



Trends and Facts of Leprosy Prevalence in Purulia District, West Bengal, India

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ABSTRACT

Background: Leprosy is a stigmatized disease caused by *Mycobacterium leprae* and has been known to be prevalent in India since antiquity. It is the leading cause permanent and progressive physical disability if not treated earlier.

Objective: The aim of this study was to observe the trends and fact of leprosy prevalence in Purulia district, West Bengal.

Methods: A retrospective study was conducted using district wise annual new case detection rate (ANCDR), prevalence rate (PR) and district wise proportion of grade 2 deformity published by National Leprosy Eradication Programme (NLEP) from 2008 to 2015.

Results: A total of 13,023 cases were registered from 2008 to 2015 and 386 people had grade 2 deformity at the time of diagnosis. In 2008, the PR was 3.50/10,000 population and it was 3.52 in 2015. The ANCDR, 56.3/100,000 population in 2008 and it was 47.2 in 2015.

Conclusion: The Purulia district having a high PR of >3/10,000 population, which is far higher than the national PR (0.69) as on March, 2015. The case load of leprosy was considerably controlled by the programme at the national level, however NLEP is constantly marching towards eradicate the leprosy at the district and block level.

Keywords: *Leprosy, Prevalence rate, Disability, Public health, Purulia, Trends.*

1. Introduction

Leprosy is one of those few chronic infectious diseases that are associated with serious physical and functional disabilities affecting the skin and peripheral nerves. It's caused by *mycobacterium leprae*, is transmitted by droplet spread which is facilitated by close contact. It still remains a disease of public health concern because of the case load and the social stigma attached to the disease. ^[1] Stigma and associated psychosocial problems are common in leprosy and may affect the quality of life. ^[2] No disease has been more closely associated with stigma than leprosy, and it has become an image for stigma. Leprosy stigma has been associated with the disease for most of its history. Most studies have shown that the stigma of leprosy is aggravated by the physical deformities associated with the disease. ^[3]

World health organization (WHO) lists leprosy as one of the major health problems of developing countries including India, Brazil, Africa, Nepal and Bangladesh. Over the past 10 years, globally the number of new cases has shown a noticeable decline and currently affects approximately a quarter of a million people throughout the world, with majority of these cases being reported from India, and accounted for 60 percent. ^[4]

The Government of India launched National Leprosy Control Programme (NLCP) in 1955, based on dapsone domiciliary treatment through vertical units implementing survey education and treatment activities. It was only in 1970s that a definite cure was identified in the form of multi-drug therapy (MDT). The MDT came into wide use from 1982, following the recommendation by the WHO Study Group, Geneva in October 1981. Government of India established a high power committee under chairmanship of Dr. M.S. Swaminathan in 1981 for dealing with the problem of leprosy. Based on its recommendations the National Leprosy Eradication Programme (NLEP) was launched in 1983 with the objective to arrest the disease activity in all the known cases of leprosy. However coverage remained limited due to a range of organizational issues and fear of the disease and the associated stigma. At this stage in view of substantial progress achieved with MDT, in 1991 the World Health Assembly resolved to eliminate leprosy at a global level by the year 2000, means that the prevalence rate (PR) less than 1 per 10,000 populations.. The Government of India launched the National Leprosy Elimination Program (NLEP) in 1993 with the goal of eliminating leprosy through early detection of cases by population survey, contact screening/examination and voluntary referral by the year 2000 AD. Subsequently the Leprosy was declared eliminated as a public health problem at national level in December 2005 in India. [5] As a result, leprosy services have been integrated with the General Health-Care System from the erstwhile vertical system. [6]

In India, prevalence of leprosy as of March 2016 was 0.66 per 10,000 populations. A total of 1.26 lakh new cases were detected during the year 2015-2016, which gives annual new case detection rate (ANCDR) of 9.71 per 100,000 populations. Of the 669 district in India, 118 districts still have prevalence rates

(PR) above 1 per 10,000 populations, 42 districts in 7 States/ Union territories (Odisha; 7 districts, Chhattisgarh; 14 districts, Gujarat; 9 districts, Maharashtra; 5 districts, West Bengal; 3 districts, Dadra and Nagar Haveli; 1 district and Delhi; 3 districts) are having (PR) above 2 per 10,000 populations. In this context, it must be pointed out that cases of leprosy are not uniformly distributed but tend to cluster in certain localities, villages or taluks and northern region incidentally happens to be endemic for the disease. [7]

To highlight very specifically, Purulia district in West Bengal has a large number of new leprosy cases registered every year and a high prevalence rate (PR) of 3.52 in 10,000 populations as on March, 2015, which is far higher than the national prevalence rate (0.69), though the country has declared reached the mark of elimination. [8] Therefore, this study aimed to observe the trends and fact of leprosy prevalence in Purulia district, West Bengal, after declared eliminate leprosy in India.

2. Methods

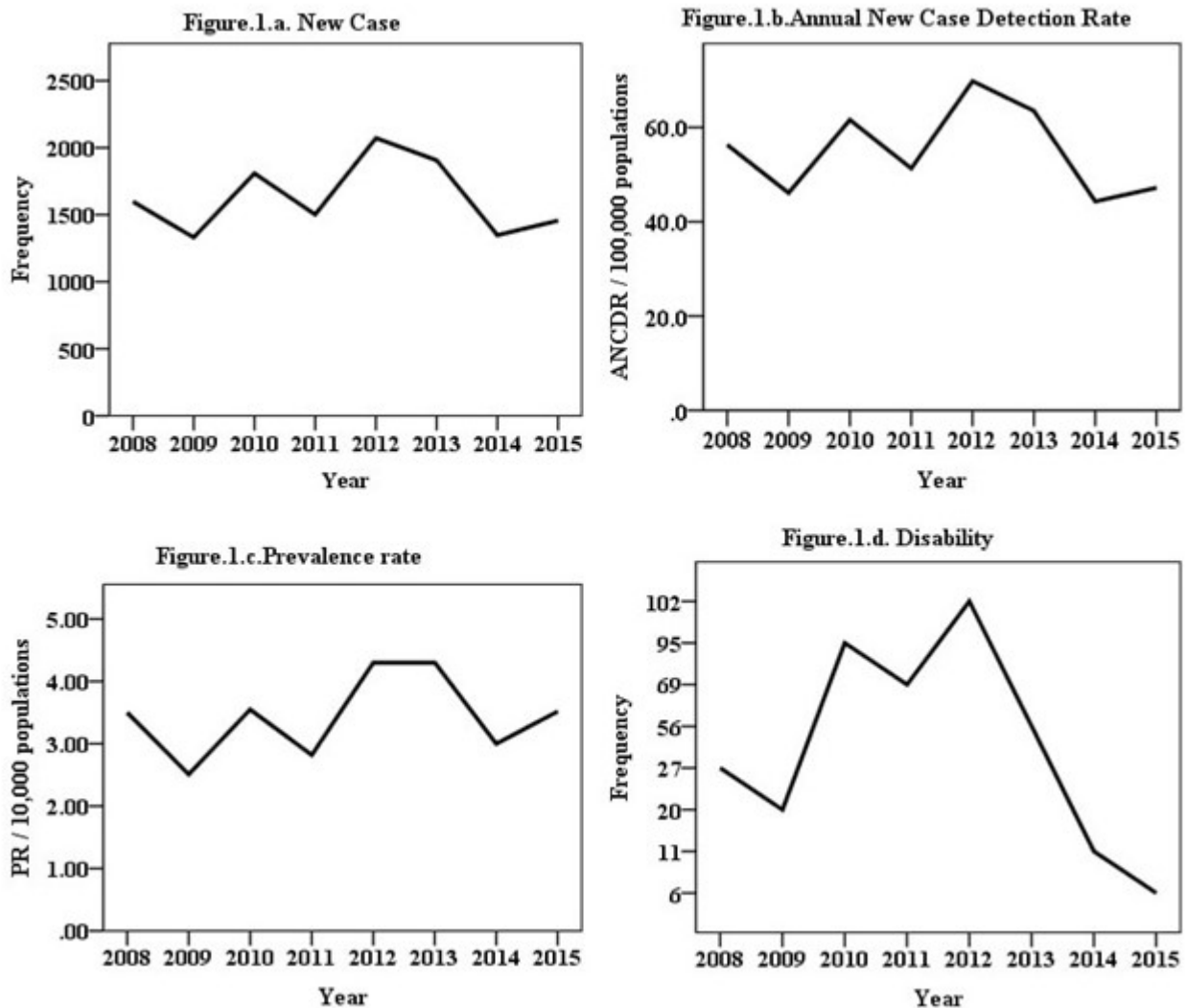
A retrospective study was conducted using district wise annual new case detection rate, prevalence and district wise proportion of grade 2 deformity published by National Leprosy Eradication Programme (NLEP) from 2008 to 2015. It includes, number of new cases, annual new case detection rate (ANCDR), prevalence rate (PR) and number of cases with grade 2 deformity.

3. Results

The year wise number of new cases, prevalence rate (PR), annual new case detection rate (ANCDR) and grade 2 disability from the year 2008 to 2015 of Purulia district was **shown in Table,1** and the trends was **shown in Figure.1**.

Table 1: Trends of New case, Prevalence Rate, ANCDR and Disability grade II.

Year	2008	2009	2010	2011	2012	2013	2014	2015
Number of New Case	1598	1331	1809	1502	2072	1907	1348	1456
Annual New Case Detection Rate*	56.3	46.1	61.6	51.3	69.8	63.5	44.3	47.2
Prevalence Rate**	3.5	2.51	3.55	2.82	4.3	4.3	3	3.52
Disability Grade II	27	20	95	69	102	56	11	6
Note:*.ANCDR per 100,000 populations, **.Prevalence Rate per 10,000 populations								

Figure 1: Leprosy trends from 2008 to 2015.

4. Discussion

Among the African and Southeast Asian countries that report the highest numbers, India leads the list by contributing the majority of the cases. ^[4] This situation is deplorable, considering the fact that on January 30, 2006, India declared the elimination of leprosy at the national level. ^[6] However, still more than one lakh new cases were detected in every year in the elimination era. Children are vulnerable members of society and the number of new leprosy cases among children still remains high in many endemic districts in India. Childhood is a sensitive indicator for leprosy transmission. ^[9] The proportion of childhood leprosy is closely linked with local leprosy prevalence and every year nearly 8.94% of child cases were detected indicating active transmission of leprosy in Indian communities. ^[7]

Every year there is more number of cases was reported as a new untreated leprosy cases in Purulia district. In the year of 2008, 1598 people were diagnosed as new untreated leprosy cases with the Annual New Case Detection Rate (ANCDR) of 56.3 per 100,000 populations. Since then the rate of new cases detection and reporting was in the upward mode till the year 2013 and subsequently the reporting of new cases started declining to 47.5 per 1,00,000 population in the year 2015 (Figure 1.a and Figure 1.b).

According to WHO recommendation the NLEP achieved elimination of leprosy as prevalence rate less than 1 per 10,000 populations at a national level in December 2005 and sustaining the elimination status. ^[10] However, in Purulia district, the trend of prevalence rate from 2008-2015 were on an average maintaining the same rate of 3 per 10,000 populations,

nevertheless showing slight rise of prevalence rate during the year 2012-13(**Figure 1.c**). Though the elimination of leprosy was achieved at the national level, but the trend in the Purulia district of West Bengal is alarming and challenging to achieve the elimination of leprosy.

The stigma against the disease due to its disfiguring effects causes its victims to be isolated and shunned. Leprosy is also the leading cause of permanent disability in the world and is primarily a disease of the poor.^[11] Early case detection and intervention is the only choice of methods to preventing the visible deformity also called grade 2 disabilities (G2D) present in hands, feet and eyes.^[12]

In the year 2016, WHO has launched the "Global Leprosy Strategy 2016–2020: Accelerating towards a leprosy-free world", which aims to reinvigorate efforts for leprosy control and to avoid disabilities, especially among children affected by the disease in endemic countries. Three key targets have been agreed by all national programmes: i). Zero G2D among children diagnosed with leprosy, ii). The reduction of new leprosy cases with G2D to less than one case per million population and iii). Zero countries with legislation allowing discrimination on the basis of leprosy.^[12]

As per the NLEP report from 2008-2015, the disability grade 2 deformities rate in Purulia district was constantly increasing and it was touched the highest point of 102 cases in the year 2012. However, the rate was started dipping from 2013 and reached the stage of only 6 cases in the year 2015 (**Figure 1.d**). Unquestionably, this was achieved through early case detection and early intervention programme conducted by the National Leprosy Eradication Programme (NLEP), India and a programme to enhance early voluntary reporting from 2010 to 2013 by Leprosy Mission Trust India conducted with the support of Indian Council of Medical Research.^[13]

Even today when leprosy is curable, the age old stigma attached to it has not been cured. The stigma is a reality in the lives of the people affected with leprosy that upsets their physical, psychological, social and economical well-being. Moreover, the problem with the Indian laws that it continues to directly or indirectly discriminate against persons affected by leprosy. Law commission of India has submitted its report number 256 on "Eliminating

Discrimination Against Persons Affected by Leprosy (EDPAL) Bill 2015" to the Union Minister of Law and Justice on April, 2015.^[14] The report provides a model draft law to eliminate discrimination faced by Persons affected by Leprosy. This draft law contains principles of non-discrimination and equal protection before law that must be guaranteed to all persons affected by leprosy or members of their family. It also seeks to promote the social inclusion of persons affected by leprosy and their family members through affirmative action.

The epidemiology of leprosy in relation to its geographical distribution remains somewhat unclear. The main historically endemic areas in the world have tropical climate with high temperatures and rainfall; however, leprosy has also presented high incidences in temperate and cold regions.^[15] The Government of India, continuing the remarkable work to eliminate and reduce the case load under NLEP since 1953. The load of leprosy was considerably controlled by the programme at the national level, however NLEP is constantly marching towards to eradicate the leprosy at the district and block level. Moreover the country needs to focus and implement new strategy at the gross root level to remove the stigmatized disease from the purview.

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