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Effects of PM_{2.5} on People's Health and Ways to Prevent It

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Abstract: Recently, there are tremendous environmental problems in our world whichhave been caused either by nature itself or by human activities; for instance, volcanic eruptions, wildfires, transportation, construction and demolition. All of the above are contributors that have resulted in air pollution, including Carbon dioxide, Carbon monoxide, Nitrogen oxide, Sulfur oxide, Volatile Organic Compounds, dioxide and furans, and particular matters(PM) which are PM_{10} microns and $PM_{2.5}$ microns. Focusing on $PM_{2.5}$, which is also known as fine particles with an aerodynamic equivalent diameter less than or equal to 2.5 µm in ambient air, can affect human health in alternative ways, thus this type of pollution must be seriously taken into account and society must find solutions to prevent it.

Keywords: Environmental problems, PM_{2.5}, Human health, solution, prevent

1. Introduction

This paper will focus on the effects of $PM_{2.5}$ which can easily travel through the respiratory system and accumulate in the lungs. Also, this paper will also focus on effective ways to prevent ourselves from it. These fine particles can result in short-term health problems ranging from sore throat to coughing, nose bleeding and shortness of breath and develop to long-term health problems such as asthma, allergies and lung cancer. A growing number of recent studies show that $PM_{2.5}$ not only affects the respiratory tract but also affects the cardiovascular system. This is because both systems are cooperative. Moreover, such studies have said that patients with common lung disease are more likely to develop to cardiovascular disease.

2. Methodology

This paper reviews and refines from literatures and studies from provable sources with the aim to understand the root of $PM_{2.5}$ problems that affect on human health and find effective solutions to solve it. This is due to the fact that $PM_{2.5}$ has been a continuing problems for the last few years. Moreover, we made a survey about what people were affected by this particular matter and how they solved it.

In addition, we have made tables and details from the survey in order to collect data and others' perspectives about $PM_{2.5}$. To conclude everything up we used these data with the information from other researches to find the most effective solution.



Pie chart 1: Effects by PM_{2.5} on people health

From the pie chart above the respondents mostly had a difficulty breathing (31%), following with the allergies with a percentage of 23. Coughing came as the third place that the respondents chose (17%), sore throats was expressed by 13%. Fatigue is one tenth from all of the symptoms (10%). Furthermore, nose bleeding, others, and asthma accounted for 3%, 2%, and 1%, respectively.



Pie chart 2: Solutions that people chose to do to prevent themselves from PM_{2.5}

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A majority of the respondents chose to wear masks with a percentage of 50. About one fourth of them installed an air filter in their house (26%). Surprisingly, more than one fifth of them chose to stay at home (22%). A tiny minority of the sample groups used other ways to prevent themselves from the particular matter.

3. Discussion and Conclusion

According to the surveys, it shows that the majority of the respondents faced withdifficultly breathing when the $PM_{2.5}$ crisis had been happening and wearing a mask is what most people chose to solve this problem. However, the effects on human health are still occurring. Since the mask has a limiting time of use and are used incorrectly, also such selfish people may use this crisis as their ways to get advantages from others by selling masks at an expensive price that not a bunch of people could afford it. These results show that wearing a mask is not the best solution to prevent people from being affected by $PM_{2.5}$. In conclusion, restricting transportation and construction, integrating policies on urban planing and encouraging people to follow the health-care policies should be takeninto account in order to reduce and prevent people the from $PM_{2.5}$ crisis.

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