A PUBLIC HEALTH APPROACH TO CLIMATE CHANGE IN THE UK

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THE UK CLIMATE IS CHANGING STRIKINGLY.

The UK climate has been warming for the last decades and extreme heat events are becoming increasingly frequent, long-lasting, and intense.[1] The top 10 warmest years since 1884 have occurred since 2002, whilst the top 10 coldest years happened prior to 1970.[1] In July 2022, the record-breaking temperatures reached above 40°C in the southeast of England. In 2023, we had the hottest June and September on record, with a 7-day heatwave breaking the record for the longest run of days exceeding 30°C in September. If it was not for the jet stream that kept high pressures over Europe, we could have experienced similarly extreme and prolonged heat to central and southern European countries. Besides unprecedented heatwaves, we have seen warm spells more than doubling in length in recent years (from 5.3 days in 1961-90 to over 13 days in 2008-2017), especially in South East England (from 6 days in 1961-90 to over 18 days in 2008-2017). Overall, these stark statistics compellingly demonstrate that our climate is warming at fast pace.

CLIMATE CHANGE IS A KEY CONCERN FOR THE PUBLIC.

It is, thus, unsurprising that climate change is currently the second biggest concern facing adults in Great Britain after the cost-of-living crisis, which is, at least partially, due to climate change.[2] Furthermore, 3 in 4 adults say that rising UK temperatures is the biggest impact of climate change they expect to experience by 2030, with 2 in 3 adults concerned about the impact of heat on themselves.[3] The public acknowledges that many people lack information about their risk and are unprepared to cope with heatwaves, particularly those who are likely to be the most vulnerable.[3]

CLIMATE CHANGE ADAPTATION VERSUS MITIGATION

Climate change mitigation means avoiding and reducing emissions of heat-trapping greenhouse gases into the atmosphere to prevent the planet from warming to more extreme temperatures. Climate change adaptation means altering our behaviour, systems, and – in some cases – ways of life to protect our families, our economies, and the environment in which we live from the impacts of climate change. The more we reduce emissions right now, the easier it will be to adapt to the changes we can no longer avoid. Mitigation will take decades to affect rising temperatures, so we must adapt now to the climate change that is already upon us and will continue to affect us in the foreseeable future.

THE HEALTH CONSEQUENCES OF CLIMATE CHANGE ARE ALREADY EVIDENT.

The increasingly hot summers are already having a negative impact on population health in the UK, particularly in southeast England.[4] The heatwaves in June-August 2022 caused about 3,000 excess deaths, which was the highest number in any given year.[5] Women, adults over 45, young children, and people from a low socioeconomic status and with pre-existing illnesses have an increased risk of death.[6] Heat is also causing non-fatal illness, especially cardiovascular, respiratory and mental diseases.[7,8] Furthermore, heatwaves have been causing significant disruption to NHS services, for instance, by increasing hospital admissions and leading to cancellations in elective care.[4,9] Competing priorities, inappropriate facilities and equipment may all limit the ability of the NHS to cope with heat.[10]

THE NEAR FUTURE WILL CERTAINLY BE HOTTER THAN THE PRESENT.

Even if the most ambitious plans for reducing greenhouse gas emissions are achieved, which is unlikely considering current trends, we are most likely going to breach 1.5°C of global warming within this decade.[11] The Met Office demonstrated that human-caused climate change has set hot-day extremes in the UK on a course towards temperatures that would be too high to be observed in the natural climate and new records are expected in coming years, particularly in the southeast of the UK.[12,13] In all assessments of heat-related impacts using different climate change scenarios, the health consequences of hotter temperatures both in terms of morbidity and mortality are expected to increase. According to the Climate Change Committee, excess deaths due to heat are expected to rise from the current 3,000 per summer to about 7,000 with a 2°C increase in average global temperatures and 13,000 if we

reach a 4°C increase in global temperature.[14]

WE NEED TO ADAPT FAST TO OUR INCREASINGLY HOT CLIMATE.

Our vulnerability as population will depend on our ability to design and implement strategies for effective, sustainable, and equitable adaptation to climate change.[15] Population ageing and the increasing prevalence of long-term conditions will increase our heat vulnerability.[16] Therefore, promoting healthy ageing and addressing risk factors to prevent poor physical and mental health are key public health strategies to reduce heat vulnerability.

In addition, the natural and built environments where we work and live influence the temperature we experience indoors and outdoors. For instance, green spaces, such as parks, have a cooling effect in urban environments and may reduce heat-related deaths.[17] Reflective roofs protect from solar radiation and hence reduce heat exposure in buildings.[18]

Besides increasing our heat resilience at individual and structural level, protective behaviours (e.g., using fans, drinking water, immersing feet and hands in cold water, closing windows and blinds during the day and opening at night) can help us cope with extreme heat events.[19] However, the most heat-vulnerable adults do not consider themselves at increased risk or adopt protective behaviours.[20] Therefore, we need to target communications, interventions, and resources to the most heat-vulnerable groups.

As other public health crises, climate change is exposing and exacerbating existing health inequalities in our society. People experiencing deprivation are not only more likely to have long-term conditions that increase their individual vulnerability but also less likely to have the resources to protect themselves from heat (e.g., lack of access to green spaces). Therefore, we need to apply proportional universalism to our public health response to climate change, and heat in particular. This means that we need to provide support and resources to everyone in proportion to their need, which may depend on different vulnerability factors, such as their health or socioeconomic circumstances.

ADAPTATION ALONE IS NOT ENOUGH – WE CANNOT ENDLESSLY ADAPT TO CLIMATE CHANGE.

Importantly, our ability to adapt to heat and build resilience in our population and environment is not limitless. Limits to adaptation are deeply contextual, i.e., they are shaped by individual vulnerability and context-specific socioecological resilience, both of which are distributed unequally in our population. We are already experiencing extreme heat that is unbearable to the human body and the ecosystems on which our lives depend. As the planet continues to warm, we will be increasingly confronted with intolerable impacts of climate change, especially if we surpass 1.5°C or even 2°C average global warming. Therefore, we need to invest on reducing our greenhouse gas emissions swiftly and effectively across all sectors to avoid the catastrophic consequences of breaching adaptation limits.

CLIMATE CHANGE IS AN UNPRECEDENTED OPPORTUNITY TO BUILD A GREENER, HEALTHIER, AND FAIRER SOCIETY.

Climate mitigation by transitioning to sustainable lifestyles and green energy sources offers numerous co-benefits, such as improvements in population health, economic prosperity, technological development, and energy and food security. For instance,

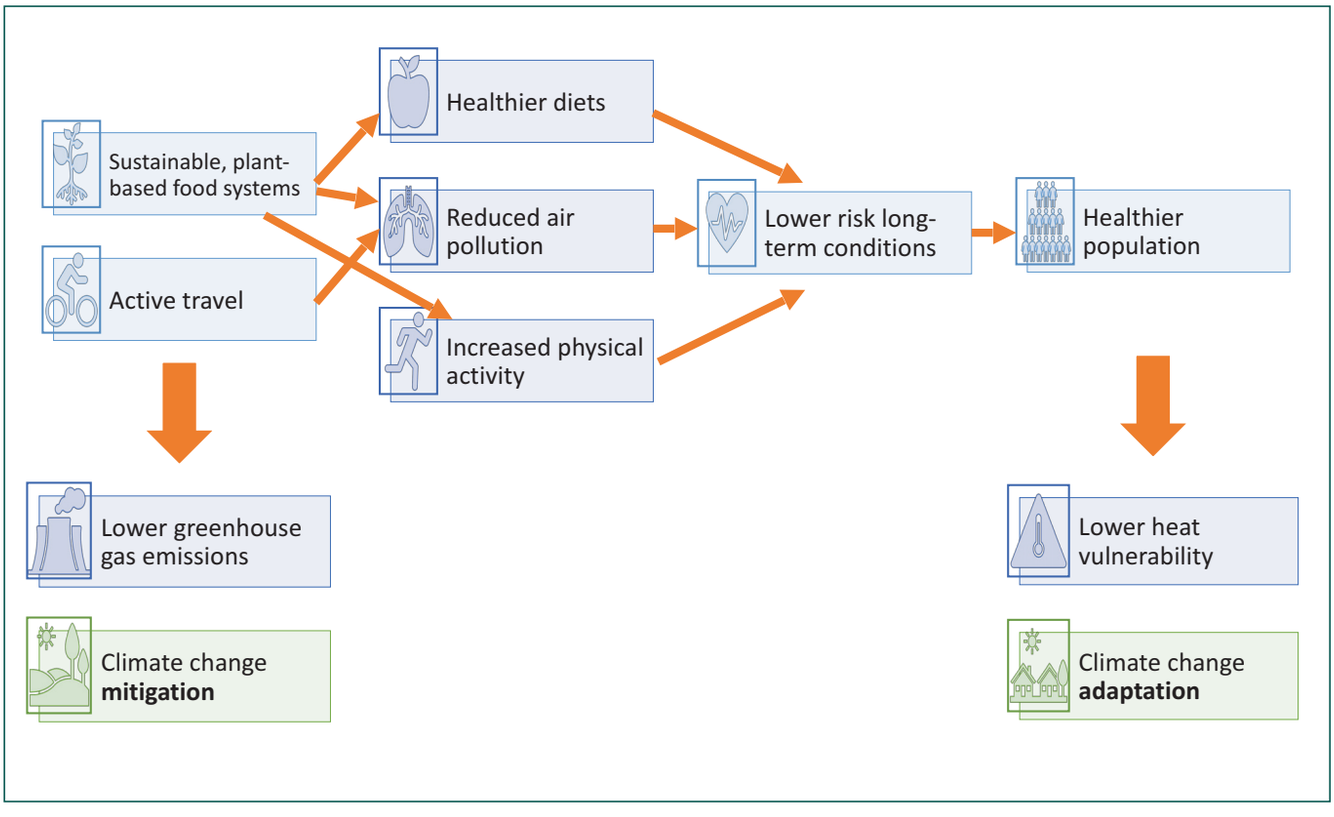

Figure 1: Climate change mitigation contributes to climate change adaptation as the health co-benefits of mitigation improve population health, thus reducing heat vulnerability.

electrification of vehicles and switching from car usage to public and active transport (e.g., walking, cycling) reduce air pollution and increase physical activity, hence improving physical and mental health and reducing the burden on the NHS associated with many long-term conditions.[21] Switching to plant-based diets, with significantly lower intake of meat and dairy, not only reduces greenhouse gas emissions and land use but also improves population health, preserves and protects natural ecosystems, and promotes biodiversity.[21] Besides the health co-benefits, climate mitigation has broader benefits that ultimately improve population health in the UK, thus contributing to our heat resilience (Figure 1). Renewable energy generated in the country reduces our reliance on imported fossil fuels, thus increasing energy security and lowering the cost of energy, which has been a major contributor to the cost-of-living crisis.[22] The future low-carbon economy offers the opportunity for the UK to become a world leader in the development, production, and distribution of sustainable technologies, thus creating new jobs and leading to economic growth.[22] Reducing our greenhouse gas emissions will contribute to lowering the risk of climate-related disasters and conflicts worldwide. Besides fulfilling our global responsibility, this may reduce forced displacement and migration to the UK.[22]

The climate crisis is a public health crisis that requires concerted efforts across all sectors of the UK society and strong cross-party political leadership. Our response to the climate crisis can either promote sustainable development and population health or threaten the lives and livelihoods of current and future generations.

KEY MESSAGES

- The climate crisis is a public health crisis.
- Climate change is already having a serious impact on population health in the UK.
- Some groups in the population may be particularly vulnerable, such as older adults, children, pregnant women, individuals with long-term conditions, who work outdoors or experience homelessness.
- Climate change is exacerbating health inequalities as socioeconomic disadvantaged groups in the population are particularly vulnerable to heat due to their health and working and living conditions.
- Adaptation to increasingly hot temperatures involves both individual (i.e., behaviour change) and structural approaches (e.g., changes to the built environment).
- Adaptation is not endless and needs to be coupled with mitigation.
- Transitioning to sustainable lifestyles and economies has co-benefits across multiple sectors, such as health, economy, or security.
- The health co-benefits of climate change mitigation increase heat resilience in the population.
- Our response to climate change needs to consider inequalities and support the most vulnerable in our society.

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