GOOD HEALTH AND WELL-BEING
The Outbreak of Disease Across the Globe

SAÚDE E BEM-ESTAR
O Surto de Doenças ao Redor do Mundo

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Abstract

This study reviews recent disease outbreaks, contextualising them alongside the UN Sustainable Development Goals (SDGs), specifically on SDG3: Good Health and Well-being. Seven news articles are examined, exploring the interdependence between global disease control and the SDG framework. It categorises outbreaks into vector-borne, waterborne and highly contagious diseases, reviewing their diffusion and management challenges, particularly in vulnerable populations. Through qualitative methods e.g. SWOT analysis, the threats and opportunities for SDG3's success are highlighted, showcasing the importance of effective international cooperation. The results conclude that socio-economic standing, conflict and climate change intensify vulnerabilities and reduce resilience, frequently obstructing timely and effective responses. Overall, it was found that synergistic action across UN SDGs – particularly SDG6, SDG13 and SDG16, is critical to the success of SDG3 and mitigation of disease outbreaks globally. Ultimately, a collaborative global effort is required to efficiently tackle emerging health risks and protect the wellbeing of the global population.
Keywords: disease outbreaks, sustainable development, global context, UN Agenda 2030.

Resumo
Este estudo analisa surtos de doenças recentes, contextualizando-os em relação aos Objetivos de Desenvolvimento Sustentável (ODS) da ONU, com foco específico no ODS 3: Saúde e Bem-estar. São examinados sete artigos de notícias, explorando a interdependência entre o controle global de doenças e a estrutura dos ODS. Os surtos são categorizados em três tipos: doenças transmitidas por vetores, doenças de origem hídrica e doenças altamente contagiosas, analisando sua disseminação e os desafios de gestão, especialmente em populações vulneráveis. Por meio de métodos qualitativos, como a análise SWOT, são destacados os desafios e oportunidades para o sucesso do ODS 3, evidenciando a importância da cooperação internacional eficaz. Os resultados concluem que fatores como condições socioeconômicas, conflitos e mudanças climáticas aumentam as vulnerabilidades e reduzem a resiliência, frequentemente dificultando respostas oportunas e eficazes. De modo geral, constatou-se que a ação sinérgica entre os ODS da ONU – especialmente o ODS 6, ODS 13 e ODS 16 – é essencial para o sucesso do ODS 3 e para a mitigação de surtos de doenças em escala global. Por fim, um esforço global colaborativo é necessário para enfrentar de forma eficiente os riscos emergentes à saúde e proteger o bem-estar da população mundial.
Palavras-chave:surtos de doenças, desenvolvimento sustentável, contexto global, Agenda 2030 da ONU.

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Introduction

The United Nations Sustainable Development Goals (SDGs) are an internationally adopted framework for 'peace and prosperity for the people and planet, now and into the future' established in 2015 (United Nations A, n.d.). The 17 SDGs outline the symbiotic action required to viably maintain life within Earth's physical and human systems, tackling issues on a variety of scales - from human wellbeing to climate change. At their heart, they recognise the fragility and interdependence of current issues, urging for synergic international cooperation to install and sustain strategies for their adaptation and mitigation (Morton Et Al., 2017).

This paper will analyse seven recent news articles, detailing the events they cover and their connection to the SDGs in a global context. This work specifically looks at reported recent disease outbreaks and disease risks globally, and therefore, whilst acknowledging all 17 goals due to the multifaceted nature they present, will primarily focus on SDG 3: Good Health and Well-Being, as it is a common theme between all articles, and requires action on a range of spatial scales. SDG 3 strives to: 'ensure healthy lives and promote well-being for all at all ages' (United Nations B, n.d.) with 12 established sub-targets and indicators to aid in achieving it, covering a multitude of health issues and related struggles (such as maternal/ infant mortality, deaths from road traffic accidents, deaths from natural disasters and the impact of epidemics).

In general, the conceptual framework of relationships between health and the health pathways, morbidity (disease), and mortality rates (Nieuwenhuiisen, 2016) will be discussed. This paper will primarily explore the relationship between the urban environment and international morbidity - specifically analysing the targets of SDG3 in the context of disease outbreaks outlined in recent news.

The UN Agenda and its relationship with global health

The classification of disease helps to identify the risks it presents to a population on a range of spatial and temporal scales. The impact a disease has on a population is often determined by the method of disease diffusion; the scale of spread (endemic, epidemic or pandemic); and the country's withstanding socio-economic strength and resilience (SCHÆRSTRÖM, 2009). There are four general terms used for disease classification as explained below.

Communicable diseases have the ability to spread from host to host through disease vectors, contact with contaminated material, or airborne particles (Who A., 2024), and are often referred to as 'infectious' or 'transmissible'. They include diseases such as respiratory tract infections, viral infections and vector-borne diseases. Historically, global communicable disease diffusion was facilitated by war, colonisation, trade routes and slavery, circulating infectious human to human diseases such as polio and diphtheria (Baker Et Al., 2022). Whilst global socio-economic development, medical advances (such as the production of vaccines) and improved sanitation has significantly decreased the severity and mortality of communicable diseases worldwide, they still pose a serious threat to the global population (Oppong, 2020). The mitigation of communicable diseases has not been spatially unanimous – less developed countries (located primarily in the Global South) are at increasing risk from emerging and re-emerging diseases due to lack of resources, decreased resilience, shifts in climate, and increased exposure to foreign pathogens as international personal mobility and global connectivity continue to expand exponentially (Mahon, et al., 2024).

Communicable diseases can be broken down into two further sub-categories, *contagious diseases*, and *non-contagious diseases*. Contagious diseases are transmitted between people via either indirect or direct contact (Toyama, 2016). These include HIV, Cholera and Dengue fever. Non-contagious diseases cannot be transmitted from person to person but can be transmitted via disease vectors such as malaria and anthrax (Toyama, 2016).

Finally, *non-communicable diseases* (NCD) cannot spread between hosts, or via pathogens, as they are a result of genetics, environment, psychology or lifestyle choices - may be referred to as 'chronic' (Who A., 2024). They include cardiovascular diseases, cancers, chronic respiratory diseases and diabetes. NCDs are currently the leading cause of death and disability worldwide (Habib and Saha, 2010), responsible for 74% of global annual deaths – 77% of which are in low-middle income countries (Who A., 2024).

All 17 UN Goals must be acknowledged in order to fully contextualise the mitigation of current issues in a global context. The SDGs particularly relative to this study are: SDG 1- No Poverty; SDG 3 - Good Health and Well-Being; SDG 4 - Quality Education; SDG 6 - Clean Water and Sanitation; SDG 9- Industry, Innovation and Infrastructure; SDG 10 - Reduced Inequalities; SDG 11- Sustainable Cities and Communities; SDG 13 - Climate Action; SDG 16 - Peace, Justice and Strong Institutions; and SDG 17- Partnership for the Goals (United Nations A., 2024).

Whilst relying on the synergetic progress of all SDGs for its success, SDG3 has specific sub targets to help achieve the overall goal. Sub targets 3.3 (ending epidemics of communicable diseases by 2030), 3.8 (achieving universal health coverage and access to essential healthcare and medicines), 3.9 (reduce the number of deaths and illnesses from air, water and soil pollution and contamination), 3.B (affordable access to essential medicines and vaccines), 3.C (increasing health financing, development, training, and recruitment and retaining of workforce), and 3.D (strengthening the capacity for all countries to tackle health risks) are all critical to the analysis of the selected current news articles for this study in the success of SDG3 (UN B., 2024).

Methodology

This study was carried out using secondary data to gain a descriptive, yet analytical, understanding of how the UN SDGs are apparent in current news headlines. The use of secondary data allowed for research on a global scale, supplying a wider scope and variety of news events to be used for contextual analysis. Over six weeks, news articles from respectable sources were reviewed, and a note of interesting articles made (see Table 1). After three weeks of collection, themes connecting the articles were highlighted. Upon selecting SDG 3, the website 'ReliefWeb' (https://reliefweb.int/) was used to explore recent international disease outbreaks and epidemics. These events were then entered into online newspaper websites to find coverage of them within the media – BBC News and CNN World News specifically.

	NEWS ARTICLE TITLE	SOURCE
1	Nigeria – DIPHTHERIA. 'Fears as West Africa battles worst diphtheria outbreak in recent times'.	BBC News
2	Argentina – DENGUE FEVER. 'Argentina battles dengue surge and repellent shortage'.	BBC News
3	Myanmar – ACUTE WATERY DISEASES (AWD). 'Typhoon Yagi leaves at least 74 dead in Myanmar after flooding and landslides'.	CNN News
4	Europe – MOSQUITO TRANSMITTED DIEASE RISK. 'Tiger mosquitoes behind dengue fever rise in Europe'.	BBC News
5	Rwanda – MARBURG VIRUS. 'Rwanda is dealing with its first outbreak of deadly Marburg virus disease'.	CNN News
6	Gaza – HEPATITIS AND WATERBORNE DISEASES. 'Gaza's water system destroyed by war, is sickening its children'.	BBC News
7	Zambia, West Africa and the Middle East – CHOLERA. 'Cholera: Zambia battles worst outbreak in decades'.	BBC News

Table 1 - News articles reviewed for this study (Source: author, 2024).

From this, seven news articles were selected and individually analysed, identifying the prevalent SDGs involved, and how the event/issue impacted the achievement of one specific shared goal - in this case SDG3 - using a SWOT analysis, identifying the strengths and weaknesses of the event for the achievement of SDG3, and subsequent opportunities and strengths for this. This was further considered in the context of the overarching SDG and specified sub-targets. Furthermore, a cognitive map design was produced (see Figure 1), physically displaying the international and inter-linked impact of the issues found. All articles collected were from reputable sources and correctly cited according to APA Citation in compliance with copyright and data use policies. In addition, a photo collage (see Figure 2) was made, gathering pictures from online sources depicting the issues raised by the articles – this shows a visual representation of the global impact of disease, the scale at which it occurs, and the critical requirement for the implementation of SDG3 action to be taken.

Results

The news articles selected to this analysis cover a variety of disease outbreaks, each with their own specific global impacts, and can be grouped into three broad disease categories: (i) vector transmitted diseases, (ii) waterborne diseases, and (iii) highly contagious diseases. This analysis will cover various geographic locations, including Argentina, Europe, Nigeria, Myanmar, Rwanda, Gaza, and Zambia.

The implications of vector transmitted diseases are highlighted in the news collected through the first two case studies: Argentina (Wells, 2024) and Europe (Roxby, 2024). Dengue fever is a communicable, non-contagious infection, contracted from mosquito bites. It is often asymptomatic but has potential of fatalities. In 2023, a dengue fever epidemic was present in over 100 countries worldwide, recording over 6,000,000 cases and 7,000 deaths (Who A., 2024). Effective vaccinations are still in development, so prevention must stem from vector control and personal protection – unmet in the Argentinian case study due to nationwide repellent shortages and extortionate resale prices (Wells, 2024). This directly inhabits the success of UN SDG 3 sub-targets 3.3, 3.8, 3.B and 3.C.

However, due to climate change, the scale of threats has traversed globally. European outbreaks of dengue fever, and other mosquito-borne diseases have been recorded in 18 European countries previously unexposed to such infections, threatening their immuno-

vulnerable populations (Roxby, 2024). The presence of tiger mosquitos in Europe - typically found in tropical and semi-tropical climates due to the warm, humid conditions - explicitly indicates increased international disease diffusion. Climate change and subsequent global warming effects are altering conditions to become more climatically favourable, creating desirable breeding grounds for mosquito reproduction to occur. Additionally, the increased mobility of populations, global population growth and rapid urbanisation have made it increasingly difficult to contain and manage outbreaks of vector transmitted diseases. This not only exasperates the pressures on SDG 3 and its sub-targets, but also calls for the urgent action of UN SDG13 to control and maintain the Earth's climate (United Nation B, n.d.), as well as SDG 9 and SDG 11 to safely construct and manage our cities and communities.

Furthermore, the emergence of tangible risks in more socio-economically advanced nations (Europe) should spark urgency and open international aid opportunities to support vulnerable low-middle income countries struggling to adequately mitigate vector-borne disease outbreaks. As the understanding of required critical care becomes more globalised, able countries with shared experiences should extend relief in support of the affected nation and the achievement of UN SDG 3.

Waterborne diseases (such as typhoid, cholera, diarrheal diseases, and hepatitis A) are caused by the consumption of contaminated water, generally stemming from inadequate sanitation (Eisenberg Et Al., 2001, pg.234). Globally, 1.4 million people die annually due to poor sanitation and water hygiene – largely concentrated within the Global South. Not only are these events relevant to SDG 3 but are largely dependent on the success of SDG 6 and its sub-targets. The collected news articles also include case studies of outbreaks of cholera in Zambia (Gondwe, 2024); acute watery diarrhoea (AWD) in Myanmar (Yee, 2024); and hepatitis A in Gaza (Donnison, 2024).

The Zambian cholera epidemic had a combination of driving factors, including: poor baseline sanitation (SDG 6); flooding due to increased intensity of rainfall (subsequent to global warming and SDG 13) resulting in the mixing of clean and sewage water; and a lack of effective water management strategies (SDG 11) (Gondwe, 2024). Cholera is a difficult disease to contain as it is transmissible through water bodies and physical contact with contaminated surfaces and bodily fluids. Therefore, disease diffusion has

the potential to be regionally spread via river channels, or dispersed further afield by contaminated trade products, or the mobility of infected individuals – showcased in the Haitian outbreak in 2010 (Orata Et Al., 2014), and therefore poses risks of global transmission. The mitigation of outbreaks of waterborne diseases are directly dependant on the success of SDG3 sub-targets 3.3, 3.8, 3.B, 3.D and most importantly 3.9 (Who A., n.d.).

The Myanmar and Gaza outbreaks of acute watery diarrhea (AWD) and hepatitis A respectively are both strongly related to decreased resilience due to war – incorporating SDG 16. In both cases, war had damaged crucial infrastructure, like water management systems, reducing ability to function effectively and ultimately increasing the risk of water contamination by hazardous chemicals (Yee, 2024, Donnison, 2024). This calls for international co-operation to halt conflict and promote disaster aid, protecting vulnerable and innocent populations and providing immediate medical care for those that need it. Diarrheal diseases (like AWD and hepatitis A) result in severe, often deadly, dehydration and without safe, accessible water, effected individuals cannot adequately rehydrate, increasing morbidity and mortality, impacting SDG 3 (specifically sub-targets 3.3, 3.9 and 3.D) alongside SDG 6 and SDG 11.

Myanmar's AWD outbreak was heightened by Typhoon Yagi (referred to as Severe Tropical Storm Enteng in the Philippines), exasperating the vulnerability of an at-risk population with extreme flooding and landslides: displacing them from their homes and removing the little access to clean water they had (Yee, 2024). Although typhoons are characteristic of Myanmar's climate, global warming is increasing the frequency and intensity at which they are occurring – reducing the country's resilience and ability to mitigate past events before another hits, as well as quickening the rate of transmission downstream into other regions. This calls for the action of SDG 13 and effective implementation of SDG3 targets temporally to combat disease risks before outbreaks occur. As the effects of climate change are being seen on an increasingly global scale, extreme weather and disease events will inevitably grow in spatial impact too.

Poorly constructed, informal settlements in the Global South are incredibly vulnerable to highly infectious diseases such as tuberculosis, diphtheria and other viral infections. Inadequate sanitation, hygiene and education surrounding illness, alongside a significant

lack of medical care and supplies, means that outbreaks can quickly develop into epidemics (Baker Et Al., 2022), driven by SDG 1, SDG 4, SDG 6, SDG 9 and SDG 11. One of the news articles selected presents an outbreak of diphtheria (a communicable, infectious, bacterial disease affecting the respiratory tract) in Nigeria, which spread rapidly into other West African countries, broadening the scale of impact and making it significantly harder to control (Sutherland, 2023). In unvaccinated individuals, the disease has a 30% fatality rate (Truelove Et Al., 2020), and with widely available vaccines, SDG 3 sub-targets 3.B and 3.D are critical in the treatment and containment of preventable diseases like diphtheria (Who A., 2024). The causes and effects of diphtheria, and other viral respiratory infections, are well established and understood academically and in practice; therefore, able international parties should respond to outbreaks like this accordingly with efficient medical supplies and aid – contributing to the achievement of SDG 3, SDG 10 and SDG 17. GAVI, a vaccine alliance programme, provide a positive example of this as they released applications for eligible countries to phase diphtheria vaccines into their health programmes, securing a baseline level of immunity, and increasing resilience to outbreaks - easing the stress of mitigation (Sutherland, 2023) on the effected nations.

Nevertheless, highly infectious diseases can be more difficult to control if symptoms have delayed onset. Marburg virus, similar to Ebola, is a haemorrhagic disease which can take up to three weeks to display symptoms, yet has a fatality rate of 88% (WHO D, 2024). It is contracted human to human via contact with infected bodily fluids and is not currently vaccinatable. An outbreak in Rwanda is currently being monitored by international organisations, specifically WHO, that are providing medical supplies, expert support and test and trace aid to limit the spread of the disease and restrict its morbidity (Christensen, 2024). This speed of response should be replicated by international organisations and countries in all disease dilemma cases in order to fulfil the goals and sub-targets of SDG 3; however, this rarely happens, often resulting in unmonitored disease diffusion and the exasperation of a containable outbreak event into a fatal one, calling upon the action of SDG17 for international synergy (UN A., n.d.).

Conclusion

After contextualising the news articles selected in relation to the UN SDGs and specific sub-targets of SDG3, it is clear that international efforts are not being maximised. The prevention and treatment of identified diseases are, for the most part, treatable (either by vaccine or widely available personal protection equipment). International aid and disaster risk management must be put in place to effectively stop disease outbreaks before they grow into epidemics. If communicable disease epidemics are to be halted by 2030 (as per SDG 3 sub-target 3.3), global response to outbreaks must be quicker and more effective – calling on the consistent accomplishment of sub-targets 3.8, 3.B, 3.C and 3.D in all scenarios in the face of globalisation and increased population mobility – spreading illnesses worldwide.

Furthermore, the achievement of other goals, namely SDG 6, SDG 13 and SDG 16 will aid in the root prevention of disease outbreaks. The successful implementation of SDG 3 sub-target 3.9 is conditional to a globally adequate standard of water sanitation, air quality and soil management, all of which are factors determined by water hygiene levels, climate change and international peace. The mitigation of global climate change will also decrease the risk of vector mobility – confining the spatial impacts of disease outbreaks internationally.

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