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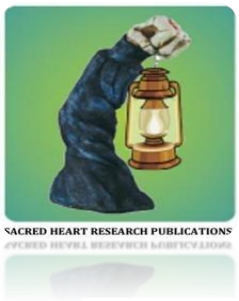

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A Study of Sanitation and Health in India

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Abstract

Access to basic amenities such as safe drinking water and sanitation are not only an important measure of socio-economic status of the household, but also, they are fundamental elements for the health of people. Inadequate sanitation and poor-quality drinking water not only result in severe illness and large-scale mortality, but also augments health costs, cause low worker productivity and declining school enrolment rates. As a result, an estimated 180 million person– workdays are lost each year due to the incidence of waterborne diseases (Chaplin 2011). The existence of waterborne diseases such as diarrhoea is due to the contamination of drinking water through faecal matter, particularly human faecal and pathogenic organisms (Fawell and Nieuwenhuijsen 2003). The purpose of this study is to examine the health status of India and the associated health implications of diarrhoea. This Study is fully based on Secondary data such as census of India, National Family Health Survey (NFHS-4) 2015-16, WHO report, UNICEF and UN report. Secondary data have been collected from several books, reports, journals and newspapers. In India 46.9 percentage household have toilet facility available within premises. Kerala state has the highest percentage of households having toilet facility available within premises almost 95.2 percentage. Jharkhand is a highest percentage of household not have toilet facility within premises almost 78 percentage. Diarrhoea is prevalent in 9.2 percent of the population at the national level. Diarrhoea affects approximately 9.5 percent of male children and 8.9 percent of female children. Based on the result of this study it is suggested that public health programmes be targeted to hot spot states/UT where higher diarrhoea prevalence persists, and that necessary preventive measures be taken to reduce the incidence and severity of childhood diarrhoea.

Keywords: *Sanitation, diarrhoea, Health, Open Defecation.*

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Introduction

Sanitation and Disease

For millions of people, illnesses caused by germs and worms in faeces, wastes, and pollutants are a constant source of discomfort. Cholera, Dysentery, Hepatitis, Typhoid and Acute Diarrhoeal Disease (ADD) are the most common water-borne diseases that affect a large population in the tropical regions. Out of which, the prevalence of Acute Diarrhoeal Disease, Typhoid and Cholera are predominant in India (Arun and Premkumar, 2021).

These illnesses can last for years and can result in other health issues like diarrhoea, dehydration, anaemia, and malnutrition. Severe sanitation-related illnesses, such as cholera, can spread rapidly, and kill a large number of people. Children are at a high risk of becoming ill as a result of poor sanitation. Children die from diarrheal diseases and worms, whereas adults can live with them. Every year, more than 300 million episodes of acute diarrhoea affect children under the age of five in India. Nearly 1.9 million cases of tuberculosis are diagnosed each year in India, accounting for one-fifth of all TB cases worldwide. Every year, more than 1.5 million people are infected with malaria. Dengue fever and chikungunya fever have spread across India, putting a population of over 300 million people at risk of developing acute encephalitis syndrome/Japanese encephalitis. India is a home to one-third of the world's filaria cases. India was responsible for nearly half of all leprosy cases detected worldwide in 2008 (MOHFW, 2010).

Sanitation Infrastructure

India's population is estimated to be around 1.2 billion people. Nearly 600 million people (or 55% of the population) do not have access to toilets. People who live in urban slums and rural areas make up the majority of these figures. In rural areas, a large portion of the population still defecates in the open. Slum dwellers in major metropolitan cities live next to railway tracks with no access to toilets or running water. In terms of sanitation, India continues to lag behind many other countries. Most Indian cities and towns, according to Harshal T. Pandve (2008), are characterized by overcrowding, congestion, insufficient water supply, and insufficient facilities for the disposal of human excreta, wastewater, and solid wastes.

There is no recognized continuous water supply in any major Indian city, and an estimated 72 percent of Indians still lack access to improved sanitation facilities. Apart from that, 63 percent of India's urban population lacks proper sanitation. Apart

from these, most cities lack waste disposal and sewage treatment facilities. The majority of waste is dumped in rivers, canals, or on the outskirts of cities. By 2012, the 11th five-year plan expected to have 100% coverage of urban water, urban sewerage, and rural sanitation. Despite an increase in investment in water supply and sanitation in the 11th plan over the 10th, the targets do not take into account the quality of water provided or the long-term viability of the systems put in place (Kumar, Kar, and Jain 2011).

Sanitation and Public Health

Sanitation is the first step in achieving the goal of universal public health. Most public health literatures had begun with a discussion of the' sanitation phase' in the mid-19th century, a period marked by a focus on environmental concerns such as dwellings, workplace conditions, the supply of safe drinking water, and waste disposal. Furthermore, a concern for economic efficiency and improved social stability between the working poor and other segments of society is thought to be a driving force behind this public health action. In many countries, there seems to be a significant investment in services and infrastructure to protect health and prevent illness. Over the last 150 years, most industrializing countries have enacted public health regulations and health and safety legislation to protect the industrial workforce, control pollution levels in rivers, and ensure proper sewerage and drainage. In nineteenth-century England, sanitary reformers and radical politicians argued for the prevention of ill health through public policy interventions based on economic considerations. Environmental change was emphasized during the sanitation phase of the public health movement. During this sanitation phase, infectious diseases such as diphtheria, tuberculosis, and cholera were significantly and measurable reduced (Sarah Earle 2007:11-12).

In India, however, situations are quite different. The public health system is severely lacking, and sanitation received little attention from government policymakers until the last decade of the twentieth century. Sulabh International's initiative had a significant impact, but due to many limitations and systemic handicaps, such an initiative could not be translated into a government mission. The Government of India launched the Swachh Bharat Mission on October 2014 for accelerate the efforts to achieve universal sanitation coverage and put the focus on sanitation.

India's late entry into ensuring total sanitation and a limited sectoral method have not yielded to the desired results, according to experience. The disparity in outcomes among states is a major source of concern. To improve sanitation in the long run, issues such as defecation, waste disposal, water, the environment, and health must be considered as part of the comprehensive and long-term remedy. Community members will adopt sanitation practices and enjoy better health when they use hygiene and sanitation methods that are tailored to their specific needs, abilities, and expectations. As a result, it is critical to comprehend the structural challenges and development trajectory that have resulted in India's inadequate and poor sanitation conditions. Sanitation is no longer a ‘segment' or an 'isolated' component. Sanitation must be considered an essential part of the health-care system and the development agenda. The study of 'sociology of health and sanitation' can aid in comprehending the larger occurrence in India. It will also assist in comprehending the common Indian practice of open defecation.

Diseases, defecation, and an inadequate sanitation infrastructure are all common occurrences.

India is one of the world's the majority densely populated countries, with more than 50 percent of the population living in suburbs. People in India have inadequate access to sanitation and hygiene due to the country's large population growth and limited access to water. Practically 50 percent of Indians defecate in the environment, polluting water and contributing to the leading cause of diarrhea-related deaths in children. Every year, 117,000 children under the age of five die in diarrhoea caused by unsanitary conditions and contaminated water. According to research, slightly more than half of India's population washes their hands after defecating. Only 38 percent of people wash their hands before eating, and only 30% of people wash their hands before handling food. The most vulnerable to diarrhoeal diseases and respiratory infections are young children; however, washing hands with soap can reduce the risk of contracting these illnesses. Since nearly 600 million people do not use toilets, their waste enters the environment, increasing the risk of contamination of water and diarrhoea. Malnutrition and other diseases, such as pneumonia, are more

likely in children who have diarrhoea. Nearly half of all children are malnourished. Nearly 10% of rural households properly dispose waste, while more than 50 percent of the waste is either left in the environment or thrown away. Only 6% of children under the age of five have access to improved sanitation facilities. It is essential to provide the facilities needed, products, and education for adolescent females to ensure proper menstrual hygiene. Due to the lack of seclusion in the sanitation facilities, many girls are unlikely to attend school. Females also experience discomfort when they do not have access to a bathroom at home (Dopheide Diana, 2019).

Table 1 shows that state wise availability of toilet facility in India. Overall, India 46.9 percentage household have toilet facility available within premises. It distributed 12 percent piped sewer system, 22.2 percent septic tank system, 2.3 percent other system, 7.6 percent pit toilet with slab, 1.8 percent pit latrine without slab, 0.5 percent night soil disposed into open drain, 0.3 percent night soil removed by human and 0.2 percent night soil serviced by animal. Overall, India 53.2 percentage of household has toilet facility not available within premises. It divides 3.2 percent of household used public toilet and 49.8 percent of household used open defecation. Kerala state has the highest percentage of household have toilet facility available within premises almost 95.2 percentage. Jharkhand has highest percentage of household not have toilet facility within premises almost 78 percentage.

Table 2 shows the geographical variation of diarrhoea among children under the age of five years in India's states and union territories (2015–16). Diarrhoea is prevalent in 9.2 percent of the population at the national level. Diarrhoea affects approximately 9.5 percent of male children and 8.9 percent of female children. The prevalence of diarrhoea was found to be higher in eight states/UTs than the national average. Uttarakhand has the highest rate of diarrhoea 17.1 percent, followed by Uttar Pradesh 15 percent, Puducherry 11.3 percent, and 10.6 percent Meghalaya. Sikkim 1.8 percent, Assam 2.9 percent, and Kerala 3.4 percent, on the other hand, have reported having a lower prevalence of diarrhoea disease among 0–5-year-old children in India. The prevalence of diarrhoea in male children ranges from 1.8 percent in Sikkim to 17.5 percent in the United States (Uttarakhand). Females, on the other hand, have a range of 0.5 percent (Sikkim) to 16.5 percent (Uttarakhand).

Table 1 Sate Wise Availability of Toilet Facility in India

State Code	India/ State/ Union Territory #	Distribution of Households by Type of Toilet Facility												
		Total No. of Households (Excluding institutional households)	Toilet facility Available within Premises	Flush/Pour Flush latrine connected to			Pit Latrine		Other Toilet			Toilet Not available within Premises		
				Piped Sewer system	Septic Tank	Other System	With slab/ ventilated improved pit	Without slab/ open pit	Night soil disposed into Open Drain	Night soil removed by Human	Night soil serviced by Animal	Total	Public Toilet	Open Defecation
0	**INDIA**	**246692667**	**46.9**	**12**	**22.2**	**2.3**	**7.6**	**1.8**	**0.5**	**0.3**	**0.2**	**53.1**	**3.2**	**49.8**
1	Jammu & Kashmir	2015088	51.2	10	17.7	5.3	3.3	2.2	3.2	8.9	0.7	48.8	2.7	46.1
2	Himachal Pradesh	1476581	69.1	7.4	51.6	1.7	7.1	1	0.2	0	0	30.9	1.2	29.7
3	Punjab	5409699	79.3	28.3	27.7	3.3	16	3.2	0.5	0.1	0.2	20.7	1.2	19.5
4	Chandigarh #	235061	87.6	85.9	1	0.2	0.4	0.1	0.1	0	0	12.4	9.1	3.2
5	Uttarakhand	1997068	65.8	11.8	40	1.4	11.3	0.6	0.3	0.2	0.1	34.2	1.1	33.1
6	Haryana	4717954	68.6	21.9	25.4	3.1	14.5	2.9	0.7	0	0.1	31.4	1.5	29.8
7	NCT of Delhi #	3340538	89.5	59.3	25.5	0.9	1.6	0.2	2.1	0	0	10.5	7.2	3.3
8	Rajasthan	12581303	35	7.2	18.6	1.9	4	2.5	0.8	0	0.1	65	0.7	64.3
9	Uttar Pradesh	32924266	35.7	8.1	19.9	1.8	3.4	0.7	0.5	1	0.2	64.4	1.3	63
10	Bihar	18940629	23.1	1.8	16	2.3	1.7	0.8	0.2	0.1	0.2	76.9	1.1	75.8
11	Sikkim	128131	87.2	11.8	59.8	3.4	6.6	5.5	0.1	0	0.1	12.8	1.5	11.3
12	Arunachal Pradesh	261614	62	6	22.4	10	4.4	14.4	0.7	0.4	3.7	38	3.2	34.8
13	Nagaland	399965	76.5	3.3	34.4	10	11.2	16.4	0.3	0.2	0.6	23.5	7	16.5
14	Manipur	507152	89.3	6.1	24.7	15.9	15.7	19	5.5	2	0.6	10.7	1.8	8.9
15	Mizoram	221077	91.9	5.7	48.4	6.7	15.1	15.5	0.3	0.1	0.3	8.1	1.5	6.6
16	Tripura	842781	86	3.5	14.2	7.2	44.8	15.4	0.5	0.1	0.4	14	2.5	11.5
17	Meghalaya	538299	62.9	5.8	23.7	8.6	6.9	16.4	0.3	0.4	0.8	37.1	2.8	34.3
18	Assam	6367295	64.9	5.2	14.9	8.4	10.5	24.2	0.9	0.4	0.6	35.1	1.9	33.2
19	West Bengal	20067299	58.9	5.6	20.7	5.6	22.3	3.2	0.4	0.7	0.4	41.2	2.5	38.6
20	Jharkhand	6181607	22	3.7	15.7	1	1.1	0.3	0.2	0	0.1	78	1	77
21	Odisha	9661085	22	2.5	13.6	1.6	2.1	1.4	0.3	0.3	0.3	78	1.4	76.6
22	Chhattisgarh	5622850	24.6	2.5	16.6	1.9	2.1	1.3	0.1	0	0.1	75.4	1.4	74
23	Madhya Pradesh	14967597	28.8	5.8	19.1	1.3	1.7	0.7	0.3	0	0.1	71.2	1.2	70
24	Gujarat	12181718	57.4	29	22.8	0.8	4.2	0.3	0.2	0	0	42.7	2.3	40.4
25	Daman & Diu #	60381	78.2	5.3	71.5	0.4	0.8	0.2	0.1	0	0	21.8	11.3	10.5
26	D & N Haveli #	73063	54.8	4.9	48.2	0.6	0.7	0.1	0.1	0.2	0	45.3	5.3	40
27	Maharashtra	23830580	53.1	18.4	23.5	1.6	8.3	0.5	0.7	0	0.2	46.9	12.9	34

28	Andhra Pradesh	21024534	49.6	12.4	29.7	1	5	0.5	0.8	0.1	0.3	50.4	2.5	48
29	Karnataka	13179911	51.2	22.7	13	1.2	13.2	0.3	0.5	0.1	0.2	48.8	3.8	45
30	Goa	322813	79.7	14.5	56.5	3.3	3.7	0.7	0.2	0	1	20.3	3.9	16.4
31	Lakshadweep #	10703	97.8	2.4	94.6	0.4	0.4	0	0	0	0	2.2	0.4	1.8
32	Kerala	7716370	95.2	12	50.3	4.4	27.6	0.7	0.2	0	0	4.8	1.1	3.8
33	Tamil Nadu	18493003	48.3	14.4	25.7	1.1	5.7	0.3	0.8	0.2	0.1	51.7	6	45.7
34	Puducherry #	301276	68.5	14	53.1	0.3	0.7	0.1	0.2	0	0	31.6	4.4	27.1
35	A & N Islands #	93376	70.1	2.6	62.5	1.9	0.5	2.4	0.2	0	0.1	29.9	2.5	27.5

Source: Census of India 2011

Table 2 Diarrhoea Prevalence among < 5 aged, children in Indian states and Union Territory 2015-16

State/UTs	Diarrhoea Prevalence (in percentage)			Sample Size
	Male	Female	Total	
Andaman & Nicobar Islands	5	5.7	5.3	637
Andhra Pradesh	6.7	6.5	6.6	3013
Arunachal Pradesh	6.6	6.6	6.6	4772
Assam	3.1	2.8	2.9	9766
Bihar	10.7	10.2	10.4	24,064
Chandigarh	3.9	5.3	4.6	187
Chhattisgarh	9.1	9.2	9.1	8733
Dadra & Nagar Haveli	5.9	2.5	4.2	311
Daman & Diu	3.7	3.9	3.8	395
Goa	3.4	4.1	3.8	410
Gujarat	8.7	8.1	8.4	7399
Haryana	7.4	8.1	7.7	7568
Himachal Pradesh	6.7	6.6	6.7	2808
India	9.5	8.9	9.2	2,47,181
Jammu & Kashmir	7.5	7.5	7.5	7916
Jharkhand	7.3	6.5	6.9	11,625
Karnataka	4.7	4.2	4.5	7533
Kerala	3.5	3.2	3.4	2443
Lakshadweep	6.7	5.9	6.3	300
Madhya Pradesh	9.9	9.1	9.5	23,210
Maharashtra	8.7	8.4	8.5	9146
Manipur	6	5.6	5.8	5477
Meghalaya	9.8	11.3	10.6	4244
Mizoram	7.4	7.8	7.6	4662
Nagaland	5.1	5.1	5.1	4410
NCT Of Delhi	12.6	6.2	9.7	1514
Odisha	10	9.7	9.8	10,575
Puducherry	14.6	7.4	11.3	1061
Punjab	6.7	6.5	6.6	5037
Rajasthan	7.6	7.1	7.4	16,065
Sikkim	2.9	0.5	1.8	975
Tamil Nadu	7.7	8.2	8	7716
Telangana	8.5	7.9	8.2	2345
Tripura	5.6	4.2	4.9	1291
Uttar Pradesh	15.6	14.3	15	38,852
Uttarakhand	17.5	16.5	17.1	5561
West Bengal	5.9	5.8	5.9	5160

Source: National Family Health Survey (NFHS-4) 2015-16

Conclusion

According to the census of India 2011, India has the lowest toilet facilities at 46.9 percent of household. And nearly 49.8 percent of households defecate in the open. Due to inadequate sanitation the disease is highly prevalent. The study found that 9.2 percent of children under the age of five suffer from diarrhea, especially due to the lack of toilets. Making sanitation available to everyone in a densely populated developing country like India is a challenging task. Based on the result of this study it is suggested that public health programmes be targeted to hot spot states/UT where higher diarrhoea prevalence persists, and that necessary preventive measures to be taken to reduce the incidence and severity of childhood diarrhoea.

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