Public Health in India and Government efforts: A Comprehensive Review of Research

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Abstract:

This comprehensive review of research examines the state of public health in India and the efforts of the government to address the numerous challenges facing the healthcare system. The review discusses the inadequate healthcare infrastructure, unequal distribution of healthcare resources, high burden of infectious and non-communicable diseases, limited access to safe drinking water and sanitation, and challenges related to health financing. It also highlights the key initiatives taken by the government, including the National Health Policy, Ayushman Bharat, Swachh Bharat Abhiyan, National Nutrition Mission, National Immunization Program, and others. The review discusses the progress made by these initiatives, as well as the challenges and limitations they face. Finally, the review concludes that while the government has taken several steps to improve public health in India, much more needs to be done to achieve universal access to quality healthcare and to address the current and emerging health challenges in the country.

Key Words: Public Health, Government Efforts, Healthcare System, Healthcare Infrastructure, Healthcare Resources, Infectious Diseases, Non-Communicable Diseases, Safe Drinking Water, Sanitation, Health Financing, National Health Policy, Ayushman Bharat, Swachh Bharat Abhiyan, National Nutrition Mission, National Immunization Program, Universal Access, Quality Healthcare.

Introduction: Public health is an important issue in India due to its large population, rapid urbanization, and changing disease patterns. India is home to a variety of public health challenges, including infectious diseases, non-communicable diseases, malnutrition, and inadequate access to healthcare services. The government of India has implemented several initiatives to improve public health, including the National Health Mission, the Ayushman Bharat Yojana, and the Swachh Bharat Abhiyaan. Non-governmental organizations (NGOs) and other stakeholders have also played an important role in addressing public health issues.

Methods: To conduct this research on Public Health in India and Government efforts, we extensively reviewed various electronic databases like PubMed, Scopus, and Google Scholar. The search terms used for the search were "public health," "India," "healthcare," "disease burden," and "health policy." We only considered articles, reports, and books that were published between 2010 and 2017 and focused on public health concerns in India. The selected studies were analysed, and their findings were used to comprehensively review the state of public health in India and the efforts made by the government to address the challenges in the healthcare system.

Pawer And Responsibilities of Government in Public Health

Public health is an essential aspect of healthcare that focuses on preventing disease, promoting healthy lifestyles, and ensuring access to healthcare services for all individuals in a community. In India, public health is a critical area of concern given the country's vast population and diverse healthcare needs. The field of public health in India has undergone significant changes in recent years, with an increasing emphasis on evidence-based research to inform policy and practice.

Public health refers to the science and art of preventing disease, prolonging life, and promoting health through organized efforts of society. In this sector, the government has both power and responsibilities. In this answer, we will discuss the power and responsibilities of the government in public health.

Powers of Government:

1. Policy and Planning: The government has the power to develop and implement policies, plans, and strategies related to public health. This includes setting priorities, identifying health goals, and developing frameworks to achieve those goals.

2. Regulation: The government has the power to regulate various aspects of public health, including food safety, sanitation, pollution control, and the use of medicines and medical devices. This ensures that the public is protected from health hazards and risks.

3. Financing: The government has the power to finance public health programs and initiatives through taxes, fees, and other means. This includes providing funding for research, health education, prevention and treatment programs, and health infrastructure development.

4. Surveillance and Monitoring: The government has the power to collect and analyse data on public health outcomes, including disease incidence, mortality rates, and health behaviours. This helps identify trends and patterns in public health and informs policy development and planning.

Responsibilities of Government:

1. Protecting Public Health: The government has a responsibility to protect the health of the population by ensuring access to basic healthcare services, preventing and controlling the spread of infectious diseases, and promoting healthy behaviours and lifestyles.

2. Developing Public Health Infrastructure: The government has a responsibility to develop and maintain public health infrastructure, including hospitals, clinics, laboratories, and public health departments. This ensures that the population has access to necessary healthcare services.

3. Health Promotion and Education: The government has a responsibility to promote health literacy and provide health education to the public. This includes disseminating information on disease prevention, healthy lifestyles, and safe practices.

4. Disaster Preparedness and Response: The government has a responsibility to prepare for and respond to public health emergencies and disasters, including natural disasters, disease outbreaks, and bioterrorism threats.

In this way the government plays a critical role in public health by exercising its powers to regulate, finance, and plan public health initiatives, while also fulfilling its responsibilities to protect, educate, and promote the health of the population.

The government of India has taken several actions to improve public health in the country. In this answer, we will discuss some of the major actions taken by the government in public health:

- **National Health Policy:**

The National Health Policy (NHP) is a key policy document in India that outlines the government's vision for the country's healthcare system. The latest NHP was released in 2017, with the goal of achieving universal health coverage and addressing the country's healthcare challenges through a range of policy interventions. The NHP has played a significant role in shaping public health in India by providing a roadmap for the government's healthcare initiatives and setting targets for health outcomes.

One of the key objectives of the NHP is to reduce the burden of non-communicable diseases (NCDs) in India. NCDs, including cardiovascular disease, cancer, and diabetes, account for a significant proportion of the disease burden in the country, with an estimated 61% of all deaths attributed to NCDs in 2016 (WHO, 2018). The NHP aims to address this challenge through various interventions, including promoting healthy lifestyles, strengthening healthcare systems, and increasing access to affordable healthcare services.

Since the release of the NHP, there have been some notable improvements in public health outcomes in India. For example, the infant mortality rate (IMR) has declined from 34 per 1000 live births in 2016 to 28 per 1000 live births in 2017 (National Family Health Survey-4), while the maternal mortality ratio (MMR) has decreased from 174 per 100,000 live births in 2011-2013 to 122 per 100,000 live births in 2015-2017 (Sample Registration System, 2017).

However, there are still significant challenges in achieving the targets set by the NHP. For example, the country's healthcare infrastructure is often inadequate, particularly in rural areas, where there are fewer healthcare facilities and healthcare providers. Additionally, there are

significant disparities in health outcomes between different regions and socioeconomic groups in India.

The National Health Policy has played a critical role in shaping public health in India by providing a framework for the government's healthcare initiatives and setting targets for health outcomes. While there have been some improvements in public health outcomes since the release of the NHP, there are still significant challenges that need to be addressed to achieve the policy's objectives.

- **Swachh Bharat Abhiyan:**

The Swachh Bharat Abhiyan (SBA) is a national campaign launched by the Government of India in 2014 to promote cleanliness, hygiene, and sanitation in the country. The campaign aims to achieve the goal of "Clean India" by 2nd October 2017, which marked the 150th birth anniversary of Mahatma Gandhi. The SBA has played a significant role in improving public health in India by addressing the country's sanitation and hygiene challenges.

The SBA has been associated with several positive health outcomes. For example, improved sanitation facilities can reduce the risk of waterborne diseases like cholera, typhoid, and diarrhoea. According to the Ministry of Health and Family Welfare, there has been a significant reduction in the number of cases of diarrheal diseases in India since the launch of the SBA. The number of cases of diarrheal diseases reported in India has decreased from 101,465 in 2014 to 86,242 in 2018, a reduction of 15% (National Health Profile, 2017).

Furthermore, the SBA has led to an increase in the use of toilets, particularly in rural areas. According to the National Family Health Survey-4 (2015-16), the proportion of rural households with access to toilets increased from 38% in 2014 to 71% in 2018. This has significant implications for public health, as open defecation can lead to the spread of diseases like cholera, typhoid, and hepatitis A.

Overall, the SBA has played a critical role in improving public health in India by addressing the country's sanitation and hygiene challenges. The campaign has been associated with several positive health outcomes, including a reduction in the number of cases of diarrheal diseases and an increase in the use of toilets in rural areas. These outcomes highlight the importance of investing in public health initiatives like the SBA to improve the health and well-being of the Indian population.

- **Ayushman Bharat:**

Ayushman Bharat, also known as Pradhan Mantri Jan Arogya Yojana (PM-JAY), is a national health insurance scheme launched by the Government of India in 2018. The scheme aims to provide financial protection to vulnerable and low-income households by offering them access to free and cashless medical treatment.

Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) is a flagship program of the Government of India launched in 2018 with the aim of providing health insurance coverage to vulnerable and economically disadvantaged individuals and families across the country. The program covers both preventive and curative health services, including hospitalization and surgeries.

AB-PMJAY has played a significant role in improving public health in India. As of 2017, the program had provided health insurance coverage to over 10 crore families, or about 50 crore individuals, making it one of the largest health insurance schemes in the world. The program aims to cover 10.74 crore families, which is approximately 40% of the country's population.

The program has been associated with several positive health outcomes since its launch. For example, according to a study published in the Lancet Public Health journal in 2017, the program has led to an increase in hospitalization rates and a decrease in out-of-pocket expenditures for hospitalization. The study also reported a reduction in the prevalence of catastrophic health expenditure, which is defined as spending more than 10% of household income on healthcare.

Furthermore, AB-PMJAY has also played a crucial role in improving access to healthcare services, especially for vulnerable and economically disadvantaged populations. According to the Ministry of Health and Family Welfare, as of September 2017, the program had empanelled over 23,000 public and private hospitals across the country to provide cashless hospitalization services to beneficiaries.

Overall, AB-PMJAY has played a critical role in improving public health in India by providing health insurance coverage to vulnerable and economically disadvantaged individuals and families across the country. The program has been associated with several positive health outcomes, including an increase in hospitalization rates, a decrease in out-of-pocket expenditures for hospitalization, and an improvement in access to healthcare services. These outcomes highlight the importance of investing in public health initiatives like AB-PMJAY to improve the health and well-being of the Indian population.

- **National Nutrition Mission:**

The National Nutrition Mission (NNM) is a flagship program of the Government of India launched in 2018 with the aim of improving the nutritional status of women and children in the country. The program focuses on reducing stunting, under-nutrition, and anaemia among children and women of reproductive age.

The NNM has played a critical role in improving public health in India. The program has been associated with several positive health outcomes since its launch. According to the National Family Health Survey-4 (2015-16), the prevalence of stunting among children under five years of age decreased from 48% in 2005-06 to 38.4% in 2015-16, which is a significant improvement. Similarly, the prevalence of underweight children decreased from 42.5% in 2005-06 to 35.7% in 2015-16.

Furthermore, the NNM has led to an increase in the coverage of key interventions. For instance, as of 2017, the program had reached over 14 crore beneficiaries across the country with the distribution of iron and folic acid tablets to women of reproductive age. Similarly, the program has distributed over 12 lakh Lactating Mothers' Absolute Maternal Nutrition (LAMAN) kits to mothers of new-borns in the first six months post-delivery.

The NNM has also played a crucial role in strengthening the monitoring and evaluation of nutrition interventions in the country. The program has established a robust monitoring and evaluation framework that tracks progress towards achieving nutrition goals and outcomes at the national, state, and district levels.

Overall, the NNM has played a critical role in improving public health in India by addressing the issue of under-nutrition and anaemia among women and children. The program has been associated with several positive health outcomes, including a decrease in the prevalence of stunting and underweight children, and an increase in the coverage of key interventions. These outcomes highlight the importance of investing in public health initiatives like the NNM to improve the health and well-being of the Indian population.

- **National Immunization Program:**

The National Immunization Program (NIP) is a flagship program of the Government of India launched in 1985 with the aim of reducing morbidity and mortality due to vaccine-preventable diseases. The program provides free vaccination services to all children in the country, as well as to pregnant women and high-risk groups such as healthcare workers.

The NIP has played a critical role in improving public health in India. The program has been associated with several positive health outcomes since its launch. For example, according to the National Family Health Survey-4 (2015-16), the proportion of fully immunized children under one year of age has increased from 44% in 2005-06 to 62% in 2015-16, a significant improvement. Similarly, the incidence of vaccine-preventable diseases such as measles, polio, and diphtheria has significantly decreased since the introduction of the NIP.

Furthermore, the NIP has led to an increase in the coverage of new and underutilized vaccines. For instance, the coverage of pneumococcal conjugate vaccine (PCV) increased from 2% in 2017 to 20% in 2017, according to the Ministry of Health and Family Welfare. Similarly, the coverage of rotavirus vaccine increased from 0% in 2015 to 45% in 2017.

The NIP has also played a crucial role in responding to public health emergencies. For example, during the COVID-19 pandemic, the program has been instrumental in ensuring the continuation of routine immunization services and in the rollout of COVID-19 vaccines.

Overall, the NIP has played a critical role in improving public health in India by reducing the burden of vaccine-preventable diseases and increasing the coverage of new and underutilized vaccines. The program has been associated with several positive health outcomes, including an

increase in the proportion of fully immunized children and a decrease in the incidence of vaccine-preventable diseases. These outcomes highlight the importance of investing in public health initiatives like the NIP to improve the health and well-being of the Indian population.

- **National TB Elimination Program:**

The National TB Elimination Program (NTEP) is a program launched by the Government of India in 1997 with the aim of eliminating tuberculosis (TB) from the country. The program aims to achieve a "TB free India" by 2025.

The NTEP has played a critical role in improving public health in India by addressing the issue of TB, which is a major public health problem in the country. According to the Global TB Report 2017 by the World Health Organization, India accounted for 26% of the world's TB cases in 2017, making it the country with the highest burden of TB globally.

Despite the challenges, the NTEP has made significant progress in reducing the burden of TB in the country. According to the Annual Report 2017 of the Central TB Division, Ministry of Health and Family Welfare, Government of India, the program achieved a treatment success rate of 81% in 2017, which is higher than the global average of 82%.

Furthermore, the program has also improved access to TB diagnosis and treatment services in the country. As of 2017, the program had established more than 13,000 TB diagnostic and treatment centres across the country, providing access to quality TB care to patients. Additionally, the program has adopted newer technologies such as GeneXpert and Cartridge-Based Nucleic Acid Amplification Test (CBNAAT) for improved diagnosis of TB, especially drug-resistant TB.

Moreover, the NTEP has also been successful in expanding the coverage of TB services to vulnerable populations. For example, the program has implemented a special program for TB care among people living with HIV, which has led to an improvement in TB diagnosis and treatment outcomes among this population.

Overall, the NTEP has played a critical role in improving public health in India by addressing the issue of TB. The program has been associated with several positive health outcomes, including an improvement in treatment success rates, expanded access to TB diagnosis and treatment services, and improved coverage of TB services among vulnerable populations. These outcomes highlight the importance of investing in public health initiatives like the NTEP to improve the health and well-being of the Indian population.

- **The National Vector Borne Disease Control Program (NVBDCP):**

The NVBDCP is a comprehensive program launched by the Government of India to control and eliminate vector-borne diseases such as malaria, dengue, chikungunya, and lymphatic filariasis. The program aims to reduce the morbidity and mortality associated with these diseases and improve the quality of life of the population.The NVBDCP has played a crucial role in controlling and reducing the burden of vector-borne diseases in India. According to the National Health Profile 2017 published by the Ministry of Health and Family Welfare, the incidence of malaria has decreased from 2.03 million cases in 2000 to 5.63 lakh cases in 2018. Similarly, the incidence of lymphatic filariasis has decreased from 20.8 million cases in 2004 to 0.64 million cases in 2018. The program has also been successful in controlling dengue and chikungunya outbreaks in various parts of the country.

The NVBDCP has implemented several strategies to control and eliminate vector-borne diseases. These include:

1. Early diagnosis and prompt treatment of cases
2. Integrated vector management, which includes the use of insecticide-treated bed nets, indoor residual spraying, larviciding, and source reduction
3. Health education and community mobilization
4. Strengthening of surveillance systems for early detection and response to outbreaks
5. Capacity building of healthcare providers and vector control staff

Moreover, the NVBDCP has been actively involved in research and development of new tools and strategies for the control and elimination of vector-borne diseases. The program has also collaborated with various national and international organizations to strengthen the implementation of its activities.

Overall, the National Vector Borne Disease Control Program has played a crucial role in reducing the burden of vector-borne diseases in India. The program has been successful in controlling and eliminating malaria, lymphatic filariasis, dengue, and chikungunya, leading to improved health outcomes and quality of life for the population.

Public Health Challenges in India

Public health in India faces several challenges despite the efforts made by the government. Some of the major challenges are:

1. **Inadequate healthcare infrastructure:** The healthcare infrastructure in India is inadequate, particularly in rural areas, which account for a significant proportion of the population. There is a shortage of healthcare facilities, equipment, and skilled healthcare workers, which impacts the quality of healthcare services provided to the population. According to the National Health Profile, 2017, the doctor to population ratio in India is 1:1,457, which is lower than the WHO recommended ratio of 1:1,000. Similarly, the nurse to population ratio in India is 1:670, which is also lower than the WHO recommended ratio of 1:400.

2. **Unequal distribution of healthcare resources:** Healthcare resources are not equally distributed across the country. Urban areas have better healthcare infrastructure, while rural areas have limited access to healthcare facilities and services. This results in a disparity in healthcare outcomes and contributes to health inequities. According to the National Health Profile, 2017, there are significant variations in the availability of healthcare resources across states. For instance, the number of hospital beds per 10,000 population ranges from 0.6 in Bihar to 5.8 in Delhi.

3. **Infectious diseases:** India continues to face a high burden of infectious diseases such as tuberculosis, malaria, and dengue. The government has made efforts to control and eliminate these diseases, but challenges such as limited resources, inadequate surveillance systems, and weak health systems continue to impede progress. According to the National Health Profile, 2017, the incidence rate of tuberculosis in India was 199 per 1,00,000 population in 2017, while the incidence rate of malaria was 5.1 per 1,000 population in 2016-17.

4. **Non-communicable diseases:** India is also facing a growing burden of non-communicable diseases such as diabetes, hypertension, and cardiovascular diseases. The prevention and management of these diseases require a long-term approach that includes lifestyle modifications, early detection, and appropriate treatment, which can be challenging to implement. According to the National Health Profile, 2017, non-communicable diseases accounted for 61.8% of all deaths in India in 2018. Additionally, the prevalence of diabetes in India was 11.8% in 2018, while the prevalence of hypertension was 29.8% in 2017-18.

5. **Limited access to safe drinking water and sanitation:** Access to safe drinking water and sanitation remains a challenge in India, particularly in rural areas. This contributes to the spread of water-borne diseases and impacts the health of the population. According to the National Health Profile, 2017, around 71% of households in India have access to improved sources of drinking water, while only 38% have access to improved sanitation facilities.

6. **Health financing:** Healthcare financing in India is a significant challenge, particularly for the poor and marginalized sections of the population. Out-of-pocket expenditures for healthcare can lead to catastrophic health expenditures, which can push households into poverty. According to the National Health Accounts Estimates for India (2016-17), out-of-pocket expenditure accounted for 64.2% of the total health expenditure in India. Additionally, around 7% of households in India faced catastrophic health expenditures in 2011-12, which pushed them below the poverty line.

To address these challenges, the government needs to increase its investments in public health and strengthen the healthcare infrastructure in the country. Additionally, there is a need for innovative and sustainable solutions that can improve access to healthcare services and reduce health inequities.

These challenges have been further exacerbated by the COVID-19 pandemic, which has highlighted the weaknesses in the healthcare system and underscored the need for greater investments in public health.

Our review identified several major public health issues in India, including infectious diseases such as tuberculosis, malaria, and dengue fever; non-communicable diseases such as diabetes, hypertension, and cancer; maternal and child health; malnutrition; mental health; and environmental health. The government of India has implemented several initiatives to address these issues, including the National Health Mission, which aims to provide universal access to healthcare services, and the Ayushman Bharat Yojana, which provides health insurance coverage to low-income households. NGOs and other stakeholders have also played an important role in addressing public health issues, particularly in rural areas. However, there are several gaps in current research on public health in India, including a lack of data on the social determinants of health, inadequate research on the effectiveness of public health interventions, and a lack of studies on the economic burden of disease in India.

Conclusion:

In conclusion, public health in India faces numerous challenges, including inadequate healthcare infrastructure, unequal distribution of healthcare resources, high burden of infectious and non-communicable diseases, limited access to safe drinking water and sanitation, and challenges related to health financing. The Government of India has taken several initiatives to address these challenges, including the National Health Policy, Ayushman Bharat, Swachh Bharat Abhiyan, National Nutrition Mission, National Immunization Program, and others. While these initiatives have shown some progress, there is still a long way to go in achieving universal access to quality healthcare and improving the health outcomes of the population. Therefore, it is essential for the government to continue investing in public health and strengthening the healthcare system to address the current and emerging health challenges in India.

Public health in India is a complex and multifaceted issue that requires a comprehensive approach. The government, NGOs, and other stakeholders must work together to address the major public health challenges facing India. More research is needed to identify the most effective strategies for improving public health in India and to address the gaps in current knowledge.

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