WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 12, Issue 5, 766-773. Review Article ISSN 2277– 7105

EPIDEMIOLOGICAL INDICATORS UNDER NATIONAL LEPROSY ERADICATION PROGRAM IN WARDHA DISTRICT OF MAHARASHTRA- A FIVE-YEAR TREND ANALYSIS

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Article Received on
06 February 2023,

Revised on 27 Feb. 2023,
Accepted on 19 March 2023

DOI: 10.20959/wjpr20235-27598

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ABSTRACT

Background: Leprosy is known as the neglected tropical disease. In spite of all the measures taken, it remains as a basic concern in public health in underdeveloped and developing countries like India and Brazil. Leprosy was declared eliminated from India in 2006, but recent reports point out the increase in the newly detected cases over past few years. **Aim:** To study the trend and patterns of epidemiological indicators of leprosy in the district of central India over past five years. **Methodology:** This is a retrospective study of past five years (2015-2020) data collected from the District Health Office, Leprosy division. We got the complete line listing data from 2017 to 2020 and data of the NLEP (National Leprosy Elimination Program) indicators from 2015 to 2020. An analysis was done on different epidemiological and operational indicators to know the trends and pattern of Leprosy. **Results:** The total number of cases from 2017 t0 2020 were 1140. Out of these, 86.67% belonged to rural areas, and 53.59% were males. The maximum number of cases were in the 0-12 years age group (19.91%) followed by 13-18 age group (19.47%). Children (0-18 years) contributed to about 39.38% of the new cases. 9.6% of the total cases were registered of having deformities. Among which a high proportion of the patients had some form of deformity prior to initiation of treatment (61.8%). The median duration for completion of treatment among MB cases was 319 days and among PB cases was 145 days. On analysis of the year wise-indicators of the NLEP program of the district for last five years, it's found evident that there is constant increase in the annual case detection rate (ANCDR),

prevalence rate from 2017. The percentage of the child case among the newly detected cases was found maximum in 2018-19. The percentage of multibacillary cases and the proportion of female cases were maximum in 2019-20. It was observed that most of the programmatic indicators saw an improvement from 2015 till 2017-18. However, a worsening of the indicators was seen post 2018 for almost all of them. **Implications/conclusions:** There is an ongoing active transmission of infection as suggested by the high caseloads among children and the increasing ANCDR and Prevalence rates. Aggressive health education and awareness is needed to achieve the elimination in the country.

INTRODUCTION

Leprosy is a chronic infectious disease and is one of the neglected tropical diseases and oldest disease. Despite the decline in the number of patients worldwide over the previous century, leprosy is an infectious illness that will continue to exist. There are around 250,000 new cases in the pipeline.[1] Leprosy is far from being eradicated, with new cases being discovered every year. It's also most prevalent among the poor communities. This is due to the long incubation period, that is the patient remains asymptomatic for a long duration and they keep spreading the bacteria.

The prevalence of leprosy has declined dramatically since the introduction of multidrug therapy (MDT), and it is now below the one percent threshold case per 10,000 people in a number of nations.[2]

140594 new cases were detected globally in 2021 according to weekly epidemiological record, September 2022. India has the highest burden of leprosy in the world. In India there is an increasing trend in the multibacillary cases and also the WHO grade 2 disability thus indicating the delay in the diagnosis.[3] 128 (18.7%) districts are still reporting more than one new case per 10,000 population.[4] There is no evidence of a sharp drop in the number of new Grade 2 disabilities or cases detected between 2008 and 2015 in either circumstance.[5]

The National Leprosy Eradication Programme (NLEP) is a government-sponsored health programme in India run by the Ministry of Health and Family Welfare. While the NLEP policies and plans are developed centrally, states and union territories are in charge of implementing the programme. WHO, ILEP, and a few other nongovernmental organisations also support the initiative (NGOs).

AIM: To study the trend and distribution of Leprosy cases and patterns of epidemiological indicators of leprosy in Wardha district of Maharashtra.

METHODOLOGY

This is a record-based study of the five years (2015-2020). The programmatic data was obtained from the District Health Office. We got the case-based data only for 2017 to 2020. An analysis was done on different epidemiological and operational indicators to know the trends and pattern of Leprosy in the district.

The study population was all the leprosy patients in the Wardha district of Maharashtra, India who all were enrolled in the district health office, leprosy division of Wardha.

In this study, a total of 1140 patients recorded in the district health office, leprosy division Wardha for a period from 2017 to 2020 have been selected for analysis. The DHO officer has been approached for the data. With his permission, we got the record-based study of the past five years (2015-2020). The programmatic data was obtained from the District Health Office. We got the case-based data only for 2017 to 2020.

Ethical consideration

Approval from the institutional ethics committee was taken before the beginning of the study.

RESULTS

Table 1: Distribution of leprosy cases in Wardha district.

	Count	%
Taluka name		
Wardha	227	19.91
Hinganghat	222	19.47
Samudrapur	183	16.05
Seloo	149	13.07
Deoli	133	11.67
Arvi	107	9.39
Karanja	61	5.35
Ashti	58	5.09
Patient residence		
rural	988	86.67
urban	152	13.33
Gender		
males	611	53.59
females	529	46.41

On demographical assessment, it is found that about 86.67% leprosy patients were from rural region, about 20% and 19.4% were from Wardha and Hinghanghat taluk respectively.

More than half of the patients were males. (Table 1).

Among the registered cases in the study period, there were 1072 new cases and 50 re-entered cases. there were 11 and 7 reclassified and relapse cases respectively. This clearly shows there is still an active spread of the disease. (Figure 1)

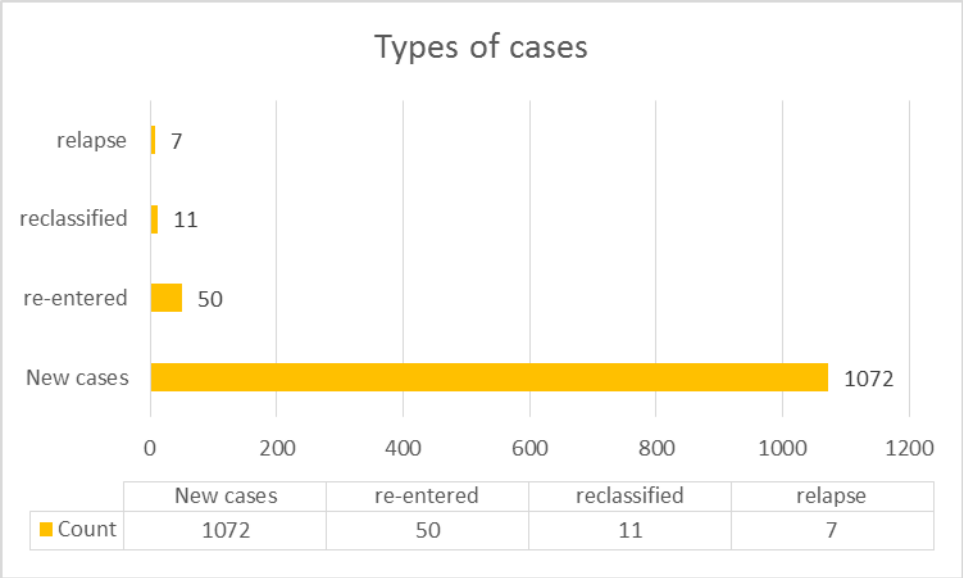

Figure 1: Types of cases registered.

Table 2: Case detection and reporting methods.

Mode of detection	Count	%
Active search	441	41.10
Asha	188	17.52
OPD	115	10.72
voluntary	108	10.07
Referred by other	100	9.32
Health worker	77	7.18
Contact survey	17	1.58
Other mode	13	1.21
School health	8	0.75
PMP	6	0.56

From our analysis its evident that most of the new case detection is because of the ongoing active search that's happening under NLEP (table 2). This may be the reason that in recent years there is an increasing trend in the annual cases of leprosy known as annual case detection rate (ANCDR), that is after 2018.

The trend analysis shows that there is no significant fall in the number of new cases been deducted since 2015 (figure 2). Most of the cases were paucibacillary leprosy type that is accounting to about 53%. (Figure 3). With this evidence it is highly impractical that India is claiming of leprosy elimination in the country.

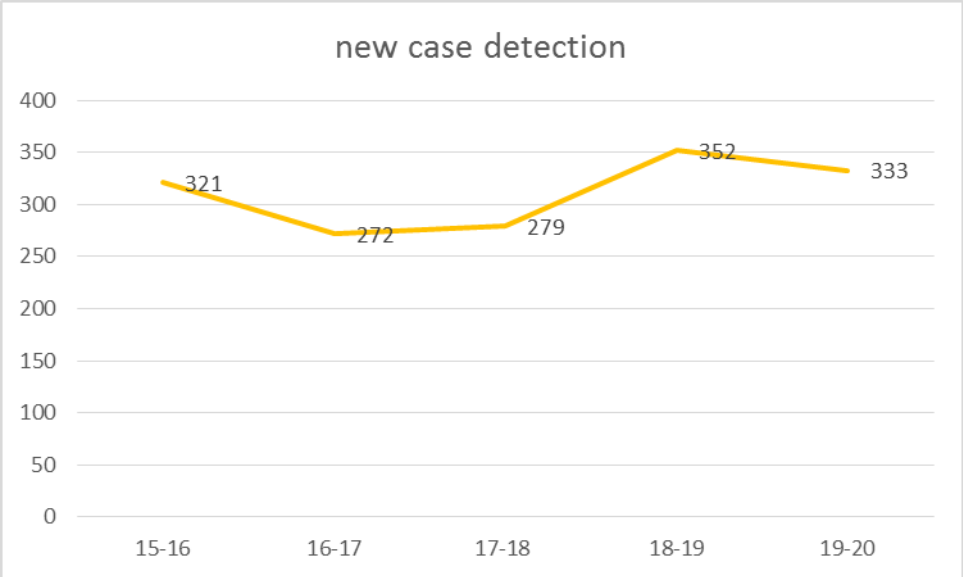

Figure 2: Trend of number of new cases detected from 2015 to 2020.

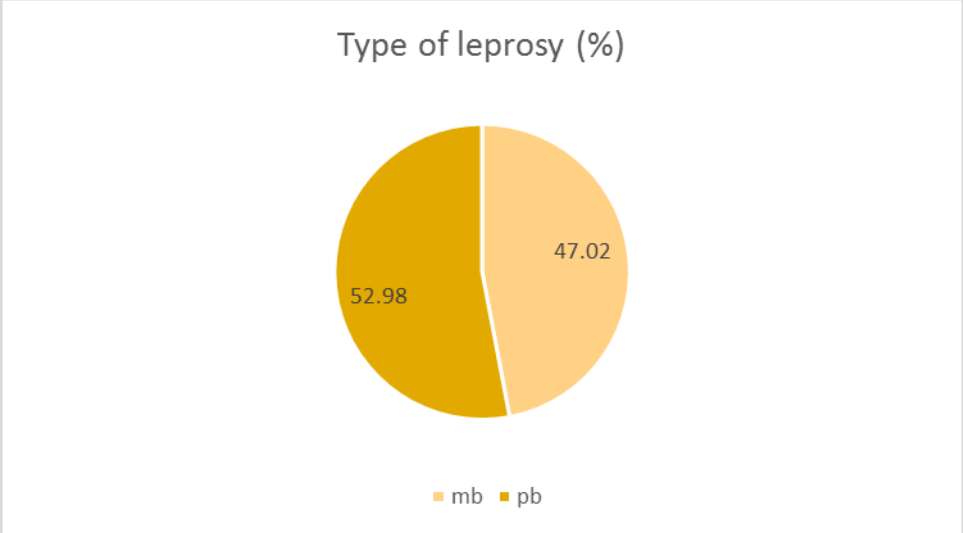

Figure 3: Types of leprosy cases registered.

Table 3 – Age wise distribution of multibacillary and paucibacillary leprosy cases.

age	count (%)	
	mb	pb
0-12	4 (0.355)	55 (4.82)
13-18	20(1.75)	60 (5.26)
19-30	141(23.34)	103(19.22)

31-40	121(20.03)	121(22.57)
41-59	147(24.34)	181(33.77)
>60	80(13.25)	107(19.96}
total	536 (47.02)	604 (52.98)

On seeing the age and types of cases, its evident that most of the leprosy cases are concentrated above the age group more than 30 years. Though under 18 age group incidences is less but we feel it's of great public health importance, that still there is child leprosy present in the country. (Table 3). Among the 1140 patients recorded 53 of them had lepra reaction. Out of which 43 had lepra type1 reaction (Table 4)

Table 4: Types of lepra reaction.

type of reaction		
Yes	lepra type 1	43
	lepra type 2	8
	other	2
No		1087

Table 5: Deformity grading and types of lepra reaction.

Deformity grading	Type of leprosy	Before treatment	During treatment	After treatment	total
grade 1	mb	39	13	16	68
	pb	4		1	5
grade 2	mb	24	6	6	36
	pb	1			1
total		68	19	23	110

On analysing about the deformity occurrence in the leprosy patients who have been recorded, 68 patients developed deformity before the treatment initiation. 19 and 23 patients developed deformities during and after treatment respectively. This shows that though active search is in a good phase but the follow up of the patients during the treatment phase is not up to the mark. On further analysis about the deformity occurrence, there were 68 and 36 mb cases who developed grade 1 and grade 2 deformity respectively. And 5 and 1 pb cases developed grade 1 and grade 2 deformity respectively. This shows that the prevalence of deformity is maximum among the mb cases of leprosy. On having insight, it is noted that among pb cases, there is only one patient who developed deformity during and after treatment initiation (table 5).

DISCUSSION

Despite the decline in the number of patients worldwide over the previous century, leprosy is an infectious illness that will continue to exist. There are around 250,000 new cases in the pipeline. Leprosy is far from being eradicated, with new cases being discovered every year.

In recent years, there has been a growing awareness of social determinants of health and the potential for social interventions to improve illness treatment and prevention methods.[6] Existing research suggests that poor living conditions are linked to an increased risk of leprosy, while stigma and fear associated with the disease may lead to treatment delays, Grade 2 disabilities, and lower individual economic production, perpetuating poverty.[7]

Children from India generally reported multibacillary cases, and some of them had smear positive results. Children in India frequently had pure neurotic leprosy, as well as lepra responses and abnormalities. Concern may arise from the occurrence of familial and extra-familial contact with leprosy cases since it suggests ongoing disease transmission.[8]

Boosting capacity of general health system employees and focusing on high endemic areas that are hotspots for leprosy transmission may help in reducing diagnosis delays, as well as increasing awareness of early leprosy signs among communities and healthcare professionals.[9] In recent studies, Patients with impairments experienced less self-stigma, and they were well-accepted by their spouses, neighbours, co-workers, and other people in public settings.[10]

CONCLUSIONS

There is an ongoing active transmission of infection as suggested by the caseloads among children, increasing ANCDR and Prevalence rates. High deformity rate prior to initiation of treatment suggests delayed care seeking. Aggressive health education and awareness is needed to achieve the elimination in the country.

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