

NAME: YAKUBU ZAINAB.

COURSE: GST 122

DEPARTMENT: PHARMACY

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#### AIR POLLUTION AND ITS HEALTH HAZARD.

Air! One of the basic constituent of human life, we breathe in atmospheric air hence when the air is polluted then there are lot of effect and complications that affect the human health. Air pollution is the release of harmful or hazardous substances into the atmosphere which causes destructive effect and deterioration to the ecosystem. Air pollution affect health in various ways; from respiratory disease to cancer and then death in some cases. It is caused by both human intervention and natural phenomena. Air pollution can be caused by solid, liquid and gaseous particles that are suspended in the air. These particles and gases comes from burning of refuse, exhaust from factories and vehicles, dust, soot and wildfires. The solid and liquid particles emitted into the air are called aerosols. Aerosols enters the air when particles such as; coal, wood and petroleum substances are burnt.

In Nigeria, the rate of air pollution is very high due to so many factors such as; citing factories at residential areas, exhaust from vehicles and companies and burning of refuse openly. Smoking of cigarette is also a cause of air pollution apart from affecting the health of the smoker it can also affect the health of the non- smoker in the environment; Studies show that continuous inhalation of cigarette smoke can lead to all form of cancer, but most commonly lung and breast cancer. A lot of measures have been put in place to prevent this but it is not being followed by individuals.

Continuous exposure to air pollution is associated with stress and inflammation of the human cells which is carcinogens and can lead to chronic disease such as cardiovascular diseases, diabetes mellitus, obesity, reproductive disorder, neurological disorder, immune system disorders, neuropsychiatric complications, eyes irritation and skin diseases. Air pollution can also deplete the ozone layer which can lead to acid rain and some type of radiations that is dangerous to the health.

Air pollutants are the substances that are released into the atmosphere which causes pollution. Air pollutant can be of two types which are; primary and secondary. The primary pollutants are the substances that directly cause the pollution e.g. the emission of sulphur- dioxide  $\text{SO}_2$  from factories and the secondary pollutants are formed by the mixture and reaction of two primary pollutants e.g. the mixture of smoke and fog to make smog.

According to the World Health Organization (WHO), the six major air pollutants which causes harm to the human health are: Particle pollution, Ozone ( $\text{O}_3$ ), Carbon (II) oxide (CO), sulphur oxides, lead and nitrogen oxides. All this pollutants have their various short and long side

effects. In most cases the long side effect is death. Particle pollutants is the mixture of particles found in the air. It is linked with most pulmonary and cardiac diseases and can lead to premature death in people with lung and heart problems. It can lead to severe illness such as aggravated asthma, heart attack and cardiac dysrhythmias.

Carbon (II) oxide or CO is a colourless gas produced by fossil fuels. When carbon (II) oxide is inhaled it can lead to CO poisoning which symptoms include Headache, Nausea, dizziness, weakness, vomiting and loss of consciousness. Ozone (O<sub>3</sub>) is a colorless gas which is a major constituent of the atmosphere. O<sub>3</sub> leads to increased risk of respiratory diseases especially asthma, DNA damages and biochemical alterations. Sulphur Oxide is a colourless highly reactive gas emitted from fossil fuels and industrial processes. Sulphur oxides leads to skin and lung diseases. The major health condition associated with the prolonged exposure to sulphur oxide is respiratory irritation and aggravated cardiovascular diseases.

Nitrogen Oxides are ambient air pollutants which leads to the increased risk of respiratory infection, coughing, wheezing, nose or throat irritations, headache and pulmonary edema. Lead is a heavy metal that is used in various industries. It is usually emitted from motor engines and can affect vital organs in the body. It is also a powerful neurotoxicant that can lead to mental retardation, learning disabilities and antisocial behaviour in children.

Most cancer are caused by the continuous inhalation of these poisonous gas. Studies show that most cases of people with lung cancer are those who smoke cigarette continuously or those who consume smoked or grilled food frequently. Research shows that women who lives or work near the main road side have a high risk of getting breast cancer.

Air pollution has a greater effect on children. The prolonged exposure to air pollution can lead to short-term respiratory infection which reduces the activities of the child. Research shows that children who lives near the main road or in high ozone and does outdoor sports have an increased risk of getting asthma. Also, children that are exposed to air pollutants are more likely to develop bronchitis. Women are also at greater risk of developing health problems with the continuous exposure to air pollution apart from getting breast cancer, it can also jeopardize the life of their child if pregnant. Prenatal exposure to air pollution can lead to low birth weight, increased risk of giving birth to an autistic child, Neurobehavioural disorder in child and increased risk of high blood pressure. In other adults, continuous exposure to air pollution can lead to physical disabilities, memory problems and Alzheimer disease.

Air pollution can be solved or prevented in many ways such as; treating of industrial or factory waste before depositing it into the air, inserting of pollutant capturing bags in the chimneys on buildings, siting factories far away from residential homes, use of biogas, the use of incinerators and proper disposal of waste, use of high fuel efficient engine vehicles, promulgation and enforcement laws against air pollution.

Treatment of industrial or factory waste should be encouraged to remove the chemicals and toxic particles in the waste before depositing into the air. Key performance indicators (KPI) should be set as monitoring standards for industries and factories to cross-check their levels of compliance with the Government or agencies regulations. If the industries and factories adhere to

the regulations, air pollution would be reduced or neutralized before disposing the waste into the air and un-harmful to the human health. Inserting of chimneys on buildings will help to prevent air pollution by depositing waste high in the air that will be out of the human reach but affecting the ozone layer. Modern chimneys are built with filters and bags to trap dust and particle pollutant present in the polluted air.

When factories are cited far away from residential buildings, it helps to reduce the risk of many lives being in danger; if industries are situated far from residential buildings, the polluted air coming from the factories would not be able to affect the health of many instead it will only be the workers' health that will be at risk and with proper safety measures such as personal protective equipment will be able to protect their health.

Biogas is a renewable source of energy that helps to reduce greenhouse effect. It prevents the emission of greenhouse gases into the atmosphere. Biogas plants help to lower methane emissions by capturing the harmful gas and using it as fuel and help to reduce the use of coals and fossil fuels. Waste should be destroyed in an incinerator or it should be properly arranged and kept for the waste collector. If this is done by residents there would be a reduced rate of burning of household refuse openly or causing wide fires.

Vehicles should be in perfect condition before using it on the roads. If vehicles engine are in proper working condition, there would be no emission of noxious gases or smoke from the exhaust thereby reducing air pollution on the road. Office workers should also be encouraged to use public transport system to reduce the numbers of cars on the road and also reducing the exhaust from many vehicles.

The Government should promulgate and enforce laws against air pollution and should ensure that it is followed through and any violator of these laws should be punished severely. The FRSC should ensure the safe running of vehicles on the road and should seize any car that emits gases or smoke above the set standard from the exhaust and any individual that is caught burning refuse openly or causing a wildfire should be fined or imprisoned or both should be applicable. If all these measures are put in place and are followed through strictly, lives would be saved and the human lives expectancy will increase significantly.