IMPROVING THE SUPPLY OF CLEAN AND SAFE DRINKING WATER IN HOMES WILL GO A LONG WAY TO REDUCE INFANT MORTALITY

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ABSTRACT

INTRODUCTION

Water is required for the survival of all living things, including pregnant women, so that they can give birth to healthy babies, there is a high rate of infant mortality in Nigeria due to a lack of clean drinking water in the community, drinking unclean water can cause diarrhoea, skin infections, and diseases, clean drinking water can be obtained from a variety of resources and processes, instilling chemicals can disinfect the water and make it drinkable. Other sources of water include wells and septic tanks.

CONCLUSION:

This document can assist to reduce infant mortality by emphasising the need of clean and safe drinking water for pregnant women, and how they can continue to drink clean and safe water after giving birth for the benefit and health of their infants.

Key words: Water safety, renal disease, health prevention, Mortality, pneumonia, skin diseases, irritations, kidney diseases, Global health.

INTRODUCTION

Water is a vital component of human life and a basic nutrient. It aids in food digestion, nutrient absorption, transportation, and utilization, as well as the removal of toxins and wastes from the body. Food preparation also

necessitates the use of water. Domestic water is described as "water utilised for all common domestic purposes," such as drinking, bathing, and cooking. Household water that is safe for these purposes is known as safe domestic water. It is free of harmful elements that would make it unfit or unsafe for drinking or other household uses. Similarly, safe drinking water, also known as potable water, is water that does not contain impurities that make it harmful to drink.

Public water systems, private wells, and bottled water are all possible sources of drinking water. It may be as simple as turning on the tap from an EPA-regulated public water system to ensure safe and healthful drinking water. A water filter, a check on water fluoridation, or an examination to ensure a septic tank is not too close to a private well may be required for other water sources. It's critical to understand where drinking water comes from, how it's been treated, and whether or not it's safe to consume.

For people living in Nigeria's poorer communities, this economic imbalance is distorting access to basic water supplies. According to data compiled by The Conversation in 2017, over 80% of wealthy Nigerians have access to a basic water supply and safe drinking water, whereas only 49% of poor Nigerians do.

Journalist Dele Sobowale investigated population growth in Nigeria and discovered that the country's population is growing at a rate of 6 million people each year. Furthermore, 80 percent of the 6 million people lack access to safe drinking water. This means that the water they now have access to does not meet Nigeria's drinking water requirements. Nigeria tests water for taste, odour, bacteria, and E. coli to see if it meets its criteria.

According to the results of the testing, 64 percent of Nigerian homes have access to safe drinking water sources such as piped water, boreholes, and rainwater collection. However, the findings revealed that around 90% of Nigerian families received E. coli-contaminated water at some point, whether from clean or non-clean sources.

Despite all of this, many people are working to resolve the problem. In Nigeria, many organizations are attempting to improve water quality.

Six factors that determine whether or not a water supply can effectively maintain good health

1. Water quality refers to bacteria and chemical elements in the water that might cause diarrhoeal and nondiarrhoeal sickness.

2. The amount of water that is accessible and used.

    This is mostly governed by

    (a) the distance travelled, where water must be carried (frequently on the heads or backs of children and women), and

    (b) the user's affluence.

3. While access to water may be simply an issue of physical distance or ascent, it may also have financial and/or cultural elements if some social groups are denied access to specific water sources due to cost or cultural barriers.

4. Water supply reliability, both unimproved and improved Many Asian towns, for example, only provide piped water for a few hours per day or a few days per week, while many unimproved rural waters supply routinely dry up.

5. The price of water to the consumer. This is reflected by the cash tariff paid to a utility or provider, or the time and health penalty incurred by the user in the case of unimproved water supplies.

6. The end user's ease of management. Users in urban utility-managed supplies simply pay a tariff; however, in rural areas of developing countries, users are required to have a significant role in operation, maintenance, and management.

WATER, DIARRHOEA, AND INFANT MORTALITY

Investigations into the costs and health benefits of improving drinking water supplies in low-income countries have largely focused on how these changes alter the prevalence of acute infectious diarrhoea.

This focus is understandable considering that diarrhoeal disease is the second leading cause of death in developing nations (as measured by disability-adjusted life years [DALYs]), and poor-quality drinking water is a major cause of diarrhoea. The majority of the disease burden in underdeveloped nations is borne by young children; diarrhoea is responsible for 17% of all fatalities in children under the age of five.

It demonstrates that infant mortality is substantially linked with both GDP per capita and the share of the population lacking access to better water (p0.001 for both). In a multiple predictor variable regression, both measurements remain independent risk factors for infant death.

While this study cannot prove a direct causal association, because improved water services are likely to be followed by improvements in other services (such as sanitation), it is obvious that improved water services are associated with lower infant mortality in countries with similar GDP.
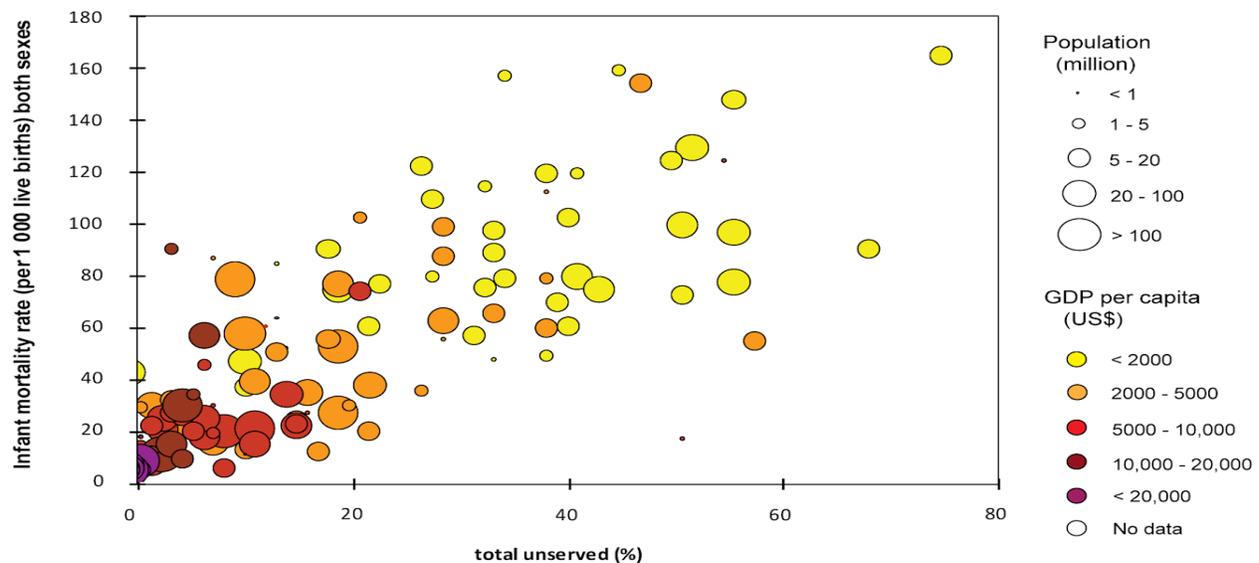

Figure 1. Global association between national access to improved water source, GDP and infant mortality.
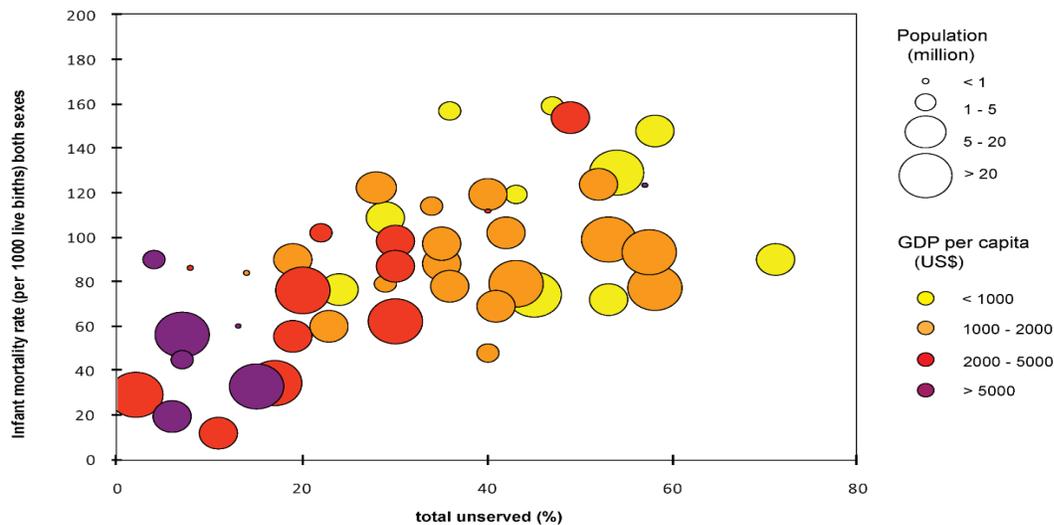
Data sources [6],[20],[66].

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Figure 2. Association between national access to improved water source, GDP and infant mortality for Africa.
Data sources [6],[20],[66].

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The focus on acute diarrhoea, on the other hand, almost definitely underestimates the illness burden caused by poor sanitation and water. Repeat or chronic diarrhoea, malnutrition, and poor educational and physical growth all have a strong association that can substantially hinder children's ability to realise their full potential. It has been suggested that if the chronic effects of diarrhoea are taken into account, the true global disease burden (and, as a result, the health benefits of water and sanitation interventions) would be about twice as high as current estimates, which are based solely on acute illness and mortality.

There is significant evidence that increasing access to safe drinking water reduces the risk of diarrhoea in children. However, there has been a vigorous dispute regarding the relative importance of water quantity and water quality in reducing the prevalence of diarrhoeal disease since the early 1980s, particularly after Esrey's studies in the late 1980s. Different emphases in water supply interventions have resulted from Esrey's and later workers' fairly divergent analyses, particularly in regard to the role of point-of-use household water treatment technology.
However, regardless of the intervention, current evidence suggests that even minor short-term failures in water delivery or treatment can substantially undermine many of the public health gains associated with better water supply.

This research does not argue against attempting to enhance water quality, whether through community or household water treatment technology, but it does emphasise the critical need of building systems that will provide safe water in the long run.

INDIRECT LINKS BETWEEN WATER AND HEALTH

There are numerous indirect benefits of enhanced safe water supply in addition to the direct health benefits. The close link between water and livelihoods in all locations and economies of the world, for example, has an indirect impact on health. Water shortages, whether for productive or residential purposes, have a direct detrimental impact on livelihoods in developing countries; in wealthy countries, prior investments in water infrastructure and the ability to invest more in the future boost water security and, arguably, prosperity.

Malnutrition can be caused indirectly by a lack of water. Several writers claim that investing in low-cost water gathering techniques, irrigation, and clean water supplies is a good way to boost food production while lowering infectious disease burden. Throughout Sub-Saharan Africa, there are numerous examples.

And in South Asia, where a little patch of irrigated land has transformed food security for the most disadvantaged households.

A study of child nutrition in central Kenya revealed significant evidence that irrigation contributed to higher calorie intake and reduced chronic malnutrition in children in otherwise comparable communities with and without irrigation. In research comparing families near and far from two dams in Burkina Faso, however, inconsistent results were discovered.

Finally, improvements in water supply are required for enhanced personal and household hygiene as well as the cleanliness of sanitary facilities. As a result, better water supply's direct health benefits are expected to be augmented by its indirect impacts on sanitation and cleanliness.

DELIVERING A BETTER WATER SUPPLY

High-quality water is universally provided in wealthy countries, with substantial sums of money spent to ensure stable residential supplies. Improved water access is often provided in impoverished nations through communally maintained public water stations in rural regions and unreliable distribution systems in towns and cities.

Many water supply interventions in impoverished nations, unfortunately, do not last. Three villages in recent South African research with apparently better water supply had insufficient water because their wells had dried up or were unable to satisfy demand. Five more towns were without water on the day of the inspection, two due to a broken water pump, two due to a lack of funds to purchase diesel for the pump, and one due to the pump operator's illness.

This example highlights some of the difficulties that come with maintaining water delivery infrastructure over time. In Bangladesh, a study of water supply and arsenic mitigation devices indicated that only around 64% of the interventions were operational; other research suggest that about a third of hand pumps in Sub-Saharan Africa are inoperable.

Unfortunately, in low-income nations, payments recovered from improved water supply consumers are typically insufficient to cover the true operating costs of both rural and urban water supplies, causing systems to degrade or require significant subsidies. Finding ways to lower or distribute the costs of establishing home connections (in the case of urban piped supplies), devising microfinance instruments for rural user fees, and encouraging self-help and small enterprise-driven techniques are all possible approaches for enhancing revenue generation. Nonetheless, it must be acknowledged that the actual demand for better services exists. (represented as a willingness to pay) may not yet correspond to the level of service promoted by international targets such as the MDGs.

The role of self-help (self-supply) projects and small businesses in delivering enhanced and sustainable water services is becoming more widely recognised. Externally driven approaches (initiated by agencies other than water users and typically heavily subsidised); self-supply initiatives (driven by user demand); and enterprise-driven approaches (in which local private entities supply goods and services to governments, nongovernmental organisations (NGOs), and water users). The last two approaches, which might be combined, are considerably different from the traditional, externally directed approach. However, a high reliance on "private" (mainly shallow groundwater) sources, which are often poorly constructed and subject to pollution or failure during dry years, has serious health consequences.

Debates concerning private sector participation and public–private partnerships for improving water delivery services have created more heat than light during the last decade. There is little doubt that the private sector will not invest large sums to upgrade or expand water supply systems. However, this industry has always played a significant role in the provision of goods and services, as well as in consulting, supervision, and capacity-building.

These functions are unlikely to vanish, so we take a pragmatic approach to private sector involvement: the optimum arrangements are determined by the local circumstances.

WHO has advocated the concept of water safety plans in recent years (WSPs). Under the motto "managing drinking water quality from catchment to consumer," a WSP is a risk-based approach to public health achieved through water quality and watershed management techniques. Although the WSP technique is commonly used in urban piped supply systems, few attempts have been made to apply it in rural areas where distant water sources are the norm.

THE CHALLENGE

In Nigeria, a lack of access to improved water and sanitation is a major contributor to high morbidity and mortality rates among children under the age of five. Waterborne diseases such as diarrhoea, which kills over 70,000 children under the age of five each year, are made more vulnerable by the use of contaminated drinking water and poor sanitation.

Poor access to appropriate water, sanitation, and hygiene (WASH) accounts for 73% of the diarrhoeal and enteric disease burden, which is carried disproportionately by poorer children. Children's frequent episodes of WASH-

related illness contribute to school absence and malnutrition. Only 26.5 percent of the population has access to improved drinking water and sanitation. Furthermore, 23.5 percent of the population defecates in public.

Getting to Sustainable Development Goal 6 by 2030 will take tremendous work. According to World Bank projections, Nigeria will need to treble its budget or spend at least 1.7 percent of its current GDP to WASH. The aspiration is largest in rural sanitation, where there is a 64.1 percent deficit in services. The sub-sector receives insufficient funding, and despite low family incomes, large household contributions are required to reduce open defecation.

STRATEGIES TO ACHIEVE AN IMPROVED WATER SUPPLY

A constant and safe supply of water for drinking, cooking, and personal cleanliness is a requirement for good health. Inadequate water supply, whether due to poor access or quality, low reliability, high expense, or management complexity, is linked to serious health hazards. The poorest nations, as well as the poorest households within nations, bear the brunt of these health risks. Water is essential for sanitation and hygiene, as well as supporting livelihoods, nutrition, and economic growth.

Although the worldwide MDG objective for water supply is expected to be met, many hundreds of millions of people will still be without appropriate water. Furthermore, in Sub-Saharan Africa, the targets are exceedingly unlikely to be met. Lack of progress in expanding water supply services is partly due to high population growth rates in low-income nations, insufficient investment (despite the small amounts required), and weak governance. Existing water supplies frequently fail owing to insufficient financial and management arrangements for operation and maintenance, as well as a mismatch between technology, the water environment, and users' ability to maintain systems. As a result, urban and rural water delivery infrastructures are underperforming or damaged, resulting in continued poor health.

While developing countries' health systems are not directly responsible for improving this condition, poor water supplies inflict a major burden of disease on their populations, and it is these populations, as well as their national health systems, that bear the costs of diarrhoea and other diseases. As a result, health professionals should join other sectors (infrastructure, education, and economic growth) in calling for reform.

However, it is evident that there are many unknowns about how to improve public health through water supply improvements. More and better research, particularly larger and longer double-blinded randomised controlled studies evaluating the health effects of water supply and quality changes at the community and home level, is urgently required.

However, it is equally evident that action must not be delayed until the results of such studies. We now know enough about the value of improved water supply, sanitation, and hygiene in terms of health to consider universal access to these services a pressing necessity.

CONCLUSION

Water is a basic human need, and some countries lack access to clean and healthy water. Having safe drinking water can help prevent various water-borne diseases. For example, in Nigeria, infant mortality is on the rise due to a shortage of safe drinking water, and mothers do not have access to it.

Clean water for drinking and washing newborns, which causes illnesses and skin infections in infants and leads to mortality. Organizations like the ones listed above can assist Nigerians improve their water quality. Some actions have been taken, and if adopted, we can have safe, clean water and reduce infant mortality in Nigeria and around the world. People might address poor water quality around the world by taking one action at a time.

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