

A Study to Find the Correlation between Sociodemographic Factors and Leprosy

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Abstract:

Introduction: Mycobacterium leprae, non-cultivable bacteria is the causative agent leprosy. Delay in the diagnosis and delayed presentation of leprosy is reported in the literature; these are important risk factors of the infection. With this back ground, a study was conducted to find the correlation between sociodemographic factors and leprosy.

Methods: It was a retrospective analysis conducted in the Department of Dermatology, Mallareddy Institute of Medical Sciences, Quthbullapur. It was a retrospective analysis hence the informed consent was waived by the IEC. Individuals aged >18 years, who were clinically and or microbiologically confirmed to be leprosy were included in the research. The sociodemographic data of the participants was recorded as per the Modified Kuppaswamy scale. Body mass index (BMI) was estimated by entering the participant's weight and height in the National Institute of Health (NIH). The data were analysed by SPSS version 21.0. The data was presented in mean, median and percentages.

Results: Total 22 (100%) members were included; the male female ratio was 0.7. Maximum (41%) number of participants was in 28 – 37 years group and least (4.5%) in the 58 – 67 years group. Majority of the study members were in over weight (36%; 8). In this research, 63.6% (14) were residents of urban area. Infection was seen commonly in lower class and lower middle class, 27% (6) each, respectively.

Conclusions: Leprosy awareness is the most important. This helps in early diagnosis as well as initiation of treatment so that the infection rate can be minimised. This automatically decreases infection rate.

Keywords: Leprosy, Factors, Diagnosis.

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Introduction

Mycobacterium leprae, non-cultivable bacteria is the causative agent leprosy. It is one of the chronic infectious diseases of neurons, respiratory mucosa and skin. [1] The generation time as well as incubation period (IP) of the bacilli is very long; \geq 20 years of IP. Infection is transmitted by the aerosols.

The spectrum of clinical manifestations ranged between tuberculoid leprosy (TT) and lepromatous leprosy (LL). [2] Skin lesion is the cardinal symptom of leprosy. Due to the disabilities as well

as cost involved in the management, it is considered to be a public health problem. In 2005, government of India initiated the National Leprosy Eradication Program (NLEP), for the diagnosis as well as early treatment. [3] India is one of the high leprosy reported countries, around 60% of the world's new leprosy cases every year. [4]

Delay in the diagnosis and delayed presentation of leprosy is reported in the literature; these are important risk factors of the infection. With this back ground, a study was conducted to find the

correlation between sociodemographic factors and leprosy in the newly formed Telangana state.

Methods

It was a retrospective analysis conducted in the Department of Dermatology, Mallareddy Institute of Medical Sciences, Quthbullapur. Study protocol was approved by the Institutional Ethics committee. Study was conducted between January 2022 to August 2023, 18 months. It was a retrospective analysis hence the informed consent was waived by the IEC. Individuals aged >18 years, who were clinically and or microbiologically confirmed to be leprosy were included in the research. Non leprosy individuals who were not confirmed either clinically or microbiologically were not considered in this research.

The sociodemographic data of the participants was recorded as per the Modified Kuppaswamy scale. [5] Body mass index (BMI) was estimated by entering the participant's weight in kilograms and height in centimetres in the National Institute of Health (NIH) website and divided in to 4 categories. [6] In this research, parameters such as

type of work, family income, duration of continuous sitting or standing, job related stress, requirement of outdoor activity for the job, food eating habits, frequency, educational status, marital status, residential status, number of family members were recorded. The data were analysed by SPSS version 21.0. The data was presented in mean, median and percentages.

Results

Total 22 (100%) members were included, the male (41%; 9) to female (59%; 13) ratio was 0.7. Maximum (41%) number of participants was in 28 – 37 years group and least (4.5%) in the 58 – 67 years group (Table 1). Majority of the study members were in over weight (36%; 8) group followed by normal weight (27%; 6), obesity (22.5%; 5) and underweight (13.5%; 3) (Table 2).

In this research, 63.6% (14) were residents of urban area. Infection was seen commonly in lower class and lower middle class, 27% (6) each, respectively. Next to this, more cases were in upper class (18%). Among the study members, 1.2 was literates and illiterates ratio (Table 3).

Table 1: Age wise distribution of the study participants; n (%)

Age	Male	Female	Total
18 – 27	2 (9)	2 (9)	4 (18)
28 – 37	5 (22.8)	4 (18)	9 (41)
38 – 47	1 (4.5)	3 (13.7)	4 (18)
48 – 57	1 (4.5)	1 (4.5)	2 (9)
58 – 67	0	1 (4.5)	1 (4.5)
≥68	0	2 (9)	2 (9)
Total	09 (41)	13 (59)	22 (100)

Table 2: BMI of the study participants; n (%)

BMI	Male	Female	Total
Underweight (<18.5)	1 (4.5)	2 (9)	3 (13.5)
Normal weight (18.5–24.9)	2 (9)	4 (18)	6 (27)
Overweight (25–29.9)	4 (18)	4 (18)	8 (36)
Obesity (≥30)	2 (9)	3 (13.5)	5 (22.5)
Total	09 (41)	13 (59)	22 (100)

Table 3: Various demographic factors of the study participants

Parameter	N	%
Living		
Urban	14	63.6
Rural	8	36.4
Family income		
Upper class	4	18
Upper middle class	3	13.5
Middle class	3	13.5
Lower middle class	6	27
Lower class	6	27
Literacy		
Literates	13	59
Illiterates	11	41

Discussion

India is one of the high leprosy reported countries. Due to the NLEP as well as proper case detection and early intonation of multi drug therapy, the prevalence rate (PR) of 1 case per 10000 populations was reported in 2005. Whereas in 2017, the PR was reported as 0.74. [1] This indicates that leprosy in India is alarming.

In this research, 41% (9) were male and 59% (13) were female participants and 0.7 was the male female ratio. In one of the recent reports from Andhra Pradesh, more number of cases was reported from male. [7] The reason for the difference cannot be explained. Previously men usually involved in outdoor activity hence chances of getting infection because this is transmitted through aerosol route. Where as in the current scenario both the gender are involved in the outdoor activity especially for the employment. In another study by Chen X et al. [8] more number of cases was detected in male.

The mean age of the study members was 43 years. This is the age group which usually involved in employment or any other form of earning. Automatically the infection rate is also high in this group. In this research more number of cases were detected in 28 – 37 years group (41%; 9) followed by 18 – 27 and 28 – 47 groups; 18% (4) each, respectively (Table 1). As per the reports, >60 years is the risk factor for leprosy. [9, 10] Usually in the adults, as the age increases, the immune system will be impaired. Hence chances of getting infections. Hence more number of the cases is seen. Whereas in the current research, as the age increases, the number of the cases were decreased. This is retrospective analysis and the available data only were analysed. Due to these limitations few cases were only reported in the higher age groups. Most (63.6%) of the study members in this research live in urban area. It was 64%, 36% respectively in urban are rural areas as per the study reported by Srinivas G et al. [7] financial status wise, the infection is common in low socio economic category (Table 3). This is because the infection is transmitted through aerosols. Due to this in low socioeconomic category, usually more number of people stays very close.

Hence the rate of infection is more. Whereas in high socio economic group, the infection is also high. This is because of defect in immune system. Even similar findings were reported in the literature. [11, 12] The rate of the infection is almost similar in literates and illiterates. Because the exposure is same. Small sample size, short duration is the limitations of this research.

Conclusions

Leprosy awareness is the most important. This helps in early diagnosis as well as initiation of treatment so that the infection rate can be minimised. This automatically decreases infection rate.

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