Abstract

Over the course of several published documents on the topic of biological and computer viruses, an analogous relationship was formed. This relationship was founded on Fred Cohen's paper *Computer Viruses: Theory and Experiments* which identified computer programs with malicious intent and self-replication capabilities as "computer viruses." This definition was generated because of a computer virus' biological methods of attack. The definition was later applied by Dr. Jeffrey O. Kephart to issues of cybersecurity and computer protection; his work defined the fields of computer virus epidemiology and immunology. This study looks to further utilize this analogous relationship in the creation of a framework of new factors to consider.

To establish this framework, data on infectious disease growth was found. This data was centered on malaria, a vector-borne disease, and geographically focused on the Democratic Republic of Congo. Initial factors were focused on the following categories: socioeconomic, environmental, and global/external. The data collected for each variable was tested for correlation. From the correlative variables, analogous relationships were made in a computer-based context. Finally, based on data availability, analogous variables were tested for correlation and proved to affect computer viruses.

Overall, the data has shown a correlation with Malaria propagation largely in socioeconomic and external categories, but this was not as present in the environmental category. This led to the analogous variables being mostly centered around how biological viruses are affected socioeconomically and externally rather than environmentally leading to a more direct framework with more realistic opportunities.