Neysha R. Pacheco Colón
GEOG 640
February 27, 2019

Title: A Systematic Review of the Physical Health Impacts from Non-Occupational Exposure to Wildfire Smoke
By: Jia C. Liu, Gavin Pereira, Sarah A. Uhl, Mercedes A. Bravo and Michelle L. Bell

There has been an increase of wildfires events so there is a need to research about the health impacts that wildfire smoke has in expose and vulnerable population. This article used criteria search as a methodology to select peer-review studies related to this. They wanted to find a gasp in literature and suggest what can be done in a future research. Searching for articles establishing criteria and themes allow to narrow down and find important information of what the researcher is interested in. For this article, they only include studies written in English and Portuguese. This may have affected the type of information they collected for the review.

This article used methods to summarize, compare and organize other research's findings. One method is to create a table that cite articles along with themes and findings for each theme (see table 1). The other method is to compare results from each article using a common unit or statistical language for the results and plotting them in a graph (see figure 1). This methodology allows to discover if there are gaps in the published articles.

They found that the most common wildfire smoke related health impact was respiratory disease (see table 2). Other health effects can be caused during or after the wildfire event. Some of the methods to analyze exposure to wildfire smoke are land-based air pollutant monitors and satellite-based imagery or models. Most studies showed that the U.S. EPA regulations for the particulate manner (PM2.5) were exceeded during or after wildfire events (figure 1). Pollutants in the air are affected by wind speed and direction, as well as, atmospheric conditions. This article suggested that there is a need to find methods to detect wildfire smoke-specific pollutants. They suggested future studies could use chemical transport models, dispersion models and satellite base models to better analyze wildfire smoke.

The most vulnerable population to wildfire smoke exposure are children, elderly and people with low socio-economic status. People with pre-existing respiratory diseases and weak immune systems are more susceptible. They argued there is a need to study wildfire smoke exposure and health impacts for places like Sub-Saharan Africa and Southeast Asia. They explained that these regions are considered less developed without the necessary health care infrastructure and resources to deal with wildfires. They also suggested there is a need to study multi-episode wildfire events and larger geographies to have a sociodemographic variation and help policy makers locate most vulnerable populations. They concluded with the need for research to project future health impacts of wildfire smoke for better awareness and mitigation.