



## **Deterioration of Public Health in Asia: Key Contributors from Lifestyle Choices to Socio-Economic and Environmental Challenges.**

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### **Abstract**

The situation in Asia mirrors many challenges in the health sector that exist in a broader context due to its large size and population. The prominent causes of the deterioration of public health in Asia are malnutrition, inadequate living conditions, weak financial background of the family, different environmental factors, all kinds of pollution, a load of work on a person, accessibility of the services for health care, high birth rate, low facilities, smoking, and many toxic substances. A shortage of the basic requirements of life, such as water, safe food, and clean air, also disturbs public health. The massive rise in population leads to many communicable and non-communicable diseases, and sometimes, it results in the death of a person. The combined pressure of all these factors is more vulnerable to health. It is essential to note that many of these issues are preventable through proper preventive measures. Signs of deterioration of public health are physical fatigue, unusual changes in the behavior of a person with time, elevated aggression, loss of hope, desire to commit suicide, and mental strain. Investment in the health sector is essential and urgent because it is crucial in boosting a country's economy by directly increasing man's working capacity by improving health.



Keywords: Environmental challenges, Public health, Climate change, Food insecurity, pollution, Industrialization, Economic burden

## Introduction

Deterioration of health is a gradual but often subtle process that affects a person's physical and mental health over time (Dewa *et al.*, 2018; Hodge *et al.*, 2023). It is crucial to detect the early signs of mental health decline (Dewa *et al.*, 2021; Mansoor & Ansari, 2024), which include abnormal alterations in behavior, increased aggression, loss of hope, suicidal thoughts, and mental stress (Younger, 2016). Similarly, the symptoms of degradation of physical health include excessive depression, weight gain, discomfiture, and declining health-related quality of life (Sands *et al.*, 2017; Wang *et al.*, 2020; Younger, 2016). Notably, the risk of developing physical disorders is significantly higher among individuals with mental illnesses than in the general population (Doherty & Gaughran, 2014; Luciano *et al.*, 2021). People with severe mental illnesses are at a greater risk of death and shorter lifespans (Porter *et al.*, 2018).

A country's economic development is deeply interconnected with people's health and happiness. Poor public health drives up healthcare costs and puts financial pressure on the country by decreasing individual productivity. This decline in productivity imposes additional burdens on economies. Therefore, improving public health is vital to a country's economic growth (Asia, 2021; Nilsson *et al.*, 2021; Unsal *et al.*, 2018; Watts *et al.*, 2021). Asia comprises nearly 40% of the world's total area (Li *et al.*, 2020). With its vast size and high population density (Nguyen *et al.*, 2018), this continent is Earth's largest (Phua *et al.*, 2020), and most densely populated landmass, with most people living in its coastal area (Marks *et al.*, 2020). This region has unique socioeconomic and biological diversity (Rasul, 2021; Shrestha *et al.*, 2022; Soenarta *et al.*, 2020). It is a hub for enhancing the global economy and supply chain through trade, manufacturing, and services. About 25% of the world's GDP comes from this region (Umar *et al.*, 2020). Its climatic conditions fluctuate wildly, from subtropical conditions in Chinese Taipei, continental in northern China, and moderate in Japan and Korea (Forman *et al.*, 2008). Asia's huge population and wide climatic range have induced many challenges for its health and economic sectors. The combined effects of accelerated industrialization, changing climate, and excessive resource consumption have intensified environmental challenges (Leipe *et al.*, 2019; Usman & Balsalobre-Lorente, 2022). The existing poverty and population density in the region makes it so that even minor alterations in land areas can cause serious social concerns (Yigezu Wendimu, 2021). South and Southeast Asia are home to around 60.9% of the world's hungry population. Many Southeast Asian farmers are already struggling to survive and lack the means to adjust to climate change. Countries with high population density and weak economic growth are at risk from extreme climate change (FAO, 2017; Ng *et al.*, 2018).



Countries with dense populations and low economic growth are at risk of being affected by climate change (Ng *et al.*, 2018). Climate change has a significant impact on health through a rise in extreme weather events (Heydari *et al.*, 2023; Li *et al.*, 2020). In August 1996, Chinese Taipei faced an outbreak of bovine ephemeral fever (BEF) caused by an increase in midges following a typhoon. Again, flooding caused by Typhoon Nari on September 6, 2001, resulted in a dengue fever outbreak (Forman *et al.*, 2008; Kappes *et al.*, 2023). These incidents confirm the effects of harsh weather on public welfare and health (Ren *et al.*, 2020).

This article aims to analyze the primary factors that are causing the decline in public health across Asia, with a specific emphasis on economic growth, environmental shifts, and social circumstances. It also aims to study the impact of fast industrialization, climate change, and dense population on personal health and economic security. Review objective is to provide a comprehensive understanding of these challenges. It will offer useful guidance for policymakers and health professionals to improve public health outcomes and guide practical steps in the field.

## Material and methods

This study on “Deterioration of Public Health in Asia: Key Contributors from Lifestyle Choices to Socio-Economic and Environmental Challenges” is a collaborative effort by researchers from multiple institutions. All references were recognized utilizing all sources available on the internet, i.e. Google Scholar, Scopus, Web of Science, and Science Direct. The data sources were the Ministry of Public Health, peer-reviewed articles, reports, and publications related to the deterioration of public health. The keywords and phrases in this article were environmental changes, air pollution and associated infection, agricultural contamination, water-borne illness, flooding impact, public health and pollution, water obtainability, and water quality regarding Pakistan and countries with similar environmental border circumstances.

## Result

Current evidence shows that many environmental factors, including access to nutritious food, clean water and adequate sanitation, influence public health in Asia. Living conditions during early childhood, citizenship status, cultural heritage, family support systems, gender and language ability also play a critical role. In addition, professional status, emotional ties and social position influence public health outcomes (Aceves-Martins *et al.*, 2022; Caracuel *et al.*, 2020; Castro-jim *et al.*, 2020).

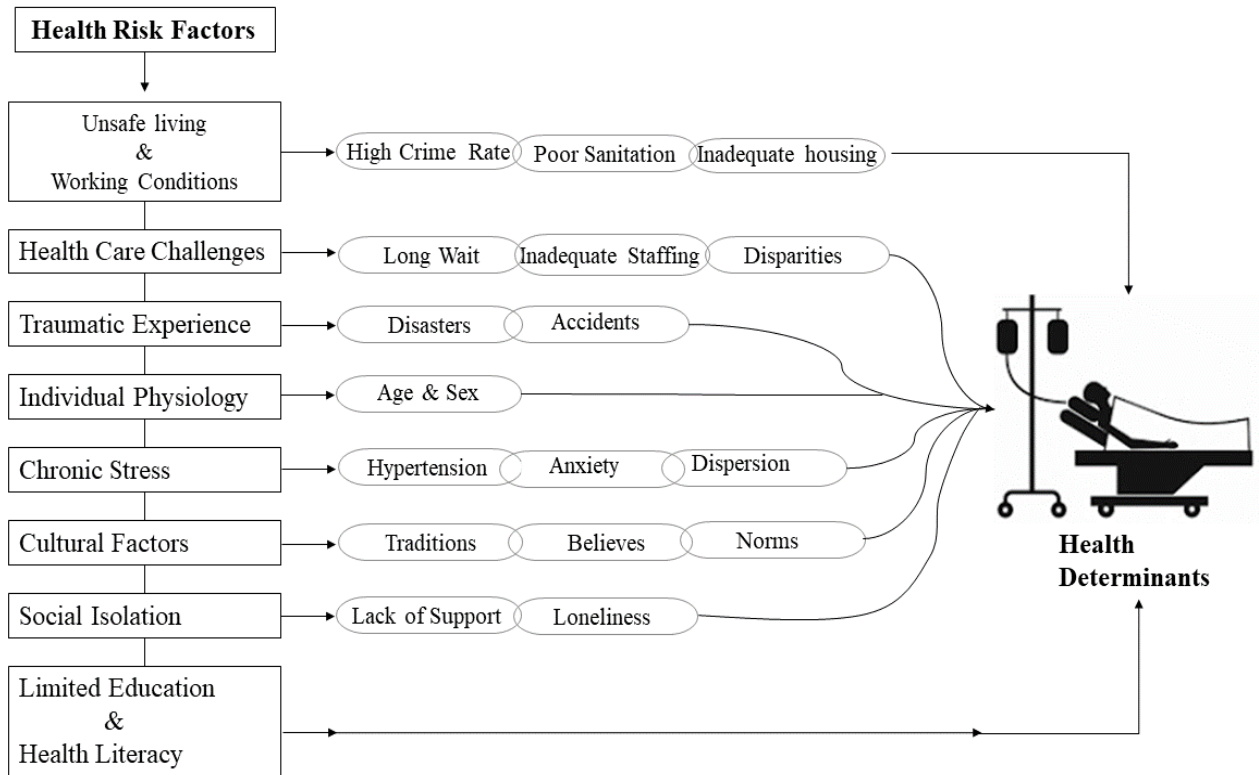


Fig1: Factors affecting public health

## Accessibility to Food and Water

Good health depends on good nutrition. Insufficient exercise and a poor diet lead to an energy imbalance and have negative effects on overall health and fitness(Aceves-Martins *et al.*, 2022; Caracuel *et al.*, 2020; Castro-jim *et al.*, 2020). The expanding population is putting immense pressure on food supplies (Fukase and Martin, 2020; Miladinov, 2023), making it impossible to meet the demands of a fast-growing population (Farasat *et al.*, 2023). Limited access to proper food is a fundamental characteristic of food insecurity (Babu & Gajanan, 2022; Ellison *et al.*, 2021), which is associated with chronic diseases like diabetes, and cardiovascular, and kidney diseases, in addition to increased medical costs(Jia *et al.*, 2021). Food problems are becoming severe because the trade in food products has crossed international borders (Bonuedi *et al.*, 2020; Tibebu *et al.*, 2024) . In the market, saving food and food products from bacteria and other chemicals is essential to avoid diseases (Gizaw, 2019).



Freshwater, similarly to food, is a life-sustaining resource (Setegn, 2015; Sharma, 2009), which accounts for 3% of the total water on Earth (Musie & Gonfa, 2023).

However, only 0.01% of this freshwater is accessible for human use (Ottoni *et al.*, 2023). The quick increase in population and the unsustainable use of water in industry and agriculture put more strain on these limited freshwater resources (Azizullah *et al.*, 2011). About 2 billion people have no access to safe drinking water. Contaminated water is responsible for 80% of diseases and 3.1% of deaths worldwide. It is crucial to note that water pollution is mainly caused by domestic sewage (75–80%) and (25%) industries (Haseena *et al.*, 2017; WHO., 2023).

Table1: Water related diseases

Category	Route Cause	Disease	References
Water-borne diseases	Drinking contaminated water	Typhoid, Amoebiasis, Giardiasis, Dirrhea, Gastroenteritis, Stomach cramps, Aches, Vomiting, Hepatitis, Ulcer, Poliomyelitis, Salmonellosis, Cholera.	(Fazal-ur-Rehman, 2019)
Water-washed diseases	Poor sanitation and hygiene	Fever, Bronchitis, Scabies, Asthma, Pink eyes, Endocrine disorders, Cancer, liver and Kidney disorders.	(Alabeed <i>et al.</i> , 2023)
Water-based diseases	Aquatic invertebrate parasites	Dracunculiasis, Paragonimiasis, Clonorchiasis & Schistosomiasis.	
Vector-borne diseases	Insects that need water to breed.	Malaria, Yellow fever, Dengue fever, Filariasis, Trypanosomiasis.	(Manetu & Karanja, 2021)

## Climate change

Climate change is a vital global challenge, affecting ecological systems and human lives (Uppal *et al.*, 2019; Weiskopf *et al.*, 2020). The agricultural sector is more susceptible to rising temperatures, varying rainfall patterns, and rising sea levels (Riyadh *et al.*, 2021). Climate has a significant impact on the water resources of South Asia, whereas Central



Asia's arid region relies on westerly winds for moisture. The mountainous region of high Asia has a range of weather Patterns (Williams *et al.*, 2017).

Table2: Climate change and its influences

Climatic factors	Potential Influences	References
Changes in temperature and humidity	Affect stability of the ecosystem, Economic loss, death, trauma, injuries, skin infections, changes in rainfall, storms, and hurricanes.	(Mikhaylov <i>et al.</i> , 2020; Mitchell <i>et al.</i> , 2016; Romanello <i>et al.</i> , 2022).
Heat wave	Heat exhaustion, heat syncope, heat stroke, cancer and death.	(Balbus <i>et al.</i> , 2016; Cheng & Huang, 2018; Guo <i>et al.</i> , 2015).
Flood	Injuries, Parasitic and vector-borne diseases, gastrointestinal illnesses, trauma, stress, nervousness, sadness, respiratory disorders, skin infections, migration, Agricultural losses, deaths, infrastructure damages, and other economic losses.	(Farah <i>et al.</i> , 2023; Haines & Ebi, 2019).
Droughts	Famine, environmental degradation, agricultural loss, undernutrition, mortality, mass migration, habitat loss, increase in vector-borne diseases such as malaria, dengue fever, and lyme diseases.	(Farah <i>et al.</i> , 2023; Romanello <i>et al.</i> , 2022).



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Wildfire	Coughing, wheezing, shortness of breath, asthma and other respiratory disorders. Irritation of eyes, stress, anxiety, trauma, injuries, and loss of property. (Ebi <i>et al.</i> , 2020; Nilsson <i>et al.</i> , 2021)
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## Environmental Pollution and Health Risk

Pollution has a significant role in the global spread of diseases and premature death (Sørensen & Pershagen, 2019). In 2015, pollution was accountable for 9 million premature deaths worldwide (Fuller *et al.*, 2022). This environmental issue stems from toxic substances, industrial activities, and waste production (Muhammad *et al.*, 2021). Pharmaceuticals in water pose health threats due to their tendency to accumulate in living organisms because of their lipophilic properties (H. K. Khan *et al.*, 2020). Air pollution is the degradation of the atmosphere by pollutants from various sources that harm life (Ajibade *et al.*, 2021). Almost nine in every ten people are breathing polluted air (Kurt *et al.*, 2016). About seven million people worldwide die annually due to air pollution. Alone in Asia, more than 2 million people (Taghizadeh-Hesary & Taghizadeh-Hesary, 2020), while in Pakistan, about 128,000 people die annually due to air pollution-associated complications (W. A. Khan, 2022).

Noise, specifically from traffic at night, is a prominent risk factor for cardiovascular and other health-related complications (Thomas Münzel, 2021) that can be short-lived or long-lasting (Gupta *et al.*, 2018). Like chronic stress, noise can harm general health and well-being (Stankov & Stepancev, 2022). It promotes oxidative stress in the vasculature and brain by interrupting sleep and raising stress hormone levels (Arregi *et al.*, 2024). The adverse effects of persisting noise include conditions such as hearing impairment, tinnitus, emotional stress, disrupted sleep patterns, hypertension, cardiovascular diseases, diabetes, headaches, accidents, and degrading residential, social, learning, and respiratory ailments (Jariwala *et al.*, 2017). The effects mentioned earlier can potentially contribute to elevating the risk of cardiovascular disease by causing vascular dysfunction, inflammation, and hypertension (Gupta *et al.*, 2018; Osborne *et al.*, 2020; Pyko *et al.*, 2023).

## Road Crashes and Injuries

Road traffic accidents and other injuries are among the major issues in the present world (Ahmed *et al.*, 2023; Goniewicz *et al.*, 2017; Hareru *et al.*, 2022). They lead to a concerning number of deaths and injuries annually (Gutierrez-Osorio & Pedraza, 2020). People of various ages and economic backgrounds are being affected by this widespread (Mohamed *et al.*, 2023). Daily, about 16,000 people worldwide die due to injuries, while



countless others live with lifelong impairments. Countries such as Bangladesh are particularly vulnerable to these crashes (Anjuman *et al.*, 2007).

### **Social determinants of health**

Social determinants of health are societal factors that impact individuals' living conditions, education, employment, and recreational activities (Alcaraz *et al.*, 2020; Turner-Musa *et al.*, 2020). These factors can potentially affect the community's overall health and well-being. The presence of socioeconomic implications can contribute to stress and raise the risk of domestic and community-based violence (Clayton *et al.*, 2017; Premji *et al.*, 2019; Sanson *et al.*, 2019). Exposure to violence affects the ability to take part in healthy performances (Lloyd, 2018).

### **Socio-economic factors**

Education and employment play a vital role in achieving financial independence and a purposeful existence (Hoorunnisa & Sharma, 2023), but long working hours result in sleep disruption, anxiety, heart problems, and depression (Afonso *et al.*, 2017). Limited education and gender disparities have detrimental effects on women's health (Azad *et al.*, 2020; Bellés-Obrero *et al.*, 2023; Zhu & Ye, 2020), fertility choices, and access to family planning information, resulting in high birth rates and increased maternal mortality (Tayal, 2019). Female employment rates are comparatively lower than males in Asian countries. The factors behind this are cultural norms, limited job opportunities, and gender exclusion (Najeeb *et al.*, 2020).

A good amount of money has a beneficial effect on people's health. Those with higher salaries typically enjoy better health and longer lives than individuals with lower incomes (Ridley *et al.*, 2020). High-earning individuals typically live in secure neighborhoods with convenient access to grocery stores, nutritious food, and safe workout places. Conversely, low-income individuals often experience poverty, unsafe housing, unhealthy food, and limited exercise opportunities, leading to poor health conditions (Choi & Kim, 2019). Those who consistently display poor living conditions are more likely to experience health issues. To ensure good health, a home must be free from risks such as mould, pests, structural problems, and toxins (Stupplebeen, 2019). The vicinity of grocery stores facilitates families' purchasing and consuming nutritious foods. In addition, a thriving community provides services, transportation, and quality education. Having all these things around promotes a healthier lifestyle (Wang *et al.*, 2020).

### **Lifestyle Choices and their impacts on health**

Lifestyle refers to daily living activities and decisions that affect an individual's well-being and overall general health. It also includes attitudes, and societal values influenced by socioeconomic conditions, education, and age (Honório *et al.*, 2021; Zeki





*et al.*, 2018). The main determinants of health are lifestyles, such as food, physical activity, family atmosphere, conflict between parents, resilience in periods of crisis, and other toxic habits, such as smoking, alcohol, and drug conception. Inadequate physical activity and poor dietary choices result in an energy imbalance that negatively impacts health and fitness (Aceves-Martins *et al.*, 2022; Caracuel *et al.*, 2020; Castro-jim *et al.*, 2020).

The act of smoking is a significant worldwide public health issue, resulting in over 7 million active and 1.2 million passive smokers' deaths annually (Claire *et al.*, 2020). It profoundly affects overall health and imposes economic burdens on smokers, families, and society (Mohan *et al.*, 2018). Pakistan is one of the top 15 countries in terms of the disease burden linked with smoking (Zubair *et al.*, 2022).

### Access to healthcare

Access to healthcare is vital for maintaining good health. However, it faces many challenges. The challenges to effective healthcare delivery include global workforce shortages, crises, geographic barriers, and weak governance (Shuvo *et al.*, 2015); transportation, affordability, and language barriers can also limit regular visits and preventive care (Jang & Kim, 2019).

Table3: Relationship between health spending and survival rate

Country	Health Spending		Survival to age 65 (F)		Survival to age 65 (M)		Under Age 5 Mortality Rate	
	Dollar Capita	Per	%		%		Per 1000 Births	
China	880	≈	89.4	≈	83.8	↑	7.3	≈
Sri Lanka	569	↑	90.9	↑	78.8	↑	6.9	↑
Indonesia	358	↑	83.3	≈	72	≈	23	≈
India	210	≈	75.4	↓	69.2	≈	32.6	≈
Nepal	177	≈	79.2	≈	72.9	≈	28.2	≈
Pakistan	166	≈	73.4	↑	69	≈	65.2	↓
Bangladesh	119	≈	80.4	↑	74.6	≈	29.1	≈

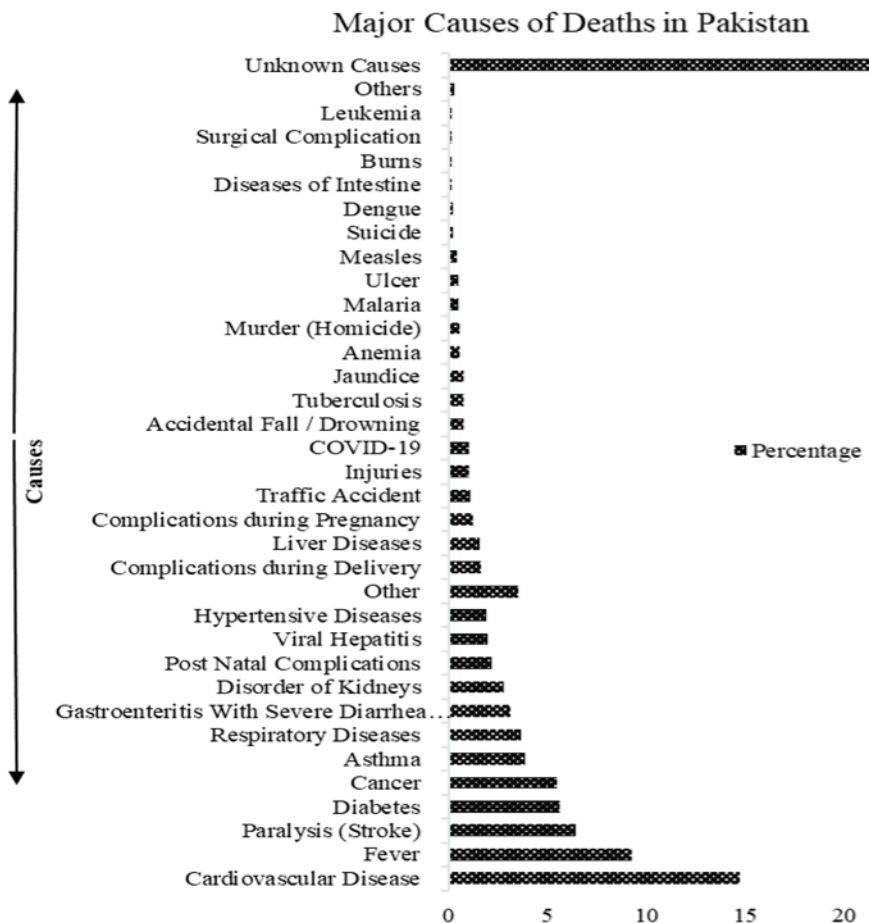
(*Health at a Glance: Asia/Pacific 2022*, 2022).



Government healthcare investment enhances health, saves lives, and provides economic benefits (Nove *et al.*, 2021). However, the relationship between healthcare expenditure and outcomes like death and life expectancy is complex. According to research, countries with higher healthcare expenditures have populations with longer life expectancies and lower death rates (Sultana *et al.*, 2024).

### Psychological stress and other diseases

The rates of mental stress and depression have drastically increased in the last five decades, affecting many individuals. Anxious people have a propensity to struggle with psychological and physical health (Berghoff *et al.*, 2017). Particularly, anxiety harms both physical and mental health (Remes *et al.*, 2016).



Source: (Pakistan Demographic Survey, 2022)



Cardiovascular disease (CVD) poses a profound threat to human life. CVD is responsible for 18.6 million deaths annually (Lee *et al.*, 2022). In 2016, it was accountable for 31% of all global deaths, notably a high proportion from Asia. Notably, obese people, with or without metabolic abnormalities, have a more significant threat of cardiovascular diseases as compared to non-obese people (Lee *et al.*, 2022; Lin *et al.*, 2020; Tian *et al.*, 2020). Over a third of the population of East Asia (about 1.7 billion) individuals are obese, posing significant health risks, including higher morbidity and mortality. Obesity may also lead to short-term diabetes and cardiovascular diseases and affect health (Mathis *et al.*, 2023).

## Conclusion

Many countries in the region face similar health challenges regarding air and water pollution. Environmental challenges are becoming more alarming because of climate change. To address these challenges requires a comprehensive and coordinated approach. The establishment needs to be more energetic and efficient. All departments for environmental safety, farming, water resources, and health should work together to resolve water and other environmental problems. This collaboration can also help to make acts and plans on the regional and national levels. Raising awareness of people and improving infrastructure, particularly in developing countries, is crucial for sustainable economic growth and reducing health disparities.

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