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## TUBERCULOSIS IN THE BLUE NILE VALLEY WESTERN ETHIOPIA

CHALLI JIRA B.Sc, MPH\*

## ABSTRACT

An epidemiological survey of pulmonary Tuberculosis among different ethnic groups in the Blue Nile valley of Western Ethiopia was conducted to obtain baseline data on disease prevalence. Among the total population of 1323 people in four sample villages those with signs and symptoms of the disease were examined. History, physical examination, and sputum smears were taken. The prevalence rates for tuberculosis were found to be the highest among the Oromo people of the highest altitudes (15 to 18 per thousand). Although it constitutes a major health problem in the highland tuberculosis seems to be comparatively less prevalent in the lowlands. Possible explanation for this epidemiological pattern of tuberculosis in Mendi District are discussed, and suggestions for further investigations and control measures are given.

## INTRODUCTION

The Blue Nile valley portion of Asossa Administrative Region Western Ethiopia (Fig 1) has great potentials. Presently marble extraction industry and a large agricultural settlement programme are in progress in that area. Fuller Torry in 1966 stated that tuberculosis was not a problem among the Nilotic people in Sirba area (1). The records from different clinics in Mendi area gave the clear impression that tuberculosis is a major health problem in the highlands as it is the third leading cause of morbidity following helminthiasis

\* Jimma Institute of Health Sciences,  
Department of Community Health,  
P.O.Box 378, Jimma, Illubabor.



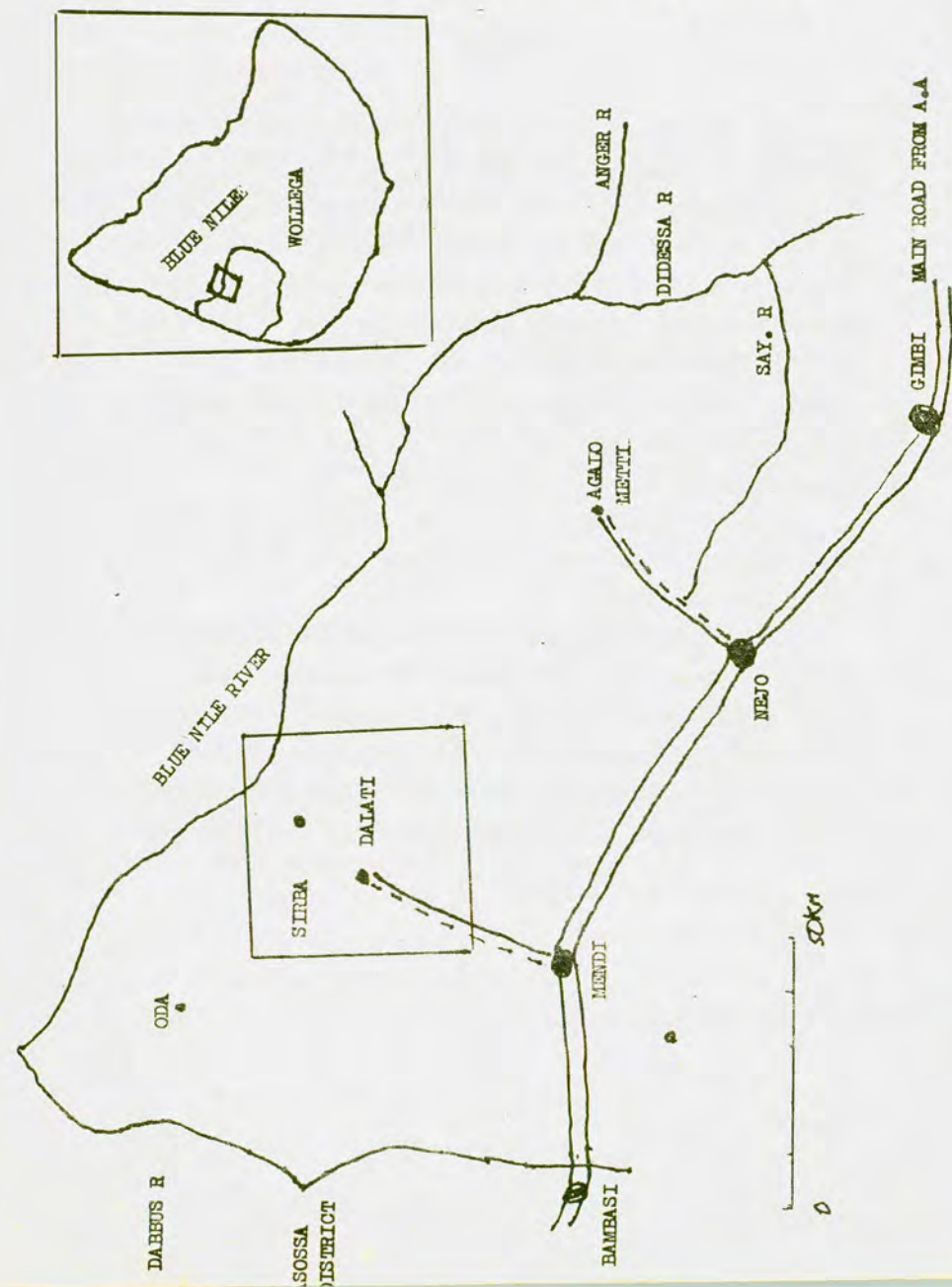
and inflammatory diseases of the eye. As the highland dwellers in recent years do have their farm in the lowlands of Blue Nile valley and in view of the present development, acquisition of baseline data on disease prevalence became essential for planning of future control programme. As the result the present study of tuberculosis was conducted. The study compares the prevalence of pulmonary tuberculosis on representatives of different ethnic groups, living under variable climatic conditions.

#### MATERIALS AND METHODS

The study area is Mendi District an Administrative unit within Assossa Administrative Region of Ethiopia (Fig 1). A prevalence study of pulmonary Tuberculosis there villages representing different ethnic groups with varying residential altitudes was carried out. They included Gimbi (1700 m), Dalati (1200 m) and Sirba (700 m) representing highland Oromos, Lowland Oromos and Nilotics respectively.

In each village people suspected for pulmonary tuberculosis were instructed told to bring 2-3 expectorates (sputum) for three consecutive days for direct smear of Acid Fast Bacillus (AFB). The expectorate smears were examined by trained qualified laboratory technician. Physical examination of all suspected cases were done by a medical doctor. A case was defined as an individual discharging Tubercle bacilli which is positive for AFB stain.

FIGURE 1 MAP OF STUDY AREA - MENDI DISTRICT, BLUE NILE VALLEY, WESTERN ETHIOPIA INCLUDING THE SURVEY SITES.



## RESULTS

The findings of sputum smears and physical examination are shown in Table I. From the total of 74 people suspected for tuberculosis 53 (71.6%) returned for sputum examinations, and 45 (61%) came for further examination in the clinic. From these 45 who were further examined 17 were diagnosed to have clinical tuberculosis. The 17 positive AFB cases found is coinciding with clinical and epidemiological evidence and have clearly supported the diagnosis. This gives an over all AFB positivity rate of 13 per thousand in the survey of Tuberculosis.

Of the 17 diagnosed cases 6 had previously recognized tuberculosis. Only 3 were on treatment, 3 were defaulters and 11 were new cases.

Both for clinical manifestation and proven Tuberculosis the table demonstrates a tendency for higher prevalence in the higher altitudes among the Oromo people. While only 5 and 7 per thousand of Dalati Nilotics and Sirba Nilotics had Tuberculosis, as 15 and 18 per thousand of the low-land Oromo and highland Oromos had the disease.

TABLE 1

Sputum and physical examination results among people of different ethnic groups at different altitudes of the Blue Nile Valley in Mendi District, (Wollega) Assosa  
Adminstrative Region, Ethiopia

	Highland Oromos (n=393)	Lowland Oromos (n=455)	Dalati Nilotics (n=193)	Sirba Nilotics (n=282)	Total (n=1323)
Suspected TB	44(11.2%)	20(4.9%)	8(4.1%)	2(0.7%)	74(5.6%)
Expectorate given	33(8.4%)	16(3.5%)	2(1.0%)	2(0.7%)	53(4.0%)
Proven TB	7(1.8%)	7(1.5%)	1(0.5%)	2(0.7%)	17(1.3%)



## DISCUSSION

From this data set one may conclude that pulmonary Tuberculosis presently seems a smaller problem among the Nilotic groups living in the low-lands compared to the highland Oromo people. The prevalence rate found in the highland is more than three times higher than that in the far low-land. This observation is in agreement with the report of Fuller Tottey, who in 1966 observed no suspected case of tuberculosis among the Nilotic people around Sirba (1).

Although the Nilotic people have a tendency to put their houses in small clusters or villages, on average they live almost as scattered as the rural highland farmers. The pattern demonstrated in the present survey; therefore, reflects the true difference between highland and low-land population, giving prevalence rates for pulmonary Tuberculosis of 15 and 18 per thousand for lowland and highland Oromos and only 5 and 7 per thousand for Dalati and Sirba Nilotics.

A tendency of lower prevalence for pulmonary Tuberculosis in lowland areas is also found by Perry in Eritrea. Pulmonary Tuberculosis was found in 1-3% of all outpatients in the highlands, while the proportion in the dry low-lands was only 0.6%(2). For Ethiopia as a whole a mean prevalence rate of 1% has been suggested although rates up to 5% have been reported (3).

Although the same difference according to altitude is observed in Eritrea (2), there is no report about low prevalence of tuberculosis especially among other Nilotic groups in Ethiopia. On the contrary Reynolds found a very

high incidence of Tuberculosis among the Nilotic Anuak people in Gambela, Gambela Administrative Region, Southwest Ethiopia. He also found a high percentage of positive Tuberculin tests in the area, suggesting a widespread exposure of the disease(4).

The fact that the Nilotic people of the Blue Nile valley previously lived very isolated, while now increasing numbers of highland people farm in the lowlands part of the year, leads to the impression that during some years an epidemic might start in a previously unexposed population. This "Virgin soil" theory has been demonstrated to explain the epidemic tuberculosis situation from various part of Africa (5) and the case of the Gamela Anuaks might fit in to this pattern (4).

The only way to clarify this question is to do Tuberculin test surveys in the area. In 1966 Fuller Torrey found only 3 of 24 people positive by Tuberculin testing (1. This is far below what has been reported from other parts of Ethiopia, where usually 30-80% of the people above 14 years of age, are positive (3,6). However, the prevalence might vary considerably according to the population density, as reported from south western Ethiopia(5).

In order to prevent further spread of Tuberculosis in this probably highly receptive lowland area, active measures should be taken to diagnose and treat cases of open pulmonary infection.

The significance of this study is to generate data base for further intuitive studies. The comparisons made in the paper may not be accurate for the study methodologies could differ.



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