

BRIEF COMMUNICATION**Patterns and Magnitude of Defaulting from Leprosy Treatment in Jimma Health Centre**Alemayehu Molla, BSc,^{1*} Solomon Gebre-Selassie, MD, MSc²**ABSTRACT**

Background: *Leprosy is a chronic infectious disease that leads to its physical, psychological and social disabilities due to mutilation and rejection effects. The objective of this study was to assess the pattern and magnitude of defaulting from leprosy treatment.*

Methods: *A retrospective study was conducted during October 1999 and January 2000 in Jimma Health centre to determine the pattern and magnitude of defaulting of leprosy patients from treatment. Records of 304 patients registered in the health centre during the five-year period from September 1993 to August 1998 were reviewed.*

Results: *Of the 304 registered patients, 201 were included in the study. There were 148 (73.6%) males and 53 (26.3%) females. The male to female sex ratio of the patients was 3:1. The patients were in the age ranges between 1-86 years. The overall defaulting rate was 40.3%. The yearly defaulting rate in this study was found to be 45.9%, 45%, 36.3%, 33.3% and 8.6% from the year 1993 to 1998 respectively. The defaulting rate was higher among male adult patients in the age groups of 15-59 years, patients coming from far places, patients with multi-bacillary disease and newly detected cases. The highest rate of defaulting was between identified in the 3rd and 8th months after the start of treatment.*

Conclusion: *Based on the findings, appropriate health education, regular review of records, systematic registration of patients and tracing of absentees with community involvement are recommended. In addition, further studies should be done to assess the effective duration of treatment and other factors associated with individual patient on defaulting from treatment.*

Key words: Leprosy, defaulter, Relapse

INTRODUCTION

Leprosy is a social disease that has left behind terrifying images of memory of mutilation, rejection and exclusion from society (1). It leads to progressive physical, psychological and social disabilities because of the stigma associated with the

disease. Many people in developing countries have difficulties in accepting the disease due to misconceptions, stigma and superstitions they have towards the disease. This makes them reluctant to go to clinics for examination even after being diagnosed (2).

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In 1981, the WHO recommended multiple drug therapy (MDT). The introduction and expansion of MDT has dramatically decreased the prevalence of leprosy in all endemic countries. Drug treatment regimens recommended by WHO for paucibacillary (PB) leprosy for 6 month are dapson and rifampicin, while regimens for multibacillary (MB) leprosy are dapson, rifampicin and clofazimine for 12 months.

The current prevalence of leprosy is in the range of 5–10/10,000 population in many endemic regions (1). As estimated in 1997, there were 1.15 million leprosy cases in the world. About 500,000 were new cases are detected each year and about 2.1 billion people live in countries where the disease prevalence is more than 1/10,000 people. More than 1 million people worldwide are irreversibly disabled due to the disease.

The leprosy control programme in Ethiopia was launched in 1955 (3). Between 1973 and 1981, there was a steady increase in the number of registered cases from 60,000 to 80,000. The estimated prevalence of leprosy during this period was 3 per 1,000 population with a total estimate of about 120,000. The number of patients in this country decreased from 59,822 to 8,272 in 1985 and 1996 respectively owing to the implementation of MDT. During the same period the annual number of new cases decreased from 5,113 to 4,747 (4). At the end of 1998, the total number of patients under treatment was only 4173. Since the implementation of MDT, the integration of leprosy control in to the general health service is gaining acceptance. The reasons for the integration are to solve the decreased number of registered case, best utilization of resources and to have more effective services.

The objective of the present study was to assess the pattern, magnitude and rate of defaulting from anti-leprosy treatment of

leprosy patients of Mana and Kersa districts (*Weredas*) registered at Jimma Health Centre.

MATERIALS AND METHODS

Study area and period: The study was conducted during October 1999 and January 2000 in Jimma Health Centre, Jimma town, Southwest Ethiopia. Leprosy patients from Mana and Kersa districts (*Weredas*) follow their treatment at Jimma health Centre. The population of these 2 *Weredas* was estimated to be 130,109 and 238,691 respectively. These *Weredas* were selected because of large number of cases registered at Jimma Health Centre.

Study Design: The study was based on retrospective review of documented case records and registration books of leprosy patients registered at the Health Centre during the 5 years period, September 1993 – August 1998.

Study population and sample size: All leprosy patients registered at Jimma Health Centre during the 5 years period with required information were included in the study. Patients with insufficiently recorded information were excluded from the study. Accordingly, 304 patients were enrolled in to the study where 201 patients with complete records were included in the study.

Data Collection: After permission was secured from concerned authorities, data were collected by 2 nurses after orientation was given. Names of study subjects were not listed on the format to keep anonymity. All the patients registered during the 5-year period were identified from registration books and their cards were retrieved. Data including demographic characteristics, information on type of leprosy, category of patients completion of the treatment and outcome of treatment were collected from registration books and cards by the principal investigator and data collectors

using a standard format prepared. Patients whose cards were lost or incomplete were excluded from the study.

Statistical tests. Data analysis was done using scientific calculators. Chi-square test of independence was employed to verify the association of defaulters, sex and type of leprosy.

In the this study, *paucibacillary leprosy (PB)* was defined as patients with 1-5 leprosy skin lesions unless the skin smear is positive; *multibacillary leprosy (MB)*: patients with 6 or more skin lesions or patients with less than 6 skin lesions with positive skin smear result.

Relapse: A patient declared treatment completed after a course of multi drug treatment (MDT). but who reports back to

the health services and is found to have active leprosy of the same classification as the original classification

Defaulter:- A patient who had failure to collect drugs for three or more months.

RESULTS

A total of 304 patients were registered at leprosy follow-up clinic of Jimma Health Center during the five-year period (September 1, 1993–August 30, 1998). Out of these total patients 201 (66.1%) were included in the study. The majority of the patients were males (73.6%) with male to female ratio of 2.8:1 where 90% of the patients were in the age groups of 15–59 years (Table1).

TABLE 1. Age and Sex distribution of leprosy patient attending the Jimma Health Centre leprosy follow-up clinic. October 1999-January 2000.

Age Group (Year)	1993/94 No (%)	1994/95 No(%)	1995/96 No(%)	1996/97 No(%)	1997/98 No(%)	Total No(%)
0-14 M	4(2.9)	1(5)	-	-	1(4.3)	6(2.98)
F	3(2.2)	-	-	-	2(8.6)	5(2.48)
15-59 M	91(67.4)	15(75)	8(72.7)	7(58.3)	13(56.5)	134(66.7)
F	32(23.7)	3(15)	2(18.1)	4(33.3)	7(30.4)	48(23.9)
60+ M	5(3.7)	1(5)	1(9.1)	1(8.3)	-	8(4.0)
F	-	-	-	-	-	-
Total M	100(74.1)	17(85.0)	9(81.8)	8(66.6)	14(60.8)	148(73.6)
F	35(25.9)	3(15.0)	2(18.1)	4(33.3)	9(39.0)	53(26.3)
M&F	135	20	11	12	23	201(100)

TABLE 2. Distribution of study population by socio-demographic characteristic, type of leprosy, distance traveled and, category of patient at Jimma Health Center, October 1999-January 2000.

Variable	1993/94	1994/95	1995/96	1996/97	1997/98	Total
	No(%)	No(%)	No(%)	No(%)	No(%)	No(%)
Sex:						
Male	100 (74.1)	17 (85.0)	9 (81.8)	8 (66.6)	14 (60.8)	148 (73.6)
Female	35 (25.9)	3 (15.0)	2 (18.1)	4 (33.3)	9 (39.0)	53 (26.4)
Age group:						
0-14	7 (5.1)	1 (5.0)	-	-	3 (12.9)	11 (5.4)
15-59	123 (91.1)	18 (90.0)	10 (90.8)	11	20 (86.9)	182 (90.5)
60+	5 (3.7)	1 (5.0)	1 (9.1)	91.6)	-	8 (4.0)
Distance from HC				1 (8.3)		
< 10Km	100 (74.0)	5 (25.0)	4 (36.3)		11 (47.8)	124 (61.6)
> 10Km	35 (25.9)	15 (75.0)	7 (63.6)	4 (33.3)	12 (52.1)	77 (38.3)
Leprosy type:				8 (66.6)		
PB	28 (20.7)	4 (20.0)	-		3 (13.0)	40 (19.9)
MB	107 (79.2)	16 (80.0)	11(100.0)	5 (41.6)	20 (86.9)	161 (80.0)
Pt Category:				7 (58.3)		
New						
Relapse	55 (40.7)	16 (80.0)	8 (72.7)	11(91.6)	23 (100)	113 (56.2)
Transfer	79 (58.5)	4 (20.0)	3 (27.2)	1 (8.3)	-	87 (43.2)
	1 (0.7)	-	-	-	-	1 (0.5)

Multi-bacillary was the predominant form of the disease and majority of the newly diagnosed case of leprosy account for the greater proportion (56.2%), while relapse rate and transfer in cases accounted for 43.2% and 0.5% respectively (Table 2).

Among the total patients the rate of defaulting in the current study was 45.9%, 45%, 36.3%, 33.3% and 8.6% from the year 1993-1998 respectively. High rate of default occurred among males compared to females and those in the productive age group of 15-59 years. A total of 81 leprosy patients (61 males and 20 females) defaulted from treatment with an overall defaulting rate of 40.3% (i. e. 30.3% males

and 10.0% females) [Table 3]. High rate of defaulting was also found in patients coming from more than 10 kms outside the town, MB cases than PB, and almost similar between the newly diagnosed and relapse cases of leprosy patients (19.4 % and 20.9% respectively). There was not statically significant differences in the rate of default was among the sexes ($P > 0.05$). However, type of leprosy was significantly associated with defaulting, patients with MB defaulted more than the PB cases ($P < 0.05$, Table 3). Higher proportions of patients defaulted from treatment between the 3rd and 8th months of the start of treatment as shown in Table 4.

TABLE 3. Characteristics and compliance of leprosy patients with respect to Sex, Age, Distance from health institution and type of leprosy registered with respect to defaulting from treatment in Jimma Health Centre during 5 years, October 1999-January 2000.

Variables	Yearly defaulter rate					Total	
	1993/94 No (%)	1994/95 No (%)	1995/96 No (%)	1996/97 No (%)	1997/98 No (%)	No (%)	No (%)
Sex							
M		45 (22.4)	7 (3.5)	3 (1.5)	4 (2.0)	2 (1.0)	61 (30.3)
F		17 (8.5)	2 (1.0)	1 (0.5)	--	--	20 (10.0)
Age							
0-14		5 (2.5)	--	--	--	--	5 (2.5)
15-59		53 (26.4)	9 (4.5)	4 (2.0)	4 (2.0)	2 (2.0)	72 (35.8)
60+		4 (2.0)	--	--	--	--	4 (2.0)
Distance							
<10 kms		43 (21.4)	2 (1.0)	1 (0.5)	1 (0.5)	1 (0.5)	48 (23.8)
>10kms		19 (9.5)	7 (3.5)	3 (1.5)	3 (1.5)	1 (0.5)	33 (16.4)
Type of Disease							
PB		5 (2.5)	--	--	2 (1.0)	1 (0.5)	8 (3.9)
MB		57 (28.4)	9 (4.5)	4 (2.0)	2 (1.0)	1 (0.5)	73 (36.3)
Category of Patient							
New		23 (11.4)	8 (4.0)	3 (1.5)	3 (1.5)	2 (1.0)	39 (19.4)
Relapse		39 (19.4)	1 (0.5)	1 (0.5)	1 (0.5)	--	42 (20.9)

* PB = Paucibacillary; MB = Multi bacillary; M = Male; F = Female

TABLE 4. Distribution of defaulters from treatment of leprosy time (month) of defaulting during the 5 consecutive years in Jimma Health Centre, October 1999-January 2000.

Months of defaulting	Number of defaulters by year					Total No (%)
	1993/94	1994/95	1995/96	1996/97	1997/98	
3	18	-	2	1	1	22 (10.9)
4	7	3	-	1	-	11 (5.4)
5	6	1	2	1	-	10 (5.0)
6	6	1	-	-	1	8 (4.0)
7	3	2	-	-	-	5 (2.5)
8	8	-	-	1	-	9 (4.5)
9	1	1	-	-	-	2 (1.0)
10	2	-	-	-	-	2 (1.0)
>10*	11	1	-	-	-	12 (6.0)
Total	62	9	4			81 (40.3)

* = 11-22 months

DISCUSSION

Leprosy is a chronic infectious disease of humans mainly affecting superficial tissues especially the skin and peripheral nerves. The number of individuals who have suffered its chronic course of incurable disfigurement and physical disabilities due to nerve damage can never be calculated. Patients develop nerve damage either before diagnosis, during treatment or after completion of treatment. Nerve impairment in Ethiopian leprosy patients is as high as 65.5% in patients with lepromatous type leprosy (5).

The rate of defaulting in the present study is 45.9%, 45%, 36.3%, 33.3% and 8.6% from the year 1993–1998 respectively with an overall rate of 40.3%. The report is comparable in each year and similar with studies done in Ghindeberet Hospital (Ethiopia) which was 46.3%, but slightly higher than the report in Myanmar which was 34.1% (4,6). In a survey conducted on 963 leprosy patients in Bichena, Gojam province, 212 (22%) had some form of disabilities and the proportion was higher among defaulters (56%) than new cases (16%) and was more frequent among the older age category (7), where the prevalence of leprosy was 15.5/1000 population. According to a study in 103 children in Ghindeberet Hospital, tuberculoid type leprosy was the commonest, 53.4% (8) and the disease was rare among under 5 children (0.97%) but common in the age group of 10–14 years (80.6%). Family history of leprosy was found in 48.6% of which 46.3% were defaulters. There was no significant difference in sex ratio (6).

In India, paucibacillary leprosy patients attending urban leprosy centres showed a defaulter rate of 45% (9). In Bombay, India, 8574 bacteriologically positive cases were retrospectively analyzed and 6090 (71%) defaulters were traced. For cases

who had high bacterial indexes and could be contacted, multi-drug therapy was given under supervision by field workers (10). Nigeria has 40% of all registered leprosy cases in Sub-Saharan Africa. In study done in urban areas of Senegal, the number of registered leprosy cases during 5 years was 1428 patients. The study reported a prevalence rate of 35.5% (11). In an analysis of 884 registered cases at a health centre in Yangon, Myanmar, the defaulter rate was 34.2% (8). In cases of leprosy monotherapy, several problems were noted. Some of these were poor patient compliance, drug resistance and microbial persistence (12).

Although defaulting rate seems to decrease in the study area, leprosy is becoming serious problem in different parts of the world due to very low patient compliance from anti-leprosy treatment. This makes the control programme of leprosy more difficult. The drug regimens may not cure but prolong the life of the patient so that such patient live for many years excreting the bacilli which is usually resistant type accounting for increased number of reservoirs of the infection in the population.

In the present study the rate of defaulting was higher among young MB patients who travel more than 10 Kms to the health centre. However, there was no significant association among the sexes in defaulting ($P > 0.05$). The number of male patient aged 15–59 years registered was higher than females. This might be due to male dominance where they are able to visit health institution. Females older than 60 years were not registered. Only few children were registered in the health centre since the disease has long incubation period (several years). Distance from residence to the health centre, however, seems to have varying associations with defaulting where sometimes the high rate of defaulting among the newly diagnosed leprosy patient

might show the relevance of individual patient awareness concerning the treatment and the disease. The feeling of improvement early in the course of treatment may explain for high rate of defaulting in the MB patient. Type or degree of leprosy was significantly associated with defaulting where MB cases defaulted more than the PB cases ($P < 0.05$). About 78% of the defaulting took place at the end of 3rd-8th months and the extent was high at the third month, which might be due to early feeling of improvement. The major reasons for defaulting include lack of knowledge about the nature of the disease and course of treatment, societal neglect and poor health facilities. Concerning the health system use, many countries are employing the outpatient clinics of the general health services (GHS) as the base for managing leprosy patients (13). Since the implementation of MDT, the integration of leprosy control in to the GHS has gained wider acceptance. This approach is multipurpose, permanent and decentralized which serves the community in closer ways than the vertical programme. In the contrary, the vertical programme suffers from limitations including insufficient coverage, lack of continuous health care, donor dependency and stigma (14). Although the health policy of Ethiopia is decentralized, it has not been implemented as effectively as possible. Thus, the leprosy control programme is still in its vertical implementation. Thus, this needs further investigation in the use of the GHS for leprosy control.

Failure to control and reduce the prevalence of the disease lies on problems related to defaulting. Understanding the rate of defaulting would contribute a lot to further plan means to reduce the rate and prevent disability. The possible solution to overcome the problem would be by extensive health education, tracing of absentees, regular checking of records,

systematic registration of patients and community involvement.

In conclusion, this study, with limitations in obtaining complete data from patient cards who were in follow up, tries to indicate that a higher proportion of patients do not comply to treatment due to several reasons. This trend has negative impact on the control of leprosy. Thus, emphasis should be given to the problems in order to attain better and effective control over the disease. Further studies should be done to assess the effective duration of treatment and factors associated with individual patient defaulting from treatment. Since the high defaulting rate could nullify the efforts made so far in leprosy control activity further nation wide study should be done to identify the magnitude of the problem, reasons for defaulting and to find solution to the problem. In addition, the problem affects mainly those in the productive age groups who may have a negative impact on economy of the country. The newly implemented integration of MDT programme is showing promising results in countries that applied it as their national guideline for leprosy and TB control. It should be also employed widely in this country. In addition, a better health policy should be revised to alleviate the problem.

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REFERENCES

1. World Health Organization (WHO). Guide to eliminating leprosy as a public health problem. 2nd edition. Geneva, 1997; pp. 3-7.
2. Amenu A, Nash J, Tamiru T, Byass P. Pattern of health-seeking behaviour amongst leprosy patients in former

- Shoa Province, Ethiopia. *Ethiop J Health Dev* 2000; 14: 43-47.
3. Tadele T. New development in national leprosy control programme and the issue of integration. *Ethiop J Health Dev* 1984; 1: 57 - 60.
4. Manual on National Leprosy and Tuberculosis Control Programme, Addis Ababa, Ministry of Health of Ethiopia, 1997; 22 - 26.
5. Lockwood DNJ. Nerve damage in leprosy: a problem for patients, doctors and Scientists (Kellersberger Memorial Lecture, 1998). *Ethiop Med J* 1999; 37: 133-1140.
6. Myint T, Hotoon MT, Win M, Yin C. Risk factors among defaulters in the urban leprosy control center of Thaketa Township in the City of Yangon, Myanmar. *Leprosy Rev* 1992; 63: 345 - 9.
7. Tadele T. Epidemiological survey of leprosy control in Bichena District, Gojam Administrative Region. *Ethiop J Health Dev* 1989; 3: 135-9.
8. Amha M. Leprosy among children in an endemic area. *Bulletin JIHS*. 1992; 2 (1): 14 - 22.
9. Saxena U, Misra RS, Ramesh V. Treatment of Paucibacillary leprosy. *Int J Dermatol* 1993; 32: 135-7.
10. Koticha KK, Patre BB, Nair PR. Problems of urban leprosy control with special references to case finding. *Int J Lepr Other Mycobact Dis* 1984; 52: 482-7.
11. Husser JA. Evaluation of the campaign against leprosy, Switzerland. *Acta Leopard* 1983; 1: 63 - 92.
12. Waters MFR. Concepts behind the development of multi-drug treatment regimens in leprosy. In: Morton Harboe (ed); *Teaching of leprosy*. *Ethiop Med J* 1986; 24 (Suppl. 1): 61-7.
13. Tadele T. Leprosy. In: Zein Ahmed Zein & Helmut Kloos (editors). *The Ecology of Health and Disease in Ethiopia*. MOH, 1988: 252-265.
14. Mengistu A, Melesse WD, Mohammed A, Timotiwos G, Bereket M. The involvement of the general health service staff in the management of leprosy in the Southern Region, Ethiopia. *Ethiop J Health Dev* 1999; 13:187-193.