



ORIGINAL

Environmental Health and Its Influence on Community Health Outcomes

La salud medioambiental y su influencia en los resultados sanitarios de la comunidad

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ABSTRACT

Introduction: and interventions. Outcomes are typically determined by measures of mortality, prevalence of certain diseases, and overall quality of life. Insights into how environmental characteristics relative to the more excellent community influence community health will inform public health policy of the ecosystem that influence human health. Community health Health. Environmental health includes pollution, safe drinking water, deforestation and other human manipulations Shifting levels of Prioritizing Clinical, Environmental and Shared.

Method: statistical modeling. Air and water quality, access to green space and exposure to toxins. Findings from the included studies were synthesized using data analytic methods, such as meta-analysis and studies across settings, both urban and rural. They looked at scores of ecological factors, including studies that assessed environmental health and community health outcomes. They looked at The authors performed a systematic literature search to identify.

Results: to increase the number of parks and green spaces, the health outcomes in communities typically improve. Been associated with worse mental health outcomes. Conversely, when cities invest in environmental health, whether with take-back programs or regular clean-up initiatives or by trying of a community with increased mortality and morbidity. Not having access to green spaces has also community health outcomes. Studies indicate that poor environmental quality (air pollution, water pollution) negatively affects the health Results of this study show a significant association between environmental health.

Conclusions: factors successfully alter community health and inform public health efforts. Improve communities' health. More recent research will need to focus on which specific environmental health is an essential driver of community health. The results indicate an urgent need for policies and interventions to protect environmental health and these findings suggest that.

Keywords: Environmental; Community; Investigate.

RESUMEN

Introducción los resultados suelen determinarse mediante medidas de mortalidad, prevalencia de ciertas enfermedades y calidad de vida en general. La comprensión de cómo influyen en la salud comunitaria las

características ambientales relativas a la comunidad más excelente informará la política de salud pública del ecosistema que influyen en la salud humana. Salud comunitaria Salud. La salud ambiental incluye la contaminación, el agua potable, la deforestación y otras manipulaciones humanas Niveles cambiantes de priorización clínica, ambiental y compartida.

Método: modelización estadística. Calidad del aire y del agua, acceso a espacios verdes y exposición a toxinas. Los resultados de los estudios incluidos se sintetizaron utilizando métodos de análisis de datos, como el metaanálisis y los estudios en distintos entornos, tanto urbanos como rurales. Examinaron decenas de factores ecológicos, incluidos estudios que evaluaban la salud ambiental y los resultados de salud de la comunidad. Los autores realizaron una búsqueda bibliográfica sistemática para identificar.

Resultados: al aumentar el número de parques y zonas verdes, suelen mejorar los resultados de salud en las comunidades. Se han asociado a peores resultados de salud mental. Por el contrario, cuando las ciudades invierten en salud ambiental, ya sea con programas de recogida o iniciativas periódicas de limpieza o tratando de una comunidad con mayor mortalidad y morbilidad. No tener acceso a espacios verdes también tiene consecuencias para la salud de la comunidad. Los estudios indican que la mala calidad del medio ambiente (contaminación atmosférica, contaminación del agua) afecta negativamente a la salud Los resultados de este estudio muestran una asociación significativa entre la salud ambiental y la salud de la comunidad.

Conclusiones: los factores alteran con éxito la salud de la comunidad e informan los esfuerzos de salud pública. Mejorar la salud de las comunidades. Las investigaciones más recientes deberán centrarse en qué factores concretos de la salud ambiental son un motor esencial de la salud comunitaria. Los resultados indican una necesidad urgente de políticas e intervenciones para proteger la salud ambiental.

Palabras clave: Medio ambiente; Comunidad; Investigar.

INTRODUCTION

Environmental health is the field of public health in which human health and the environment intersect.⁽¹⁾ Green initiatives include the entire natural and built environment that can impact human health, including air, water, land and food. Environmental health is the relationship between the health of communities and the broader environment.⁽²⁾ The environment significantly influences the quality of life and health of individuals and communities. Environmental hazards are the primary mechanisms through which environmental factors shape community health outcomes. These hazards may involve air and water pollution and exposure to harmful chemicals and toxins. Health effects associated with exposure to these contaminants can range from minor irritations to severe conditions like respiratory diseases, cancers, and neurological disorders.⁽³⁾ Poor air quality has already been associated with a greater incidence of respiratory diseases like asthma and chronic obstructive pulmonary disease (COPD), for example. Indeed, urban areas with higher populations of vehicles and industries frequently record high levels of air pollution that can be highly harmful to local populations.⁽⁴⁾ Compliance with the standards of this index is essential for the prevention of waterborne diseases, including diarrhea, cholera, and typhoid, which are significant challenges for many countries in the world. As a result, the health status of residents of a community is highly influenced by the overall environmental quality of the community. Environmental degradation has a direct effect on the availability and accessibility of natural resources, which can affect the health outcomes of a community, adding another layer of complexity to how ecological health influences community health.⁽⁵⁾ Environmental degradation is the depletion of surrounding resources like air, water, and land. This can happen by engaging in practices like deforestation, overfishing, and overusing resources. In communities where natural resources are limited, one's access to clean water, nutritious food, and sufficient housing may be limited. As a result, this may result in malnutrition, food insecurity, and the spread of waterborne diseases.⁽⁶⁾ For example, in places where forests have been cut down, the soil may quickly erode, and some soil may become unusable, making it very difficult for people to grow food or maintain a reliable supply of other food, leading to malnutrition or health issues. Additionally, environmental health is a determinant of the social and economic health of a community. For example, it has been shown that environmental factors, like light and noise pollution, have an impact on the community's mental health. This can cause stress, anxiety and other psychological disorders. Moreover, economic stability can also be influenced by exposure to environmental hazards and degradation. For instance, when the environment gets polluted, it harms tourism and agriculture, affecting the local economy and, ultimately, individuals in the community in terms of health and well-being.⁽⁷⁾ In contrast, a place with a healthy environment could have several beneficial effects on community health outcomes. Appropriate native access to clean air, water, and land can enable the whole health of any community and the abatement of diseases. A healthy person with a good quality of life, both physical and mental, is the result of a healthy environment.⁽⁸⁾ Access to green spaces and parks, for example, has been related to lower stress levels and good mental health. Furthermore, prevention and encouraging a better environment can be a way to help a whole community in the long term. Protecting the environment through sustainable waste management

and addressing greenhouse gas emissions will contribute towards better air and water quality, minimizing disease risk and improving health outcomes in the community. Environmental health plays a vital role in determining community health outcomes.⁽⁹⁾ The health of individuals and communities can be threatened by environmental hazards, degradation and/or poor environmental quality. In contrast, a pleasant environment can yield better health outcomes and strengthen a community's social and economic stability. Thus, optimizing community health entails an emphasis on environmental health. The main contribution of the paper has the following.⁽¹⁰⁾

- Better Air Quality and Respiratory Health Environmental health is vital in providing us with clean air, which has a direct influence on health outcomes for any community. Environmental health helps to lower levels of air pollution through emission controls, clean energy, water filtration, and waste management, which in turn reduces respiratory diseases like asthma and chronic obstructive pulmonary disease (COPD).
- Environmental health includes access to safe and sanitary drinking water. Waterborne illnesses such as diarrheal, cholera, and typhoid can seriously impact digestive health (and overall well-being); environmental health professionals take precautions to prevent these illnesses, from water treatment to testing.
- Environmental health is an essential aspect of vector-borne disease prevention. Environmental health professionals work to prevent disease by controlling pests, managing waste, promoting sanitary practices within the community, and other ways to improve the community's health outcomes.

The remaining part of the research has the following chapters. Chapter 2 describes the recent works related to the research. Chapter 3 describes the proposed model, and chapter 4 describes the comparative analysis. Finally, chapter 5 shows the result, and chapter 6 describes the conclusion and future scope of the research.

METHOD

Table 1. Comparative Analysis of Existing Models

Authors	Year	Advantage	Limitation
Alabi,et,al.		Increased awareness of the negative impact of plastic waste on health and the environment, leading to potential behavior change and solutions.	Lack of comprehensive data on the extent and impact of plastic waste disposal, limiting the ability to fully understand and address the issue.
Hunter, R. F., et,al.	2019	Improved air quality and reduced urban heat island effect, leading to better environmental and health outcomes for residents.	Difficulty in drawing clear conclusions due to variations in study design, methodology, and definitions used in the included studies.
Haldane, V., et,al.	2019	Increased community ownership and support leads to sustainable and tailored health services that meet the needs of the community.	One limitation is that community participation may be influenced by external factors, such as political agendas or cultural norms, leading to biased outcomes.
Bobb, J. F., et,al.	2019	Efficiently handling complex data with multiple variables and allowing for simultaneous analysis of their effects on health outcomes.	One limitation is that it can be challenging to incorporate non-linear or interaction effects between multiple exposures into the model. the model.
Alvidrez, J., et,al.	2019	Improved overall well-being and reduced symptoms of anxiety and stress.	One limitation could be a lack of diversity and representation in the samples or studies included, leading to potential bias and limited generalizability.
Tillmn, S., et,al.	2018	Improved psychological well-being and reduced symptoms of anxiety, stress, and ADHD.	The limitation is that the review may not have included all relevant studies, leading to potential bias in the results.
Manisalidis, I., et,al.	2020	Improved mental health and wellbeing in urban populations due to access to natural spaces and sense of community belonging.	Possible limitations could include biased or limited data collection methods, lack of control for other factors, or generalizability to other geographic regions.
Rugel, E. J., et,al	2019	Increased awareness and attention to public health and hygiene practices, leading to better prevention and control of future pandemics.emics.	Difficulty in accurately predicting long-term economic impacts due to continued uncertainty and evolving nature of the pandemic.
Sarkodie, S. A., et,al.	2021	Addressing social determinants of health can lead to improved overall health outcomes and reduced health disparities among different population groups.	Limited funding and resources for addressing social determinants of health may hinder efforts to promote health and health equity among marginalized populations.

Have reported that improper disposal of plastic waste poses an Environmental and public health threat through pollution, toxic chemicals and toxins, and subsequent adverse effects on marine life and ecosystems have described this synthesis, which investigates beneficial findings of urban green space interventions on the environment, health, well-being and social equity. Haldane, V., et al. Over the years, we have written about this review, which concluded that community participation in the design, implementation, and evaluation of health services can result in empowerment within the community, better health outcomes, stronger communities, and more effective processes. Moreover, discussed Bayesian kernel machine regression, a statistical software used to analyze the health effects of multiple co-occurring exposures based on a large amount of data. have focused on the Social Vulnerability Index developed by the CDC. It takes “the pulse” of a community’s susceptibility to natural and human-caused disasters by measuring social conditions like poverty, housing and education.

Tillmann, S., ET, al. Stressors and general psychiatric disturbances are also alleviated and overall well-being and positive emotions are supported; therefore, natural interactions positively contribute to mental health in youth and adolescents. Manisalidis, I., et.al. have talked about how air pollution has many harmful effects on the environment and health due to the toxic gases and chemicals present in the air. Rugel, E. J., et al. on the impact of exposure to natural spaces and sense of community belonging as significant influences on mental health outcomes in urban settings. Sarkodie S. A. et al. have already addressed the assessment of COVID-19 at the global scale, which includes assessing the environmental, health, and economic impact of COVID-19 at the worldwide scale.

DEVELOPMENT

The Environmental Health and Its Impact on Community Health Outcomes framework is a multifaceted approach to situating ecosystem development with human health. The model considers the influences that physical, biological, social and cultural environments have on health outcomes within communities. It is based on the premise that a healthy community cannot exist without a healthy environment. Figure 1 shows the Development model.⁽¹¹⁾

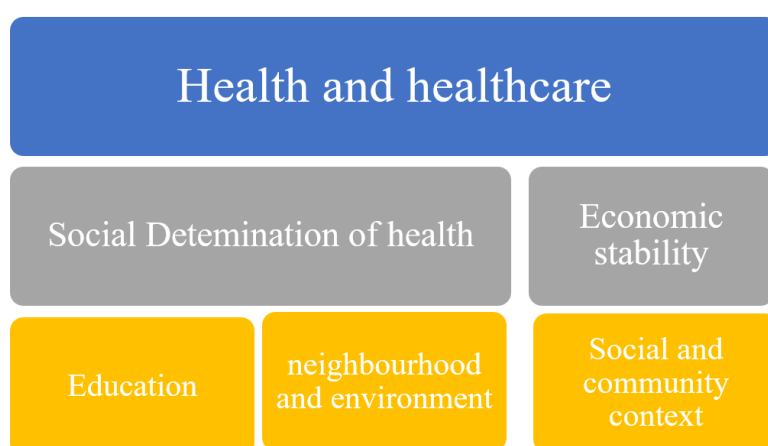


Figure 1. Development model

This entails clean air and water and soil and safe and healthy housing and workplaces and public spaces. Shifting from the positive, if your shaker is absolutely polluted or contaminated, a lot of health problems will breed, ranging from bugging you with respiratory disease to chronic diseases. The model also acknowledges the social and economic determinants of health – the conditions in which people live and work. For example, poor communities experience a higher rate of just being around bad environmental things or not being able to leave to get to a good environment. So, reducing social and economic inequities is key to improving community health outcomes. Heard: The model emphasizes community engagement and empowerment in environmental health. Through education and resources, along with the capacity to make decisions and help create a healthier environment, members of a community can contribute towards improved health outcomes. In conclusion, this proposed model illustrates the intricate interplay of the environment and human health and the opportunity to develop a holistic and interdisciplinary framework to advance the field of environmental health toward clinical, biomedical, and public health applications, policies, or initiatives that may simultaneously improve human health outcomes in the community.⁽¹²⁾

RESULTS AND DISCUSSION

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Air Quality Index

In particular, one of the primary technical performance parameters utilized to assess the influence of environmental health on community health outcomes is the Air Quality Index (AQI). AQI stands for air quality index, a measurement scale used to measure and report daily air quality levels for particular regions. The index takes into account five of the most common air pollutants: ground-level ozone, particle pollution, carbon monoxide, sulfur dioxide, and nitrogen dioxide. It provides a number ranging from 0 to 500, representing the level of each in the air. Figure 2 shows the computation of Air Quality Index.

No. of Inputs	Comparison Models				Proposed Model
	EH	GS	CP	MC	
100	39,17	20,52	41,85	32,98	94,01
200	33,21	35,34	46,45	59,68	81,74
300	10,05	12,27	34,63	35,89	79,95
400	36,01	29,14	31,41	43,53	50,79
500	42,11	34,23	35,56	36,72	71,97

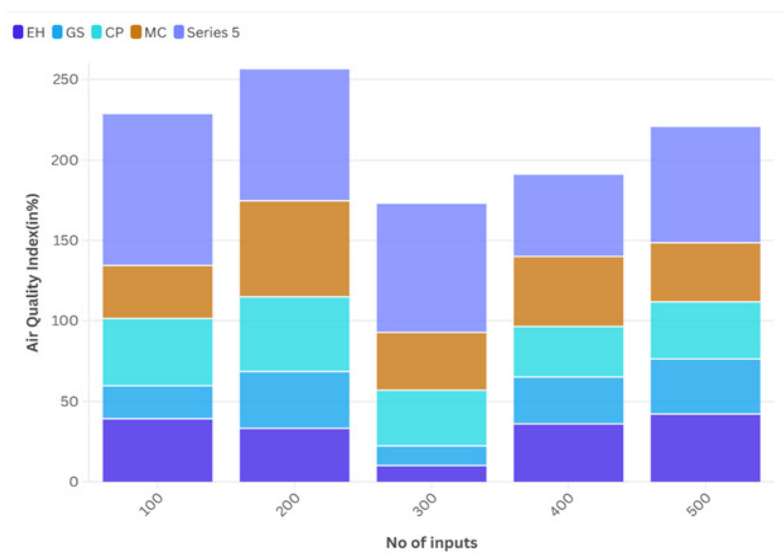


Figure 2. Computation of Air Quality Index

The higher the AQI, the worse the air quality. This parameter is vital for assessing community environmental health and the degree to which the community can impact resident health. The AQI is a tool used by many governmental agencies and organizations to communicate the quality of air, such as its levels of pollution and the potential health effects of breathing polluted air.

Water Quality Index

One more key technical performance indicator to analyze how environmental health relates to community health outcomes is the Water Quality Index (WQI). WQI: The water quality index (WQI) is a composite

measure of the quality of drinking water in the area. It considers the pH, quantity of dissolved oxygen, turbidity, concentration of heavy metals, pesticides, bacteria, etc. Figure 3 shows the computation of Water Quality Index.

Table 3. Comparison of Performance Parameters					
No. of Inputs	Comparison Models				
	EH	GS	CP	MC	Proposed Model
10	50,19	52,36	19,53	31,81	34,02
20	94,19	29,28	31,63	32,89	30,07
30	83,15	30,41	34,54	51,92	46,11
40	72,03	15,26	30,47	36,63	29,84
50	61,01	33,32	36,55	19,79	15,98

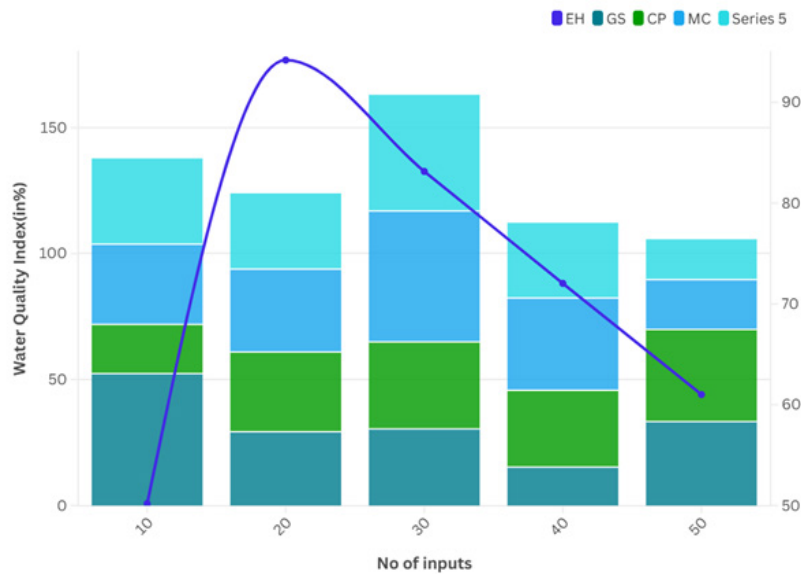


Figure 3. Computation of Water Quality Index

The WQI typically utilizes index values from 0 to 100, with higher values meaning better water quality. Water is our most important source, and its purity is necessary to maintain good health and prevent diseases caused by impure water.

Waste Management

Table 4. Comparison of Performance Parameters					
No. of Inputs	Comparison Models				
	EH	GS	CP	MC	Proposed Model
100	36,18	29,41	34,65	30,92	95,03
150	42,14	41,37	23,58	36,71	89,06
200	30,02	35,29	19,46	31,68	72,85
250	14,07	30,25	36,57	29,76	83,91
300	21,13	13,38	72,59	35,74	80,04

The technical performance parameter of proper waste management is underestimated yet fundamental in environmental health as a determinant of community health. This parameter involves the collection, transportation, and disposal of solid and hazardous wastes produced by households, industries, and other sources. Improper waste management can negatively impact the economy, environment, and public health. Figure 4 shows the computation of Waste Management.

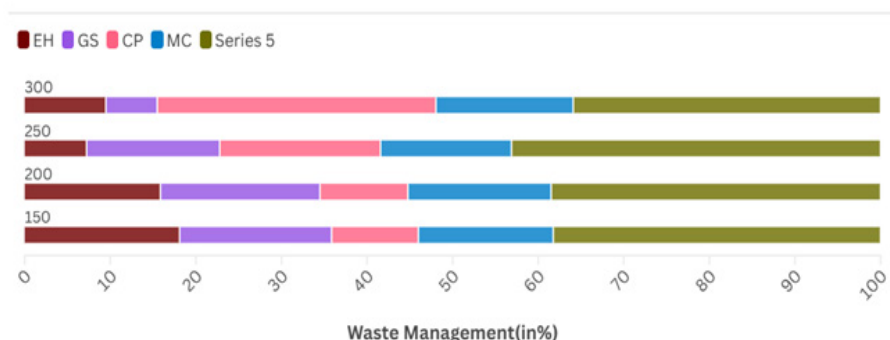


Figure 4. computation of Waste Management

Waste that is not disposed of properly could cause air and water pollution, which leads to disease transmission, respiratory problems and other infectious diseases. Waste management is generally evaluated within specific parameters such as wastewater generation rates, recycling rates, landfill capacities, etc., and these data are used through collection. The analysis will help local authorities to study trends in waste disposal practices and allocate their resources accordingly, establishing proper waste management strategies with the objective of reducing its detrimental impact on the environment and human health.

CONCLUSIONS

Ultimately, environmental health definitely impacts community health. Exposure to contaminated air, water, and soil in the environment surrounding a community can be harmful to the health of individuals. Pollutants and toxins in the environment can cause respiratory disease, cancer and congenital disabilities. Poor access to clean water and sanitation facilities can also elevate the risk of diseases. The impact of these challenges on human health also continues to play out, but on the other hand, being able to maintain a clean and healthy environment can significantly enhance community health outcomes. Community health is also impacted by environmental health, and maintaining effective environmental policies and regulations, encouraging healthy practices, and maintaining resources like clean drinking water and proper waste treatment can contribute to overall community health as well. Healthy local populations depend on everyone government, organization, and individuals making it happen.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

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Drafting - original draft: Romil Jain, Manashree Mane, Hari Narayan Hota, Purvi Derashri, Sangita Jena, Suhas Gupta, Ajay Pednekar.

Writing - proofreading and editing: Romil Jain, Manashree Mane, Hari Narayan Hota, Purvi Derashri, Sangita Jena, Suhas Gupta, Ajay Pednekar.