

---

**BLESSING OGBUOKIRI**, York University

*Vaccine Hesitancy Hotspots in Africa: An Insight From Geotagged Twitter Posts*

Many social media users express concerns about vaccines and their side effects on Twitter, leading to a compromise in confidence that results in vaccine hesitancy. In Africa, vaccine hesitancy poses a significant challenge for health policymakers in the battle against COVID-19. By leveraging the geotagging feature available in most tweets, it is possible to cluster them based on their sentiments, thereby facilitating the identification of locations that are more likely to experience vaccine hesitancy. This information can be valuable for health policy and planning purposes. In this study, we collected 70,000 geotagged vaccine-related tweets from nine African countries, spanning from December 2020 to February 2022. These tweets were categorized into three sentiment classes: positive, negative, and neutral. We employed various machine learning classifiers, namely Naïve Bayes, logistic regression, support vector machines, decision tree, and K-nearest neighbor, to achieve high-quality classification outputs. Among these classifiers, logistic regression demonstrated the highest accuracy, reaching 71%, with an average area under the curve of 85%. To determine the hotspots, we employed a point-based location technique that utilized the geographic information associated with the classified tweets. On the resulting map, locations with green, red, and gray backgrounds indicate hotspots for positive, negative, and neutral sentiments, respectively. The outcomes of this research highlight the potential of analyzing social media discussions to identify hotspots during disease outbreaks. This valuable information can inform health policy, aiding in the planning and management of vaccine hesitancy in Africa.