

Correspondence

Anti-vax: the history of a scientific problem

Keywords COVID-19, Public health, vaccination

The term ‘Anti-vax’ is one of the most notable recent additions to the Oxford English Dictionary,¹ even though resistance to immunization is not a new fact. It always existed even before the development of the first vaccine. Kalichman *et al.*² offer a critical analysis on vaccine mistrust discussing the historical public perceptions and concerns about vaccines prior and after COVID-19. It is important to note that the anti-vaccination movement dates back to 1796 when the English doctor Edward Jenner introduced the smallpox vaccine.³ This vaccine reduced the number of deaths caused by smallpox and in 1979 the disease was officially eradicated. Looking into the vaccine history timeline, the term anti-vax was initially used in the early 1800s to describe the smallpox vaccine hesitancy. In fact, the origin of the word vaccine comes from the Latin word *vacca*—in English cow. During this time, cowpox matter was used to produce an immune response against the deadly smallpox disease. Despite the worldwide successful vaccine history, several political parties and religious groups joined the anti-vaccination movement challenging the scientific credibility of the vaccines mainly criticizing its origins.

Although COVID-19 vaccine made real advancements saving countless lives, there are still many key counter factors endangering collective immunization. Understanding human behaviors will better prepare us to respond effectively to the next future epidemics and/or pandemics.³ Governments and science will continue to play critical roles supporting the development of groundbreaking research, collaborating to advance the production and the easy access and distribution of vaccines. Considering the history of humanity, misconceptions about immunizations will remain as a threat to global health; regardless the innumerable empirical evidence confirming the efficacy of the vaccines.⁴

Innumerable challenges remain that are not only related to the vaccine production, supply and distribution to resolve the global health crisis caused by SARS-CoV-2.⁵ Research on vaccines is paramount to expand our knowledge on immunizations but examining the epistemological positions of anti-vax groups is also key in this process. Until now, it is well known that immunizations are the world’s safest method to prevent diseases. People against immunizations represent a relevant

part of the global population and examining the negative attitudes towards vaccines should be included in the world’s scientific agenda. The movements against vaccines not only have a negative effect on collective immunization, such as the decrease in vaccination rates, but they also influence the decision-making process of those questioning the safety and effectiveness of the vaccines. In light of the growing number of anti-vaccine groups, the movements should not be underestimated as a simple resistance response against vaccines but rather they should be acknowledged as a legitimate and complex scientific problem requiring further cultural and transdisciplinary research.

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<https://doi.org/10.1093/pubmed/fdac048>