

Impact of Sustainable Development Goals on Public Health

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Abstract

The sustainable development goals (SDGs) provide a structured guide for addressing pressing global issues, public health being one of the most critical, overlapping with policies of several other goals. The determinants of health include various socioeconomic and environmental factors presenting deep connection with objectives and targets of the SDGs. This chapter revisits the cogitation of global public health in the infrastructure of Sustainable Development Goals 2015. Effectivity and relativity of these goals to public health is discussed. The chapter explores work done in the field of public health with context to SDGs particularly emphasizing disease prevention, healthcare infrastructure and socioeconomic initiatives. All the SDGs influencing public health directly such as No poverty, Zero Hunger etc. and those contributing indirectly are discussed independently. Moreover, progress towards the goals and targets of the 2030 Agenda in context of public health is evaluated. In addition to policy coherence the ethical concerns and challenges faced in the integration and implementation of relevant policies are also considered.

Keywords: Sustainable Development Goals, Public Health, Disease prevention, Healthcare, Global issue.

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Introduction

Public health is essentially the foundation of sustainable development, influencing and being influenced by various socio-economic and environmental factors. The agenda of Sustainable Development Goals (SDGs), first presented in 2015 have established a comprehensive framework for addressing global challenges, some of them targeting public health. Several of these goals are revolving around improving public health, with some being directly focused on public health like SDG 3 Good health and well-being provides a targeted approach to achieve better health outcomes (United Nations, 2015). Other goals included in this agenda deal with factors like poverty, water and sanitation which are contributing indirectly to public health (WHO, 2016). This chapter provides a comprehensive review about the impact of sustainable development goals on public health. It explores the key factors in improving global public health including the necessity of integrated, cross-sectoral strategies to ensure long-term health outcomes, equitable and accessible healthcare systems across the globe. The chapter also mentions achievements and progress while highlighting the importance for regional and global cooperation for attaining policy coherence. The chapter is closed with a discussion of challenges faced and future prospects for better global public health.

Public Health and the Sustainable Development goals

Health is described as a status of an individual being completely well in terms of both physical mental and social capacity besides the absence of diseased conditions or problems, according to the World Health Organization (WHO). In a broader sense, health is also a metric affecting policies of various sectors as well as concerns of general population. Health is extensively influenced by economic, social and environmental conditions. It is linked with numerous other factors like poverty, gender equality, education, growth therefore it is essential to create effective circumstances for sustainable development (Nunes et al., 2016).

The intricate multi-faceted relation between health of world population and sustainable development has been a part of nearly all declarations in the past. Carrying on this tradition the new 2030 Agenda for Sustainable Development further emphasized this connection to make health and well-being core focus of the sustainable development goals. By doing so, the United Nations and its agencies have explicitly acknowledged the relation of health, sustainable development goals from various perspectives. The revelation was made in their 'Health in the post-2015 UN development agenda' report. The purpose of this acknowledgement was to bring up health as a priority objective as it contributes to serving as fundamental carrier of success in achieving sustainable development goals (Aftab et al., 2020).

Majority of the sustainable development goals lead to a positive effect on public health and the well-being of the human population through various channels (e.g., reductions in diarrhea cases due to better sanitation and good quality drinking water provision). Besides their direct impact, the sustainable development goals also produce various co-effects that ultimately improve health and well-being across a wide range

of circumstances (i.e., reduction in poverty will lead to capacity to get sustainable energy sources, provide safe drinking water, manage adequate sanitation, obtain nutritious foods etc.). Conclusively, the World Health organization has always emphasized that health and well-being of population should be always considered as core indices when evaluating the progress of sustainable development goals achievement as a part of the post-2015 agenda. When considered critically it becomes clear that various factors affecting health and well-being are in turn influenced by a range of other factors called the determinants of health. These determinants of health have various domains that include social determinants of health along with environmental and economic factors that have a deep linkage with the sustainable development goals. An example for some such domain related factors linking health and sustainable development goals are energy, water, sanitation and hygiene, and food. That is why WHO claims that it is confident regarding core status of health and well-being to the sustainable development framework as health has become more integrated in form of sustainable development goals 3 (Aftab et al., 2020).

SDGs Directly Influencing Public Health

1. SDG 1: No Poverty

Poverty is a multifaceted challenge. Several nations have been trying to combat poverty and the aspects related to health, employment and education. Addressing these challenges is crucial for better health outcomes.

SDG number 1 is an initiative to eliminate poverty. Poverty is a socioeconomic factor of health hampering access to nutritious food, healthcare facilities and adequate living conditions. Several aspects of human life are affected by poverty, since it amplifies personal and environmental health hazards, restricts access to healthcare facilities, and limiting lifestyle choices (WHO, 2021). Individuals experiencing poverty are more prone to communicable and non-communicable diseases as a result of higher exposure to environmental hazards and limited access to healthcare services (WHO, 2021). Moreover, out-of-pocket medical expenses force millions of people into extreme poverty, aggravating health disparities (WHO, 2021). Overcoming poverty is significantly essential to ensure provision to adequate medical services enhancing public health outcomes and lowering healthcare inequities (WHO, 2021).

The following international projects, policies, and initiatives have been put into place as a part of the framework to lessen poverty and its impact on public health:

1. Universal Health Coverage (UHC) Initiatives

Several countries have implemented Universal Health Coverage (UHC) programs to lower out-of-pocket medical expenditures which is a major factor contributing to poverty. UHC targets the provision of essential healthcare to individuals without experiencing financial strain eradicating poverty-related healthcare disparities (WHO, 2019).

2. World Bank's Social Safety Nets Programs

Initiatives like cash transfers, food provision and public works programs by The World Bank are hyper-focusing underdeveloped countries improving health outcomes and access to primary healthcare services (World Bank, 2022).

3. Global Health Financing Mechanisms

International organizations like the Global Fund and Gavi, the Vaccine Alliance, are playing a part in poverty eradication by financially supporting healthcare programs (World Bank, 2022). These mechanisms strive to reduce disease burden and health expenses which saves people from experiencing poverty due to financial burden of healthcare services.

4. Sustainable Development Goals (SDGs) Monitoring and Reporting

Annual progress reports emphasize growth of initiatives to reduce poverty. Extreme poverty, defined as people living 2.17\$ per day per person as of 2017, faced a significant decrease in recent decade but the progress was set back by COVID pandemic, making millions of people experience poverty, administrations are now striving to provide social security and healthcare access to recover the loss (Figure 1) (United Nations, 2023).

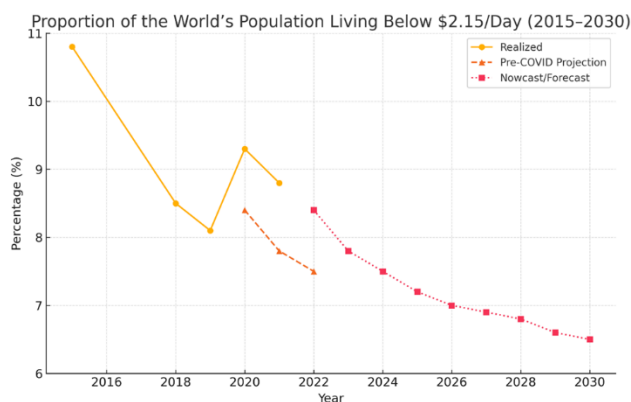


Fig. 1: Proportion of the World's Population Living Below \$2.15/Day (2015-2030) (United Nations, 2023)

5. WHO's Technical Support and Guidelines

The WHO aids underserved populations with technical guidance for development of health financing systems reducing devastating healthcare expenditures (WHO, 2019).

2. SDG 2: Zero Hunger

Malnutrition persists as a major public health challenge, particularly affecting developing countries. The percentage of population experiencing food insecurity and hunger has been rising since 2014. Moreover, COVID-19 pandemic aggravated an already grave situation, with an estimated 150 million more individuals facing hunger in 2021 than in 2019. Sub-Saharan Africa showed most alarming growth, followed by Latin America and the Caribbean, Central and Southern Asia, and Africa (United Nations Statistics Division, 2022)

Public health and Zero Hunger are intimately intertwined

because adequate nutrition and food security are critically essential for social, mental, and physical well-being. Undernutrition leads to devastating consequences like stunted growth, maternal and infant mortality, and compromised immunity. Malnutrition, including both undernutrition and over-nutrition, exacerbates non-communicable diseases such as diabetes and heart issues. Despite all the international efforts to curb malnutrition and obesity in children, in 2022, an estimated 45 million children under the age of 5 suffered from wasting, 148 million had stunted growth and 37 million were overweight (Figure 2) (United Nations, 2023).

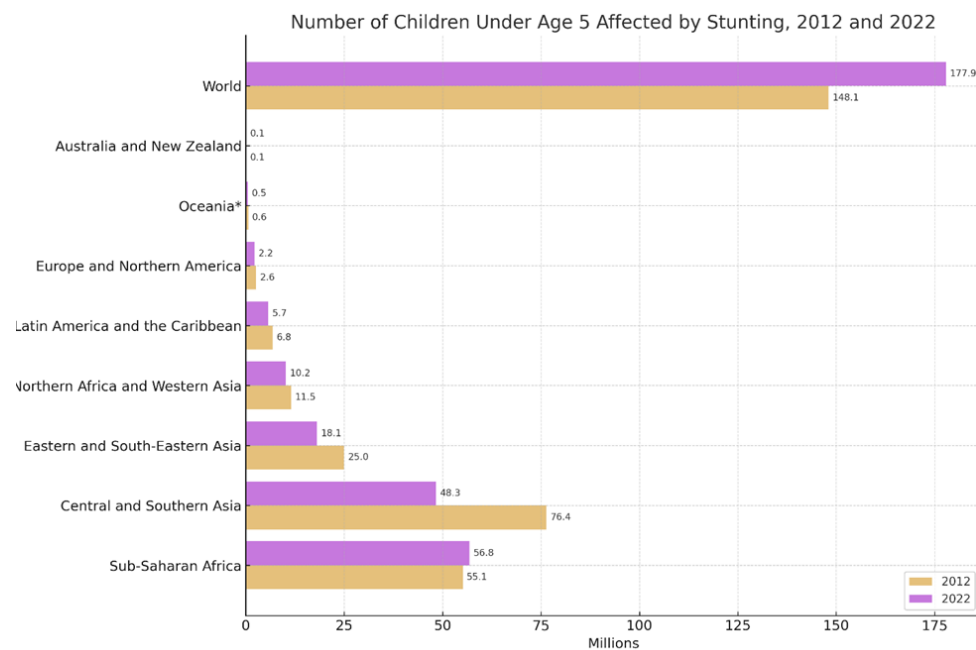


Fig. 2: Number of Children Under Age 5 Affected by Stunting in 2012 and 2022 by region
This figure shows the number (in millions) of children under five affected by stunting across different regions of the world in 2012 and 2022 (United Nations, 2023).

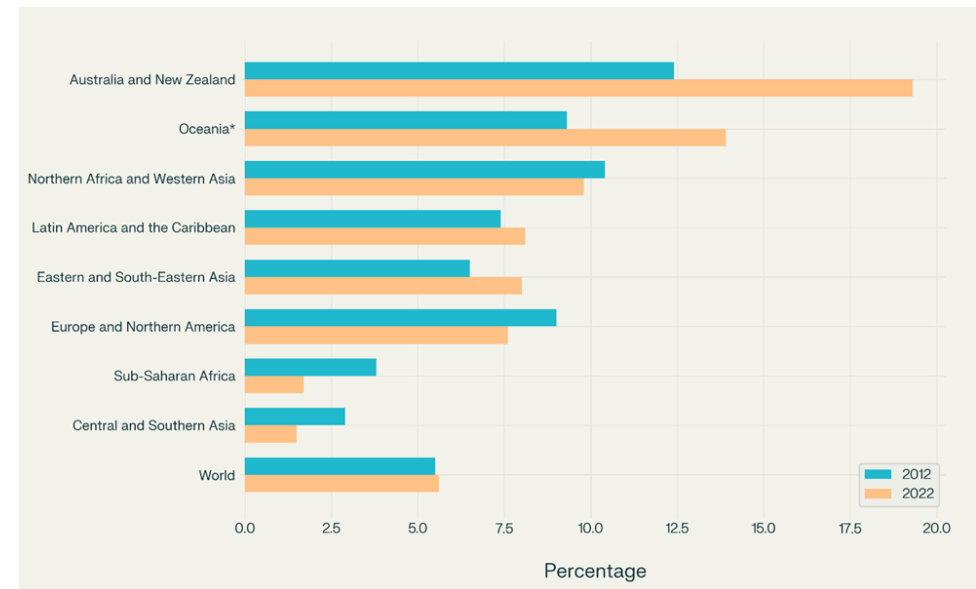


Fig. 3: Proportion of Children Under Age 5 Who Are Overweight (2012 & 2022)

Figure 3 shows the number (in millions) of children under five who are overweight across different regions of the world in 2012 and 2022 (United Nations, 2023). Ensuring access to nutritious food fosters healthy growth, minimizes illness burdens, reduces health disparities, and supports healthcare systems. Achieving Zero Hunger is crucial to promote sustainable development and enhance global health outcomes.

SDG 2 addresses eradication of hunger and malnutrition by taking these measures:

- Improving food security and access.
- Reducing stunting and wasting in children
- Encouraging sustainable agricultural practices.
- Initiatives such as food fortification and school meal programs contribute to better health outcomes (FAO, 2022).

3. SDG 3: Good Health and Well-being

SDG 3 strives to "ensure healthy lives and promote well-being for all at all ages." Better health outcomes are not considered as a one goal mission for sustainable development but also a crucial step for achieving other three objectives as well. Health, well-being and sustainable

development are deeply connected to each other, and among these, health being the pre-requisite indicator as well as positive outcome of the actions taken (Nunes et al., 2016). SDG 3 is closely related to public health as it deals with challenges like mother and child mortality, persistent occurrence of infectious and non-communicable diseases ultimately focused on achieving universal health coverage (UHC) (Figure 4) (United Nations, 2023). Metrics of health and well-being measurement can be used to evaluate the progress in achievement of the SDGs. Although SDG 3 is established as a completely distinct objective it is considered essential to accomplish other goals as well (Aftab et al., 2020).

There has been some progress in improving global health. For instance, out of 200 countries 146 have already achieved re on the way to accomplish SDG target regarding under 5 mortalities (United Nations, 2023). Achievements resulting from efforts and initiatives taken in this area include increased immunization coverage, expanded universal health coverage (UHC), and decrease in mortality rates. However, disparities in healthcare access persist as a challenge (WHO, 2022).

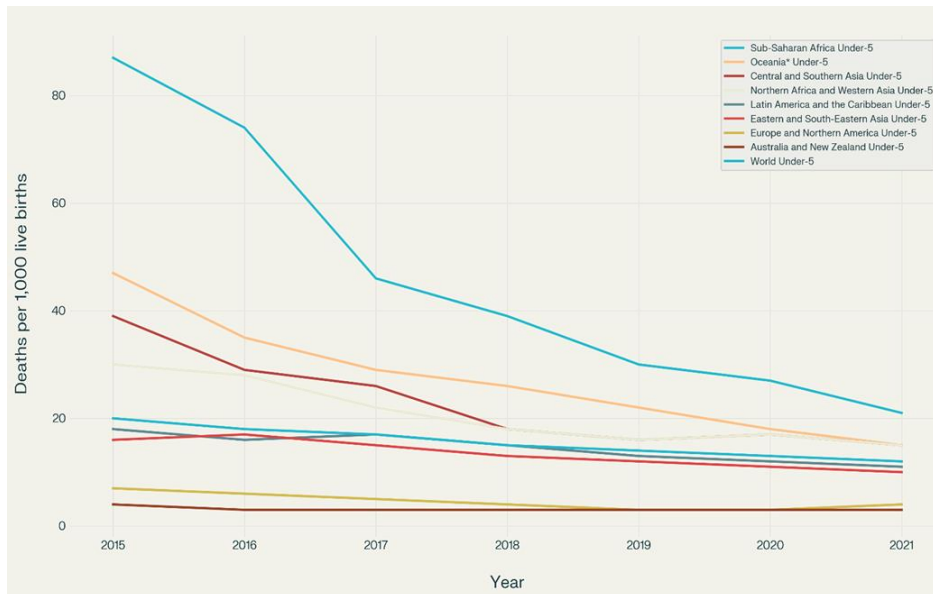


Fig. 4: The figure is showing the under-5 mortality rate (deaths per 1,000 live births) for various regions from 2015 to 2021. Sub-Saharan Africa had the highest under-5 mortality rate, but it declined sharply from 87 in 2015 to 21 in 2021 (United Nations, 2023).

a. Improvements in Communicable Disease Control

- SDG 3 emphasizes prevention and eradication HIV, tuberculosis, malaria, and neglected tropical diseases.
- Expansion of vaccination programs and access to treatment have significantly reduced mortality rates globally (WHO, 2023a).

b. Promotion of Universal Health Coverage (UHC)

- UHC guarantees accessibility to quality health services without facing any financial strain.
- SDG 3 supports UHC as a central factor, improving health equity and outcomes (World Bank, 2022).

c. Addressing Non-Communicable Diseases (NCDs)

- SDG 3 highlights control and prevention of non-communicable diseases like diabetes, cardiovascular diseases, cancer, and chronic respiratory diseases (Ruckert et al., 2016).

d. Maternal and Child Health Improvements

- Focused on decreasing maternal mortality rate and prevention of fatalities of babies and children under 5.
- Strengthened immunization programs and access to family planning have improved maternal and child health outcomes (WHO, 2023b).

e. Progress on reproductive health

- Number of females having access to sexual and reproductive health services has increased significantly.
- The percentage of females, capable of reproduction (age 17-45), receiving proper family planning services by modern methods has increased 76.5 to 77.6 between 2015 to 2023.
- Global adolescent birth rate for girls has also experienced significant decline (United Nations, 2023).

f. Global Health Security and Emergency Preparedness

- SDG 3 emphasizes building capacity for early warning, risk reduction, and management of global health risks.
- The COVID-19 pandemic emphasized the significance of preparedness, slowing down universal health coverage and increasing financial strain (United Nations, 2023).

4. SDG 6: Clean Water and Sanitation

Despite significant progress, billions of people lack access to safe drinking water, sanitation and hygiene (United Nations, 2023). A key factor influencing public health is the access to clean water, proper sanitation and hygiene (WASH).

Sustainable Development Goal 6 (SDG 6), adopted by United Nations, strives to ensure sustainable management and access to water and sanitation globally by 2030. In context of public health, achieving SDG 6 is crucial to interrupting loop of disease transmission driven by contaminated water and inadequate sanitation. Proper WASH access reduces illnesses, improves hygiene practices, minimizing health risks associated with environmental contamination (United Nations, 2021).

a. Effects of Inadequate WASH Conditions

The repercussions of poor WASH conditions prevail way beyond spread of diseases. Malnutrition, compromised immunity, stunted growth and risk of susceptibility to other diseases can result as the consequences of frequent exposure to contaminated water (WHO, 2023a). Additionally, poor hygiene conditions in medical facilities compromise infection control initiatives, increasing the risk of healthcare-associated infections (HAIs), thus posing a threat to the health of mothers and children (United Nations, 2021).

Safe water and sanitation services are crucial to decrease the spread of infectious diseases and minimize the global burden of waterborne diseases such as cholera, diarrhea, dysentery, typhoid, and hepatitis A (WHO, 2023a). Low- and middle-income nations are particularly influenced by these diseases, especially children of age less than five years, increasing rates of mortality and morbidity resulting in excess pressure on public health systems (WHO & UNICEF, 2021).

Furthermore, improved access to WASH assists the management and control of neglected tropical diseases (NTDs) like schistosomiasis and trachoma, which prosper in poor sanitation conditions. (WHO, 2023a). In addition, provision of better education for women and their active participation in society can aid in administrating menstrual hygiene through proper sanitation services supporting health outcomes and gender equality (WHO & UNICEF, 2021).

b. Actions to Speed up Progress Regarding SDG 6

- **Strategies** for making significant progress regarding SDG 6 include increasing sector-wise investment, promoting innovation and evidence-based actions, cross-sectoral cooperation and coordination and opting for a more integrated approach for water management (United Nations, 2023).
- Implementation of SDG 6 demands **coordinated global initiatives**, policy changes, improvements in infrastructure and community level measures to support hygiene education and better public health, particularly for vulnerable populations (United Nations, 2021).

Indirect Contributions to Public Health

Global efforts to achieve the Sustainable Development Goals (SDGs) are underway and should be fruitful by 2030. Among these goals some are indirectly contributing to improve public health globally.

1. SDG 4: Quality Education

Education is one of the most important factor, for the improvement of public health by accounting for contributions like promotion of health literacy, expansion of healthcare workforce capacity enabling citizens to make informed health decisions (UNESCO, 2020).

2. SDG 8: Decent Work and Economic Growth

Economic stabilization guarantees timely access to healthcare services, enhanced healthcare framework and better quality of life leading to overall improvement of public health (ILO, 2022).

3. SDG 13: Climate Action

Several health hazards are associated with climate changes such as respiratory illnesses, heat strokes, skin cancer and transmission of vector-borne diseases. Gulis et al. (2022) discuss that SDG 13 seeks to lessen these impacts by implementing sustainable environmental policies and infrastructure (IPCC, 2021).

Policy Coherence: A Critical Factor in Public Health under the SDGs

Olalekan et al. (2020) discuss how attempting to re-affirm the status of health among population and promoting several aspects of well-being among them is the central domain of achieving sustainable development goals. Simultaneously, the achievement of sustainable development goals is crucial for attaining universal health and well-being among the world population. Although recognition of the fact that all 17 SDGs are essentially linked to and are interdependent upon health is vital for achieving the SDGs, but now the conditions of world beg a step further and ask for translation of these guidelines into actionable practices and policies. The world leaders now need to put together a framework plan that will ultimately set as a cornerstone in the upcoming building of a healthier and better world formed through achievement of SDG goals and targets that will address issues of both health and non-health sectors, including the social, economic, environmental and health determinants (Nunes et al., 2016).

1. Cross-sectoral Influence on Public Health

- Other than health sectors public health is significantly affected by trade, agriculture, environment, education and labor policies (WHO, 2018).
- Insufficient coordination can jeopardize progress of health goals particularly SDG 3 (Good Health and Well-being).

2. Trade Policies and Health Implications

- Trade agreements like the Trans-Pacific Partnership (TPP) threatens equal access to affordable medicines weakening health security (Ruckert et al., 2016).
- Economic interests and public health goals can contradict if public health is not prioritized during policy making.

3. Agriculture, Food Systems, and Non-Communicable Diseases (NCDs)

- Certain food industry policies and agricultural subsidies may advocate unhealthy diets.
- Increased consumption of processed food products is leading cause of non-communicable diseases with obesity and diabetes being the most common (WHO, 2018)

4. Environmental Policies and Public Health

- Strict implementation of environmental policies is crucial to combat issues like pollution, contaminated water and associated health hazards.
- Climate changes, can result in the aggravation of health disparities, if not managed properly (United Nations, 2019).

5. The Health in All Policies (HiAP) Approach

- The function of this approach is to ensure that health objectives are incorporated into policies and strategies derived by sectors.
- Tools like Health Impact Assessments (HIAs) significantly enhance decision-making and promote health equity (WHO, 2018).

6. Importance of Monitoring and Accountability

- Establishment of inter-sectoral committees to elaborate policy coherence.
- Regular monitoring is crucial to ensure that policies align properly with health-focused SDGs.

7. Global Examples of Effective Policy Coherence

- Several countries like Finland and Sweden have applied HiAP that has resulted in enhanced health outcomes and significant reduction in health disparities (United Nations, 2019).

Policy In-coherence

Areas of policy incoherence include the spread of unhealthy commodities, threats to equitable access to essential health services, medicines and vaccines, and reduced government regulatory flexibility (Ruckert et al., 2016).

- **Spread of unhealthy commodities:** Nazar, Meo, and Ali (2022) describe that trade agreements can have a huge impact on health-related SDGs. The negative effect resulting in increase in the availability of tobacco, alcohol, and ultra-processed foods, worsening health.
- **Threats to equitable access:** Intellectual property rules in trade deals can **limit access to affordable medicines and vaccines**, increasing health inequality.
- **Reduced government flexibility:** Strict trade rules may reduce a government's ability to **regulate harmful products** or implement **public health policies**

Challenges in Achieving SDG-Related Health Goals

Despite progress, provision of public health globally and comprehensive implementation of health-related SDGs is held back by several factors:

- **Inequality in healthcare access:** Differences in socioeconomic statuses hinder equal availability and distribution of healthcare services to all (WHO, 2022).
- **Financial constraints:** Several countries do not possess the financial independence necessary for the execution of SDG-backed healthcare programs (UNDP, 2021).
- **Emerging health risks:** Rising health threats include pandemics, antimicrobial resistance, and climate associated health issues (IPCC, 2021).
- **Political and policy barriers:** Health focused SDGs can only be accomplished by global coordination and efficient administration (United Nations, 2021).
- The role played by non-state stakeholders has been limited because only a few initiatives for capacity development are in motion and there is also a lack of well-crafted communication strategy, furthermore the uncertainty in terms of resource commitment has made the situation worse (Siddiqi et al., 2020).
- The availability of good quality and disaggregated data is still a challenge in various countries due to their lack of proper data collection and transmission channels. Such issues have been seen to be quite pronounced especially in regions like Nepal, Pakistan and Tanzania the disaggregated is lacking, on the other hand there have been concerns over quality of data in Peru and Tajikistan. These circumstances call for strategic investments to be made that will enable conduction of national health surveys and reporting from information systems to made on HHSDG indicators (Siddiqi et al., 2020).

Ethical Concerns in Achieving Health-associated SDGs

Achieving several SDGs regarding health creates some moral dilemmas:

- **Resource allocation:** Equal distribution of financial resources among diseases, populations, or regions.
 - **Equity vs. Efficiency:** Who gets priority—rural poor or urban majority?
 - **Privacy issues** in context of digital health data collection and usage.
 - Supporting **autonomy** and informed cooperation in vaccination and clinical trials.
 - Ensuring accessibility to cost effective essential medications by managing **pharmaceutical ethics and patent regulations**.
- Ethical frameworks are necessary to guide decision-making while respecting human rights.

Evaluation

In the past of 2015, since the Sustainable Development Goals were adopted, several positive developments have been observed. These developments range from integration of sustainable development goals into national plans and strategies of countries, up to many of them

setting up infrastructures for coordination and seamless coherent implementation of plans. Although despite these efforts the United Nations' reports show that the world is still not on the desired trajectory of goal completion to satisfy the list of 169 goals included in SDGs (United Nations, 2019).

The main difference between MDGs to SDGs among countries is the raised level of awareness and understanding regarding goals and their linked objectives. This understanding has led to better political commitment by countries that in turn produced several multisectoral institutional arrangements along with stronger monitoring systems and partnerships with various development agencies development to engage them in a progressive implementation of SDGs guidelines. However, on the flip side of coin, a limited participation was observed from non-state stakeholders due to lack of proper communication channels, few capacity developing start-ups and uncertain financial commitments (Siddiqi et al., 2020).

Future prospects and Recommendations

Some important aspects of the SDGs guide that need further in-depth understanding and research for proper implementation to maximize its benefits include: effective measures to implement strategies for working at the intersection of governance, transparency and multisectoral approach, implementing cost-effective methods of integration, development of indices for measuring health impact of non-health sectors, and high-quality monitoring strategies to get good quality data for better accountability, transparency and coordinated achievement of goals (Aftab et al., 2020).

These measures should be given necessary attention to strengthen the influence of SDGs on public health outcomes:

- **Improving Universal Health Coverage:** To guarantee equal and fairly accessible healthcare services to all, aiming to reduce financial strain of medical expenses.
- **International alliances and collaborations:** Initiating regional and global cooperation to pool resources, expertise and information.
- Implementation of coordinated strategies and a more holistic approach to combat negative **impact of social determinants** of health.
- Financial aids for **research and innovation** for development in the field of sustainable healthcare solutions and science-backed actions.
- Encouraging **community participation** and engagement in local initiatives for proper execution of health associated initiatives (Chotchoungchatchai et al., 2020)
- **Expansion of Education programs** to promote preventive medicine and healthy lifestyle choices to reduce burden of chronic diseases.
- **Enhancing global pandemic preparedness** by strengthening disease surveillance systems, infrastructure development and sustainable health policies.
- External assistance should be prioritized for the countries that failed to achieve health-related MDGs and are the ones most likely struggling with HHSDGs, as the assistance will strengthen their internal systems and help them to catch up with their peers (Siddiqi et al., 2020).

Declaration of Astana 2018

The Global Conference on Primary Health Care in Astana, Kazakhstan, in October 2018 adopted a new statement emphasizing the critical significance of primary health care worldwide. In order to guarantee that everyone, everywhere, can enjoy the best possible and attainable standard of health, the proclamation strives to refocus efforts on primary health care. Governments, NGOs, professional associations, academic institutions, and international health and development organizations have reaffirmed their political commitment to primary healthcare as a result of the new proclamation. This declaration served as an opportunity to evaluate the progress and consider the initiatives yet to be taken in this regard (WHO, 2018).

Conclusion

Undoubtedly, SDGs have a significant role in enhancing global health outcomes by providing a comprehensive framework and integrated policies. Majority of these goals are linked in one way or other to health outcomes, dealing with various socioeconomic and environmental factors which have significant impact on health. However, more persistent efforts are required to combat existing challenges and make healthcare affordable and accessible for all which marks the importance of community participation and leadership. While significant progress has been made in reducing infectious disease prevalence, improving maternal health, and expanding healthcare accessibility, disparities persist, particularly in low-income regions. Thus inclusive policies are needed to be developed considering vulnerable groups and underserved regions. Moreover, addressing social and economic inequalities that impact health outcomes remain crucial for attaining better long-term health outcomes. A multi-sectoral approach integrating policies, funding, and global collaboration and knowledge exchange is essential to achieving sustainable health improvements aligned with the SDGs. Progress towards these goals should be also be monitored continuously to ensure that health interventions aligned with SDGs are effective overtime.

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