

Health & Physiology

Did the Justinianic Plague kill millions of people in antiquity?

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ABSTRACT

A plague pandemic reached the Roman Empire in the sixth century. Did it contribute to its fall? An interdisciplinary methodological approach provides new answers to an old question.



Plague in an ancient city.

Image credits: Los Angeles County Museum of Art - Michael Sweerts (1618, Brussels - 1664, Goa)

The Justinianic Plague (circa 541 to 750 CE), also known as the first plague pandemic, has recently featured prominently in scholarly and popular discussions. The existing consensus attributes to the Justinianic Plague millions of deaths. The pandemic's first outbreak in the Mediterranean (circa 541-544) is said to have killed between a quarter and half the population of the Mediterranean world. Seventeen subsequent appearances of plague often called "waves", washed upon Mediterranean shores over the next couple of centuries, causing more deaths and suppressing population levels. This suggests that the plague weakened the Roman Empire and played an important role in its fall. Although these extraordinary claims demand extraordinary

evidence, little – direct or indirect – exists. We attempted to evaluate the potential demographic effects of the Justinianic Plague using interdisciplinary methodologies.

We pursued two methodological approaches. The first examined all the historical texts that appeared in a recent near-comprehensive catalog of ancient plague outbreaks. We reasoned that if the plague was an unparalleled catastrophe at the time, the ancient texts would describe it in detail. We then evaluated the texts for each of the eighteen waves, rating them based on the level of detail in which they described the disease (detailed plague symptoms, a

single symptom, no symptoms). We also counted the number of words each used to describe the plague.

A second methodological approach attempted to look for plague in additional types of historical evidence. We reasoned that if plague really did kill a substantial amount of the population of the empire, we would be able to find evidence for such drastic depopulation in different social and economic indicators. We selected quantitative datasets (a previous paper-covered qualitative evidence) that were mostly or entirely independent from each other. We strongly preferred data that could be dated precisely to a specific year. The latter requirement allowed us to compare trends before and after the onset of the plague, as we surmised that any obvious change might be associated with the onset of the plague through proximity in time. The datasets we analyzed included, among others, the number of inscriptions (often building dedications, an indicator for economic activity) produced across the Mediterranean, papyri from Egypt (administrative and personal documents), coins found in archaeological excavations (an indicator of economic activity), laws (argued to be an indicator of government activity) multiple burials (the internment of more than one human in the same grave; plagues are often associated with more multiple burials), and even ancient pollen from lakebed sediments (an indicator for agricultural activity).

Our first methodological approach was the analysis of the historical texts that referred to the plague. It revealed that most texts that referred to the plague used very few words and described little to no symptoms. This evidence suggests that these authors did not pay much attention to the plague. There is hardly any evidence for the plague outbreaks in the seventh and early eighth centuries.

Although the sixth and mid-eighth century "waves" have more evidence, the vast majority of surviving texts written in these periods do not refer to the plague at all. These findings seem in conflict with the interpretation of the Justinianic Plague as an event of unprecedented mortality.

The analysis of the diverse datasets, our second methodological approach, pointed to the same conclusion: in no case did the onset of the Justinianic Plague coincide with a change in trend. Inscriptions and papyri continued to be written, and coins continued to circulate, in similar quantities before and after 541. We found that multiple burials began to increase in frequency well before the Justinianic Plague's onset, suggesting that it did not cause them. We found no change in cereal pollen, which we interpreted to mean that agriculture continued as previously.

Drawing upon the results from both our methodological approaches, we concluded that any demographic effects plague might have had were inconsequential. Plague's effects appear to have been local and spatially uneven rather than empire-wide and uniform. Certain cities sustained major outbreaks, while many others did not. We, therefore, rejected the existing consensus that the Justinianic Plague was a major driver of demographic change in the sixth century, casting serious doubt on attributing to it a role in the fall of the Roman Empire. More broadly, the case of the Justinianic Plague reveals both the potential and the challenges in interdisciplinary work. No single scholar or discipline could have gathered and analyzed the diverse datasets we used to make a much stronger argument. At the same time, however, this type of interdisciplinary research is also much more difficult to critically review and discuss.