**IMPACT’S OF WILDFIRES ON HUMAN HEALTH**

**Introduction:**

Wildfires have been a major problem across the world and especially in USA since many decades. Thousands of acres of wilderness and many residences are lost each year by fires that can erupt at any time of year due to a variety of factors such as arson, lightning, and debris burning. Wildfires are uncontrolled fires that rage through natural regions such as woods, grasslands, and prairies. These dangerous fires spread swiftly and can wreak havoc on people as well as wildfires and natural regions.

The goal of my project is to see how the wildfires have the impact on the health of the People. In this project I have taken the data of the wildfires and the health conditions of the people of Idaho state in the USA. This project will tell you about the major reasons for the causes of the wildfire in the state of Idaho and symptoms of the people in that state and how they are present against the gender, income, and outdoor activity of the people. This will give us the good overview of how the fires caused in the forest and natural wildlife is causing the health problems in the daily life of the common people.

Some of the things that I will be showing here are different fires occurred in the state, often causes of the wildfires, symptoms of the people due to wildfires, how symptoms and outdoor activity are related, temperatures of the location before and at the time of wildfire, symptoms of the people due to wildfires against the gender of people.

**Methodology:**

**Data for this project was taken from different sources. The data for the details on the fires is taken from Kaggle (**<https://www.kaggle.com/capcloudcoder/us-wildfire-data-plus-other-attributes>**). The details of the health effects on the people is taken from Springer Nature (**<https://springernature.figshare.com/collections/A_Dataset_on_Human_Response_to_Wildfire_Smoke/4316795>**). The details of different locations of the fires is taken from Kaggle (**<https://www.kaggle.com/aestheteaman01/278k-us-wildfires-due-to-lightning-2004-2015>**).**

**The data from these sources have the following attributes that I have used in the projects:**

1. **fire\_name**
2. **stat\_cause\_descr**
3. **latitude**
4. **longitude**
5. **state**
6. **discovery\_month**
7. **Gender**
8. **Symptoms**
9. **how often would you say you’ve engaged in the outdoor activities**
10. **Income**

**I have used 3 datasets and combined them using the column “State” which is common in all the datasets. Each dataset has different information about the wildfires and its effects.**

Diagram

Description automatically generated

**Analysis:**

**Q1. No of Fires caused through the year**

Chart, line chart

Description automatically generated

**From the above visualization we can see the no of wildfires in each of the month. We can see that we have most no of wildfires in the month of August which is 500. We can also see that the minimum no of wildfires is seen in Feb and Nov which are 1.**

**Q2. Causes of Wildfires**

Chart, pie chart

Description automatically generated

**From the above visualization we can see that most of the wildfires are caused due to lightning which is 68.24% of the total causes.**

**Next to it is the Equipment use which is 8.89% of the total causes.**

**Q3. No of People having different symptoms**

Chart, bar chart

Description automatically generated

**From the above we can see that most common symptom due to smoke of wildfires is Itchy or watery eyes.**

Chart, bar chart

Description automatically generated

**In the above visualization we can see the symptoms against the gender of the patients.**

**Q4. Symptoms caused and the outdoor activity relation**

Chart, bar chart

Description automatically generated

**In the above visualization we can see that:**

1. **The people who do the outdoor activity every day has the most no of symptoms than the other people.**
2. **Also, the people who do the outdoor activity once per week has the headache as the most common symptom.**

**Q5. Change in the temperatures when there is a wildfire**

Chart

Description automatically generated with medium confidence

**From the above visualization we can see that mostly the temperature when there is wildfire is greater than the temperatures 7 days prior to it.**

**Q6. Symptoms of the people relation with their income**

Chart, bar chart

Description automatically generated

**From the above visualization we can see that:**

1. **For income $25000 or less the headaches are the most common symptom.**
2. **For income $25000 to $49999 Itchy or watery eyes is the most common symptom.**
3. **For income $50000 to $74999 Itchy or watery eyes is the most common symptom.**

**Q7. Relation between temperature of the location due to wildfire and time taken to put out the fire.**

Chart, histogram

Description automatically generated

**In the above visualization we can see that around the 40 days the temperature rose to the highest. Also, initially we can see that as the days increases the temperature increases.**

**Q8. What is the average age of the patient of an individual symptom?**

Chart, line chart

Description automatically generated

**From the above visualization we can see that the irritated eyes symptom has the highest average age of 40. Also, the symptom headaches have the least average age 33.**

**Conclusions:**

**After analyzing all the questions, we can see that the health of the people living in the area of the wildfires in the state of Idaho is being affected. From the plots it is evident that the lightning is the major cause for the cause of the wildfires is lightning. The other things that we can see are the most common symptom in this region is itchy or watery eyes. Through of the year the august month has the most no of wildfires. These are the things that is evident that the wildfires has the major impact on the health of people living near them.**

**Some additional questions that we can have is to predict the wildfires and take the needed precautions before happening. The places where we have more wildfires, and more smoke can have more fire officers near me. Also, by having the data of methods stopping the wild we can find the most effective method of stopping the wildfire.**