ORIGINAL ARTICLE

Impact of Scarcity of Automobile Fuel on Attendance at a Referral Centre for Tuberculosis in Nigeria.

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ABSTRACT

Background: *Tuberculosis in its pulmonary and extra- pulmonary form is still a common finding in the developing world. This study was to investigate the impact of a period of scarcity of automobile fuel in the Niger-Delta area of Nigeria on attendance at a Tuberculosis Referral Centre in Igbogene, Yenagoa, Bayelsa State.*

Methods: *Data was collected on attendance before, during and after the scarcity. This Tuberculosis and Leprosy Control Centre is run by a German non-governmental organization. (NGO), and the State's Ministry of Health. No user fee is charged.*

Results: *During the period of scarcity of automobile fuel, the total 12-months attendance of males decreased to 25.1% of that before the advent of scarcity. Attendance rose in the post-scarcity period, but reached only 78.5% of the pre-scarcity level. For females, the 12 months attendance during the scarcity period reduced to 75.3% of the pre-scarcity level. The 12-months attendance by females rose in the post-scarcity period to 109.2% above the pre-scarcity level. There was no evidence of an increase in attendance over the course of the period of automobile fuel scarcity among either males or females.*

Conclusion: *The scarcity of automobile fuel which usually translated to an increase in cost of transportation probably increased the number of untreated tuberculosis patients in the population with potential serious long term health implications. The provision of vehicles as well as facility for storage of automobile fuel to this referral Centre by either the NGO or the Ministry of Health is suggested. This would allow the Centre carry out domiciliary service to these patients.*

KEY WORDS: *Automobile fuel; attendance; tuberculosis.*

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INTRODUCTION

Both pulmonary and extra-pulmonary tuberculosis are a common finding in health facilities in Nigeria and she presently ranks fourth among the 22 high burden countries (World Health Organisation, WHO)[1]. Ranking was done by the estimated number of new tuberculosis cases each year. The estimates were from cohort tuberculosis cases diagnosed during 1997 and treated/ followed up through 2000.

If the most powerful weapon for controlling and preventing tuberculosis are case detection and treatment with a view of preventing the spread of *Mycobacterium tuberculosis* from smear positive case, anything that will hinder these processes will in turn hinder the control and prevention of tuberculosis. One such factor, as we observed, was difficulty in getting transport to and from a tuberculosis referral centre during the period when the nation experienced scarcity of automobile fuel. Such period of scarcity usually resulted into higher transport fare. The nearest patient to the facility would need about ₦150 (about US$1.00) as transport fare for a return trip. This is a sizeable sum for many people.

Majority of the patients who are served by this referral centre are those that can be regarded as belonging to the low socio-economic group, so any increase in cost of transportation might be expected to discourage some people from seeking care. The recurrent scarcity of automobile fuel has provided an opportunity to examine the impact of high cost of transportation on attendance at Yenagoa's principal treatment and referral centre for tuberculosis.

MATERIALS AND METHODS

Information on attendance was collected from routine clinic record for: July, 1997 to June 1998 (the pre-scarcity period of 12-months), July 1998 to June 1999 (the scarcity period of 12-months) and July 1999 to June 2000 (the post-scarcity period of 12-months).

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At this referral centre, diagnoses were routinely confirmed by presence of acid fast bacilli in the sputa. If acid fast bacilli were present the patient was treated as smear positive case. The diagnosis of smear negative patients and extra-pulmonary tuberculosis patients were based on proper evaluation by a medical officer using medical history, physical examination, histology and chest radiograph as the case may require.

Data were collected on patient sex, date of presentation and the diagnosis made. The diagnoses were grouped into smear positive, smear negative and extra-pulmonary tuberculosis. The data were analysed by simple percentage.

RESULTS

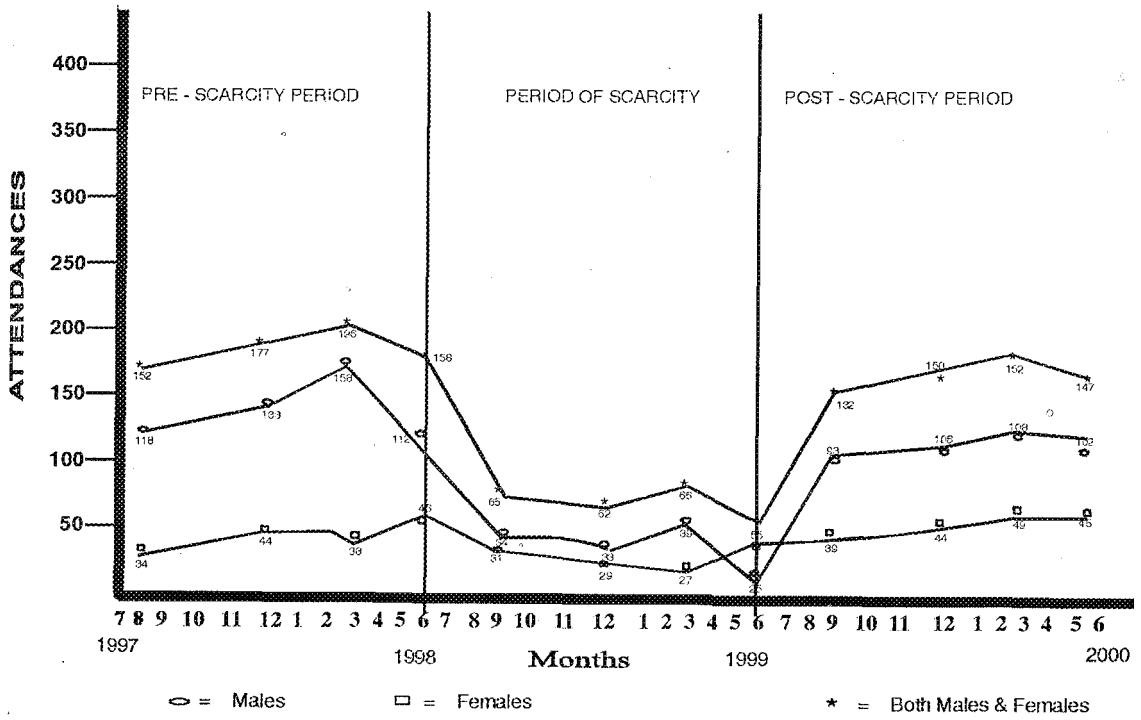
Actual numbers of quarterly attendance by males and females in the period before, during and after the scarcity of automobile fuel are shown in figure 1, and the table gives the 12-months attendance by sex and diagnosis for the three periods. The table also shows the 12-months attendance in period two and three as a percentage of 12-months attendance in period one. The attendance for males in period two was 25.1 % of that in period one, and although it rose in period three, it was still only 78.5% of that in period one. The attendance of females also fell during the period of scarcity of automobile fuel, but increased to 109. 2% of the pre-scarcity attendance in the post-scarcity period.

Males showed a more striking drop in attendance than females during the scarcity period. Attendance by males was more than double that of females during period one, dropped to roughly the same level as females during period two. For both females and males there was no evidence of any trend towards an increase in attendance over the period when there was scarcity of automobile fuel. Attendance by diagnosis also followed similar trends.

Table I. Patient attendance at the tuberculosis control programme clinic before, during and after the scarcity of automobile fuel.

Diagnosis	Period			Attendance in period of scarcity as % of attendance in pre-scarcity period	Attendance in post-scarcity period as % of attendance in pre-scarcity period
	Pre-scarcity	During scarcity	Post-scarcity		
Males					
Smear Positive Tubeculosis	417	108	16	25.9	75.8
Smear Negative Tuberculosis	96	17	83	17.7	86.5
Extra-pulmonary Tuberculosis	8	6	10	75.0	125.0
Total	521	131	409	25.1	78.5
Females					
Smear Positive Tubeculosis	110	94	121	85.5	110.0
Smear Negative Tuberculosis	49	26	52	53.1	106.1
Extra-pulmonary Tuberculosis	3	2	4	66.6	133.3
Total	162	122	177	75.3	109.2

Figure 1. Quarterly attendance by males and females at the Tuberculosis control Programme Clinic



DISCUSSION

This study reports the effects of recurrent scarcity of automobile fuel and the attendant increase in cost of transportation in Nigeria on attendance in a tuberculosis control programme clinic. Our data shows that it led to a remarkable decrease in the use of this health service. There was no evidence of recovery in attendance until the scarcity of automobile fuel was over. This finding calls into question the assumption that the demand for essential health services is largely inelastic[2].

Our data show only the impact of scarcity of automobile fuel on the effective demand for tuberculosis control programme service; we have no clear knowledge of the many factors that influence decision about seeking care for tuberculosis, although this issue has been looked at in more general terms in the Nigerian population[3]. Some insight into the process involved is essential for adequate planning of health services. For example, it is possible that part of the drop in attendance at the clinic during the scarcity of automobile fuel is attributable to change in clinical practice at primary health centres. Staff at the centres may have referred fewer patients because of poor attendance at their duty station for the same reason of high cost of transportation. It is unlikely, however, that staff at primary health centres would have provided much effective treatment, because up to and including the period under study these staff were trained to refer cases of tuberculosis to this referral centre and anti-tuberculous drugs were generally not available in these health centres.

The reasons for sex differences in health-services use over the three study periods are unclear. It is possible that the initial smaller numbers of females than males attending the referral clinic reflects a larger "opportunity cost" for females (i.e. it may be more costly socially and economically for females to attend a health facility or to seek care). This may also explain why the fall in attendance after the advent of scarcity of automobile fuel was less striking for females, since the relative increase in total costs (opportunity costs plus high cost of transportation) was probably smaller for females. After the scarcity of fuel, attendance by males remained substantially lower than in the pre-scarcity period, indicating a sustained change in health-seeking behaviour among male tuberculous patients.

Under conditions where tuberculosis is endemic, a decrease in the case detection and cure rate could bring about a substantial increase in the incidence and prevalence of the disease.

Were patients no longer seen at the reference centre provided with appropriate care or were they seen in private hospitals? Since private hospital's fees are generally higher than the free drugs in the TB control programme clinic, it seems unlikely that the balance between public and private clinics would have changed to the extent required to account for the drop in attendance we observed. It is possible that traditional healers, drug peddlers, and other informal operators may have absorbed some of the fall-out from the TB referral centre.

Most of those attending the TB referral centre are poor, and they are therefore among the most vulnerable to ill-health. Studies in the developing countries Bangladesh[2], Zaire[4], Ghana[5,6], Swaziland[7], and Lesotho[8], have shown that, as might be expected, use of health services by the poor is more sensitive to and more affected by price increases than use by the rich. Similar conclusions have also been drawn from studies in industrialized countries[9,10].

This impact on attendance at the TB referral centre which is attributable to scarcity of automobile fuel was clearly undesirable. Unless patients receive adequate care elsewhere, it is probable that untreated tuberculous patients in the population, and consequently tuberculosis spread, increased as a result. The provision of vehicles as well as facility for storage of automobile fuel to this referred centre by either the NGO or the Ministry of Health is suggested. This would allow the centre carry out domiciliary service to patients. We have looked at the problem in one state of the Nigerian federation. National data should prove an invaluable source of information on the response of a health system to scarcity of automobile fuel.

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