



Climate change hurts health

The abnormal changes in our planet's climate due to human activity is having a significant impact on human health.

The doctor says DR MILTON LUM

CLIMATE change refers to long-term shifts in temperatures and weather patterns.

These shifts may be natural, such as through variations in the solar cycle.

The Earth's temperature today is 1.1°C higher than in the late 1800s.

The decade 2011-2020 was the warmest on record.

Since the 1800s, human activities have been the main driver of climate change.

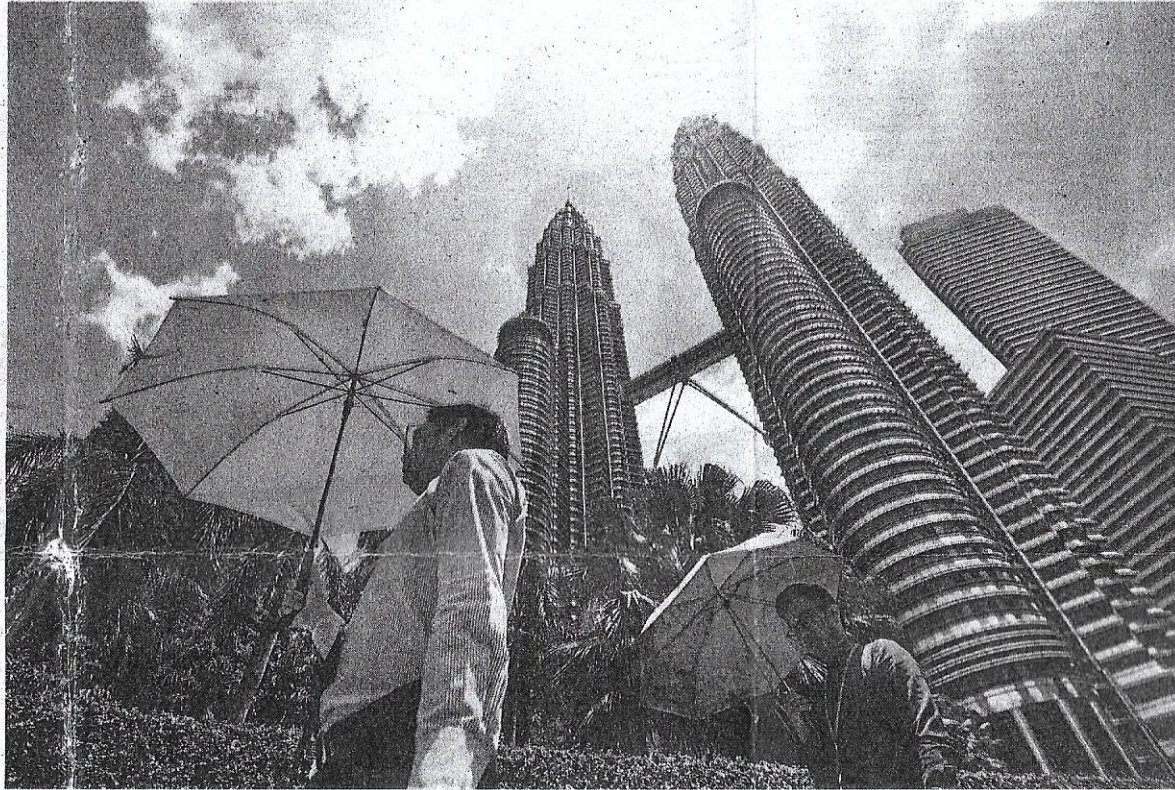
This is mainly due to burning fossil fuels like coal, oil and gas, which generate greenhouse gas emissions that trap the sun's heat and raise temperatures.

Such greenhouse gas emissions include carbon dioxide and methane.

The former comes from using gasoline for driving vehicles, coal for heating, and clearing land and forests.

Landfills for garbage are a major source of methane emissions.

Energy, industry, transport, buildings, agriculture and land use are among the main emitters of greenhouse gases.



A higher atmospheric temperature means more and prolonged heat waves, which can cause heat stroke, dehydration, and heart, lung and cerebrovascular diseases. — Photos: Filepic



Any changes in an individual's physical health or environment can impact on their mental health, especially with extreme weather events that may result in the loss of loved ones or their home.

Individuals with pre-existing mental illness are vulnerable to extreme heat, with thrice the risk of death during heat waves, as some of the medicines they take makes it more difficult to regulate body temperature.

Some groups are more vulnerable to mental health impacts, e.g. children, senior citizens, the pregnant, those with pre-existing mental illness and emergency staff.

The impact of climate change on mental health is complex, differs greatly, and can be direct or indirect, short or long-term, with different timings.

The link between climatic events and mental health has led to new terms proposed recently, e.g. eco-anxiety, eco-guilt, ecological grief and so on.

New diseases

A modelling study published in the *Nature* journal on Apr 28, projects that climate change will force new encounters between animals and boost viral outbreaks.

It predicts that over the next 50 years, climate change could drive more than 15,000 new cases of mammals transmitting viruses to other mammals.

The increased encounters between species capable of swapping pathogens will occur most often in species-rich ecosystems at high elevations, particularly in Africa and Asia, and in densely

impact on healthcare delivery.

Those with disabilities may be disproportionately affected because of difficulty in accessing evacuation efforts or limited communication ability.

Waterborne illness

Sickness can follow from exposure to contaminated drinking or recreational water.

include warming temperatures, changes in precipitation (rain), increases in frequency or intensity of extreme weather events, and rising sea levels.

The severity of these health risks depends on the public health and safety systems that address or prepare for these threats, and factors like individual behaviour, age, gender and economic status.

Impacts will vary depending on a where a person lives, their sensitivity to health threats, their exposure, and how well they and their community adapt to change.

The most vulnerable are those in developing countries and the disadvantaged in all countries.

Temperature impacts

Warmer temperatures will lead to hotter days, more frequent and longer heat waves, and an increase in heat-related deaths.

Exposure to extreme heat can lead to heat stroke, dehydration, and cardiovascular, respiratory and cerebrovascular disease.

Heat waves are also often accompanied by periods of stagnant air, leading to increases in air pollution and its associated health effects.

Air quality impacts

Climate change affects indoor and outdoor air quality.

Warmer temperatures and shifting weather patterns lead to asthma attacks and other respiratory and cardiovascular health effects.

Wildfires, which are expected to continue to increase in number and



Climate change can affect the natural nutritional content of foods like rice, making them less nutritious.

severity, create smoke and other unhealthy air pollutants.

Rising carbon dioxide levels and warmer temperatures also affect airborne allergens like pollen.

Scientists project that warmer temperatures will increase the frequency of unhealthy levels of ground level ozone – a harmful air pollutant and a component in smog.

Ground-level ozone can damage lung tissue, reduce lung function and inflame airways.

This can aggravate asthma or other lung diseases, increase hospitalisations and premature deaths.

Particulate matter refers to a category of extremely small particles and liquid droplets suspended in the atmosphere.

Some particulate matter like dust, wildfire smoke and sea spray occurs naturally, while some are created by human activities.

These particles may be emitted directly or be formed in the atmosphere from chemical reactions of gases like sulphur dioxide, nitrogen dioxide and volatile organic compounds.

Inhaling fine particles can lead to chronic obstructive pulmonary disease (COPD), cardiovascular disease and lung cancer.

Tobacco smoking is a major contributor to air pollution.

The toxic products released into the air increases the risk of exposure of everyone in the room.

It has been estimated that secondhand smoking is responsible for 1.2 million premature deaths annually worldwide, in addition to causing cardiovascular and respiratory diseases.

An Italian study reported that three cigarettes caused 10 times more pollution than a diesel car exhaust.

Extreme weather

The increased frequency or severity of some extreme weather events like extreme precipitation, flooding, droughts and storms, threaten human health during and after the event.

The ways in which human health is affected include reduction of available safe food and drinking water; damaged roads and bridges that disrupt access to healthcare facilities; interruption of communication, utility and healthcare services; increase in waterborne diseases; creation or worsening of mental health; and contribution to carbon monoxide poisoning following improper usage of portable electric generators.

Evacuations from areas impacted by extreme weather events may

effects of storms.

It affects exposure to waterborne pathogens, i.e. bacteria, viruses and parasites; toxins produced by harmful water organisms; and chemicals that end up in water from human activities.

Extreme weather events and storm surges can damage or exceed water infrastructure capacity and increase the risk of exposure to contaminants.

The health impacts may include gastrointestinal illness, effects on the nervous and respiratory systems, or liver and kidney damage.

Food safety

Climate change and higher atmospheric carbon dioxide concentrations can affect food safety and nutrition.

Extreme weather events can also disrupt or impair food distribution.

Higher air temperatures increase bacterial growth that cause gastrointestinal diseases, and in severe cases, death.

There are various impacts that may increase exposure to chemical contamination of food, e.g. higher sea temperatures lead to higher mercury levels in seafood, and introduction of food contaminants through stormwater runoff.

Higher carbon dioxide concentration in the air lowers protein and essential mineral levels in crops like rice, wheat and potatoes, thereby reducing their nutritional value.

Mental health

2070, creating virus transmission hotspots.

This increased likelihood of viruses jumping between species could trigger more outbreaks, posing serious threats to human and animal health, i.e. more pathogens will jump from animals to humans in the coming decades.

In short, it will not only be hotter, but humans will be more likely to get sick.

In summary, the impacts of climate change on human health are varied.

According to the World Health Organization (WHO), climate change is expected to cause approximately 250,000 additional deaths annually, from malnutrition, malaria, diarrhoea and heat stress, between 2030 and 2050.

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