EDITORIAL

Biodiversity and Human Health: Public Health Perspective

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Introduction

The presence of a well-functioning ecosystem is crucial for the development and sustenance of a healthy community. Biodiversity refers to all kinds of biological forms, including the genetic attributes of plants and animals, and thus reinforces the existence of lives on earth.[1] A good ecosystem accounts for the provision of fresh water, clean air, medicines, and also plays a vital role in the maintenance of the food chain and ensuring food security.[1] Further, its role in arresting climate deterioration, maintenance of optimal health, and preventing the acquisition or progression of the disease also cannot be ruled out. Thus, there is an immense need to prevent any loss of biodiversity to safeguard the lives of everyone.[1,2]

Biodiversity and Human Health

Humans are dependent on biodiversity on a daily basis to such an extent that these aspects are not even acknowledged. In fact, the presence of clean air, fresh water, fuel, food, etc. are significant for good health and better livelihoods.[1,3] Further, microorganisms, plants, domestic, and wild animals also have helped humans in improving biological, medical, pharmacological, and health sciences.[3,4] As a matter of fact, many medical and allied field developments have occurred as we have started to understand the biodiversity of the earth. We must realize that any loss of biodiversity means that many natural chemicals or genes we have started to lose even before their discovery, which otherwise could have done wonders for the mankind.[2–4]

Threat to Biodiversity

Acknowledging the unprecedented and unregulated human activities in different parts of the world and the consequences which might result in health and other aspects, there is a significant rise in interest among stakeholders toward minimizing the biodiversity loss and the associated events.[3,5] Loss in biodiversity is expected to result in both direct (such as delay in the discovery of a potential treatment for multiple health problems or diseases) and indirect health hazards.[2,3] The indirect effects of change in biodiversity will not only result in loss of livelihood and reduction in income but also force people to migrate from one place to another. Further, it might even result in the precipitation of political struggle in the regions wherein biodiversity loss has been reported.[1]

Biodiversity and Nutrition

Biodiversity is a crucial factor in determining the amount of food produced on the global scale, by enabling a suitable soil and climate for the crops to grow, livestock to survive, and catching of marine species.[2,3] The same thing stands true even for micronutrient intake, and thus it is very essential to safeguard biodiversity. Further, the nature of crops grown across different parts of the world might significantly differ and thus it is crucial to preserve local biodiversity.[4,5] There is an immense need to strengthen the agriculture sector and increase food production through better irrigation, and use of the required amounts of fertilizers and pesticides.[2,5] In addition, other strategies such as cultivating a variety of crops in rotation to enhance the germination levels can also be tried to improve the biodiversity.

Biodiversity and Infectious Diseases

Owing to the uncontrolled human activities (such as deforestation, water management through the creation of dams, urbanization activities, etc.), we, ourselves, have disturbed the balance of the ecosystem and are responsible for bringing about alterations in the biodiversity.[6,7] These activities have either resulted in the excessive or depleted growth of one species of organisms or the others, and altered the interactions between themselves or with the surrounding physical and chemical atmosphere. As epidemiologists, we have to be extremely vigilant about disturbing the environmental attributes, as these factors play a crucial role in influencing the pattern of infectious diseases.[8,9]

Biodiversity and Climate Change

The presence of good biodiversity is expected to play a defining role in ensuring the well-being of humans as of today as well as in the future. Climate is an indispensable component of the ecosystem and any kind of change in the land or marine ecosystem will

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account for long-term results.[10,11] These consequences can range from changes in the overall geographical distribution of plants, elimination of species of organisms, rise in the level of seawater, extreme weather events such as drought or floods, migration of humans, and occurrence of outbreaks of infectious diseases.[10,11]

Conclusion

To conclude, the biodiversity is responsible for the availability of multiple goods and services, all of which are essential to sustain survival on earth. This calls for the need to carefully manage natural resources and prevent the loss of biodiversity, which will endanger the existence of humans in the coming generation.

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