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Mental Health Diplomacy and Psychopolitics for Population at Risk: A One-Health Reflective Consideration from the Southern Hemisphere of Asia

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Background

In 2023, Indonesia was ranked as the most polluted country in the Southeast Asia region. Around the mid of 2023 (July – August), the residents of the capital city of Jakarta were required to observe the air quality index due to the intense air pollution during that period. The poor air quality contributed to the decrease of life span by 1.4 years (Nafas, n.d.). In addition, almost 30 million population of older adults call Indonesia their home (Statistik, 2023). Moreover, the general temperature was expected to be warmer due to the climate change process, overlapping with and potentially accelerated by the amounts of high-density pollutants in the air. As someone gets older, there will be significant bodily function changes (Zuelsdorff & Limaye, 2024). Exposure to pollution (through air, food, and water) could accumulate as toxins in the body, responsible for multiorgan failure, a serious medical condition, especially in older adults (Kribel-Gasparro, 2022; Zuhra, 2024). Air pollution and climate change in Indonesia are caused by industrial activities and transportation emissions (World Health Organization, 2021).

This paper is intended to effectively communicate the harmful effects of industrial activities on human health. Human health, as defined by the World Health Organization, is not merely entitled to the state of freedom from disease (World Health Organization, 2021). It is about well-being, the balance of physical and psychological health in humankind. However,

Highlights

Indonesia has experienced a 2.7 degrees Celsius warmer climate due to pollution and climate change.

Majority of countries in the Asian region experience higher temperature change due to climate change and pollution.

The general population is at risk of suffering the health consequences of pollution, however, older adults are especially the most vulnerable due to the biological and physical changes.

Years 2021 – 2023 (after the COVID-19 pandemic and lockdown procedure ended) saw a dramatic change in air pollution levels in the capital city of Indonesia (Jakarta) along with other satellite cities.

Despite the health risks from pollution exposure, Indonesian older adults are still struggling to get their basic health needs covered and treated.

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the latter is prioritized less in terms of policy and regulation-making. While many are dealing with it, the impact will be widespread. The terms eco-anxiety and solastalgia, are some terms used to describe the relationship between environment and psychological well-being. All populations residing in an affected area are affected by the impact, including older adults. In addition to the risks from environmental change, the older population is at risk for developing several mental conditions including depression, dementia and mild cognitive impairment (Wearing, 2013). To date, these cases prevalent among older adults are 28%; 60% and 15% respectively (National Institute of Mental Health, n.d.). Concerning the mental health policy prioritization, older adults are considered less prioritized in terms of health regulation. The objective of this paper is to highlight the impact of climate change on the health of the older adult population, and potential actions to consider.

The Aging-Polluted World

The world we live in is very dynamic and has aged for billions of years. Various processes and interactions of the environment, animals and humans who are living in the same ecosystem have always taken place. This is an ongoing cohort process, causing changes and fluctuations in the environment. The ecological disruption is responsible for the physical effects captured by our senses, including the heat, weather, food and water sources, drought and humanitarian conflict.

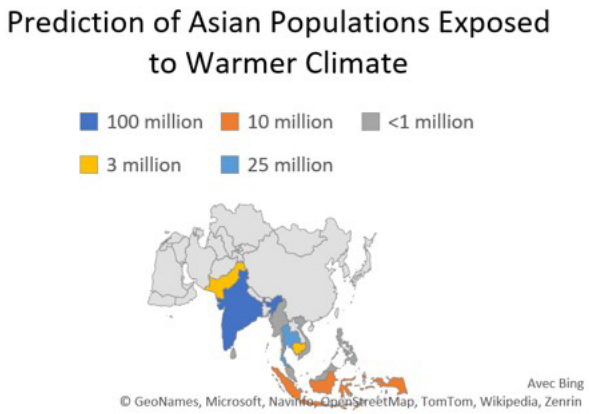
Climate change is one of the concrete examples of how civilization has contributed to several situations that are harmful to others. Emissions of gases, fires and human activities of producing carbon are some of the contributing factors for the heat (Lenton et al., 2023). The earth is getting older and warmer, and so is the human population. By 2050 it is predicted by the World Health Organization that almost 250 million older adults will face challenges caused by heat. This particular situation is currently considered a global health challenge (World Health Organization, 2021).

> 2022: More than 9000 cases of heat-related deaths during summer in Europe were among people between ages 65-79

Impact of Climate Change on Human, Physical, and Mental Health

Fine particulate matter (PM 2.5) is a tiny chemical component that can penetrate the human organ system through inhalation followed by flow through the blood vessels. Though small, the pollutants are a complex mixture of elements containing organic, chemical reactions and chemical compounds. The combination of these materials is harmful to the human body. The more complex the composition, the more damage caused to the body.

Due to its small size, these particles can be deposited into bodily tissue, such as in the lungs and kidneys. Another process is also activated when the particle is distributed into the cells, causing the immune cells to respond. The activation of the body's immune system at the same time will have a secondary impact on human health (inflammation, chronic



Adapted from: Lenton, 2023

Adapted from: NAFAS Indonesia

infection, and organ tissue damage). This process could take place in various locations and organs in the body, including the brain and central nervous system (Zuelsdorf, 2024).

When the inflammation process occurs in the brain, the impact will be more significant, involving the neurological system. Especially in the older adult population, this process will be chronic, due to the longer exposure per their biological age. It is postulated that prior exposure to pollution will increase the likelihood of someone having dementia manifestation later in their course of life. (Wearing, 2013; Dawson et al., 2023). This indicates the vulnerability of older adults to being exposed to pollution on a daily basis.

Another aspect to consider is the greenhouse effect caused by the density of pollutants in the atmosphere, increasing the basal temperature on the ground. The fluctuation of the earth's temperature will impact crop production and the flow of the wind and current all over the world. The melting icebergs, flash floods and landslides are some reminders of how serious the impact of climate change is to the environment (Lenton et al., 2023; Falchetta et al., 2024).

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Older adults are vulnerable because they are heavily impacted by climate change and global warming due to their ageing process. This includes disruption in thermoregulation, limited mobility, prior chronic medical conditions, and frailty, which may affect the balance of bodily functions, especially when dealing with weather and climate unpredictability (Gamble et al., 2013; Kriebel-Gasparro, 2022). In addition, older adults may deal with the indirect social impact of natural disasters induced by climate change, including threats to the food and water supply chain, forced displacement, collective trauma, and social isolation (Two Hundred and Fifty Million More Older People, 2024). On the contrary, these conditions are not supported by adequate infrastructure of healthcare service delivery, inducing physical and mental conditions in the population.

The threat of pollution on older adults' health is just one of many examples of hazardous situations that might take place, including social and economic instability, emerging and re-emerging infectious diseases and other non-communicable diseases due to prolonged exposure to pollutants (Hougan et al., 2010). Various factors have to be considered to prevent or reduce the impact of climate change and pollution: housing location, health and social service availability, and other supporting facilities. To ensure a supportive system is in place, strong commitment from all stakeholders is required (World Health Organization, 2021).

Rights of Older Adults Population

The consequences of prolonged exposure to pollutants will increase the risk of chronic non-communicable diseases among older adults, such as dementia. The disruption of behaviour and mental state will require comprehensive treatments for older people living with dementia. Integration of technology through remote monitoring and care facilities will compensate for the devastating effects on health experienced by families and societies. For this stance, pre-emptive action should be taken to promote early screening and detection (Dawson et al., 2020).

In addition to the degenerative condition, the older population may experience loneliness and depression, which may require routine intervention and monitoring. As well as needing medications for their mental conditions, older people will potentially need other medications for their physical condition as well. Therefore, routine medication follow-up should be integrated into the basic health care service delivery for the beneficiaries (National Institute of Mental Health, n.d.).

Primary physical conditions due to the ageing process should be considered and prepared for in advance. The pre-existing physical conditions will increase the vulnerability of the population for their health to be heavily impacted by climate change. Respiratory conditions, diabetes, hypertension, and cardiovascular disease may interfere with the body's thermoregulation system. As a consequence, they may suffer from dehydration and sudden changes in body temperature, increasing the mortality rate. Early interventions and prompt treatments are necessary for people with comorbidities (Gamble et al., 2013; Kriebel-Gasparro, 2022).

Finally, older adults may experience some limitations in terms of mobility and neuro-sensory functions. In Asian countries, around 30% of the older adult population may experience

physical immobility due to medical conditions. It is reported that 20% of Asian older adults may experience multiple sensory impairments (Gopinath, 2013; Yeo, 2025). This may impact the way older people receive information and communicate with the rest of the world. Therefore, specific adjustments should be made to ensure adequate information delivery among the older society.

While the literacy rate among older adults in Asia is still around 40-70%, increasing societal awareness through information and education is essential (Rajah, 2019; Lee, 2022). Those two are powerful investments to protect our parents and grandparents and to experience a fulfilling and meaningful life as is everyone's dream. Specific tools and modules for climate resilience among older adults could be developed to promote their well-being (Kemiskinan, 2020).

Stringent and systematic health regulation is required to promote societal awareness regarding the impact of climate change on human health, particularly on older adults

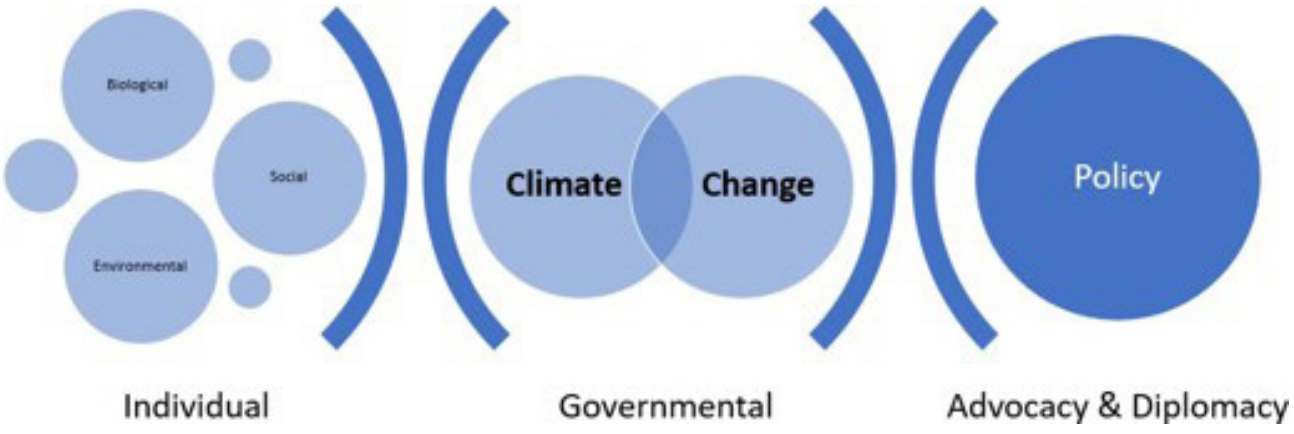
Call for Action

Addressing the potential challenges in global health crises requires action and strong political commitment from the stakeholders. Stringent and systematic health regulation is required to promote societal awareness regarding the impact of climate change on human health, particularly on older adults (Richard, 2024). Strategic regulation is required to amend the limit of industrial and anthropologic activities that might contribute to climate change (Lenton et al., 2023).

Collaboration with the public health apparatus is essential to build mutual understanding and commitment and to implement policies for the benefit of the beneficiaries (Dawson et al,m 2023). A national insurance system should support and cover the health conditions related to climate change and air pollution, especially for older adults residing in the highest polluted areas (Falchetta et al., 2024). In 2023, the Indonesian government released a new law for health, which stipulated, in Governmental Act number 28, that provincial and regional authorities' involvement in the public health agenda is imperative (Kemiskinan, 2020).

Climate change and air pollution are serious and life-threatening conditions. They can have catastrophic impacts on the ecosystem, livestock and humankind. Specific tools are required to give step-by-step directions for thorough and straight-to-the-point actions. The instruments should capture the impact, and urgency of the situation, the negotiation processes and the stakeholders involved (Mostajo-Radji, 2022). Collaborative and innovative approaches should be exercised to help foster promotive and preventive action against climate change and air pollution.

Leveraging technology through digitalization will expand the coverage of health service delivery to the population at risk. Advancements in technology could be utilized to creatively visualize the impact of climate change and air pollution on health, raising societal participation to limit carbon footprints. Artificial Intelligence is a promising future in creating an early warning system for climate change impacts (World Health Organization, 2021).



Finally, strengthening the current health system through primary health care services should be promoted and optimized for public health education. This includes comprehensive and integrated healthcare services for the older adult population and raising societal awareness about climate change's impacts on people. Adequate training for healthcare workers, health district officers and other stakeholders is essential to address the well-being of older populations through sustainable and relevant actions (Hougan et al., 2010).

Conclusion

Climate change and air pollution have been considered major threats to brain health among the older adult population, especially in developing countries in the southern hemisphere, including Indonesia (Achieving Equitable Healthy Aging, 2023). Therefore, a call for action is indicated to foster policy implementations for this specific population. In addition to the environmental factors, the ageing process alone could contribute to the manifestation of mental health conditions, including dementia. The latter is a chronic process and having a pre-emptive action is imperative, including developing an early warning system and early case detection. Considering the progressivity of climate change and global warming, robust and innovative approaches are recommended for the stakeholders to protect the future of our society and nation.

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