vaccines have been enormously successful in controlling infectious diseases, vaccination has often been the subject of controversy. The origins of vaccine controversies are often the claims of some parents and some medical experts who are convinced that vaccines have seriously harmful outcomes (e.g. brain damage). These controversies often negatively affect the rates of vaccination coverage, which, in turn, lead to outbreaks of infectious diseases. The present study experimentally simulated the cultural evolution of a vaccine controversy using a transmission chain paradigm. Participants ($N=64$) were exposed to positive and negative views regarding a vaccine for a fictional disease (“dipherpox”) which were held by either a parent or a doctor. Participants recalled this information and their recall were transmitted along chains of 4 generations. Participants were also asked whether they would be willing to vaccinate against dipherpox or not. The personal experience-based view held by the parent was better transmitted than the expertise-based view held by the doctor. Importantly, the transmission advantage for the information attributed to the parent did not interact with their stand on the controversy (pro-vaccine vs anti-vaccine). Moreover, the exposure to the controversy caused a considerable number of participants (39%) with neutral or positive attitudes towards vaccination to decide not to vaccinate. People with neutral or slightly positive attitudes towards vaccination were more likely to decide not to vaccinate. The present findings have consequences for vaccination campaigns, suggesting that vaccination campaigns may be more effective by including personal experiences about the diseases vaccines prevent. The results also provide further support for an emotional bias in cultural transmission but suggest that this is true of both positive and negative content.