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Relationship between Patients Perception of Recovery, Distance to Health Facility and Tuberculosis Treatment Default in Ebonyi State, Nigeria

Chikere Ifeanyi Ebirim[1], Chijioke Akurunwa Agbaka[2], Daniel Egbule[3], Amobi Mkpuma[1], Ugonma Winnie Dozie[1], Judith Ezelotte[1]

[1]Department of Public Health, Federal University of Technology Owerri, Nigeria.
[2]Eastern Summit Specialist Clinics, 37 Orlu Road, Amakohia Imo State
[3]National Agency for the Control of AIDS

ABSTRACT

With the current launch of End TB Strategy by World Health Organization, this is a global call to reduce Tuberculosis death by 95percent and tuberculosis incidence by 90 percent by the year 2035. It becomes imperative to investigate some factors that may hinder the achievement of this goal and find solution to these limiting factors. The aim of this study was to determine the influence of distance to Direct Observation Treatment (DOT) centre on one hand and patients' perception of improved prognostic outcome on tuberculosis treatment default. A random sample of 150 tuberculosis patients on treatment between May – August 2016 attending different health centers in Ebonyi State, Nigeria were interviewed. Data were collected using self-administered questionnaires from consenting TB patients. Chi-square statistical technique at 5 percent level of significance was used to test the null hypothesis of no relationship. Results indicated that 83 of the 150 TB patients defaulted in their treatment regimen, giving a default rate of 55.3 percent. Residential distance to health /DOT center was statistically associated with Tuberculosis (TB) treatment default, default increased with travel distance between patients' residence and treatment center (X2 = 16.7003; df = 2; p < 0.001). Also, patients' experience of disappearance of signs and symptoms as evidence of improved prognosis (perception of recovery) of TB illness was statistically associated with TB treatment default

*Correspondence to Author:
Chikere Ifeanyi Ebirim
Department of Public Health, Federal University of Technology.
P.M.B 1526, Owerri, Nigeria.
Telephone: +2348038870206, +23470089439208 Email: chayke2000 @ yahoo.com

(X2 = 12.5468, df = 4, P = 0.014). This study emphasized the need for suitable specific measures for reducing treatment non-compliance as well as proper and repeated motivation of patients during treatment e.g. referring patients to nearby DOT centers, improving contact and default tracing, DOTS expansion and consolidation etc.

Key words: Tuberculosis, treatment default, non-compliance, treatment adherence, residential propinquity, DOT centre, perception of recovery

INTODUCTION

TB is a major public health problem in Nigeria with an estimated prevalence of 616 cases per 100,000. Nigeria ranks first in Africa, and fourth among the 22 high TB burden countries in the world, and no fewer than 460,000 cases of TB are reported annually in Nigeria (WHO, 2008). The social stigma associated with the disease further compounds the problem. Nigeria ranks fifth among the 22 high-burden countries for TB in the world with an estimated 450,000 new cases occurring annually as per the World Health organization in 2006. According to the Federal Ministry of Health, Nigeria endemicity survey showed that a total of 86,241 of all forms of TB cases were reported from the 36 States and the Federal Capital territory in 2007; 55 percent of the new cases detected were smear positive. (National Tuberculosis and Leprosy Control Program, Nigeria, 2008) The TB burden is further compounded by the high prevalence of Human Immune Deficiency Virus infection estimated at 4.4 percent in the country. HIV infection is known to exhibit co-morbidity with tuberculosis. The recorded HIV prevalence among TB patients increased from 2.2 percent in 1991 to about 30 percent in 2006 (National Tuberculosis and Leprosy Control Program, 2008). Progress toward the achievement of TB control is relatively slow. Apart from the HIV/AIDS situation, the emergence of drug-resistant tuberculosis a major concern in the TB control programming.

Although the current burden is unknown, it is estimated that 1.9 percent of new TB cases have Multi-drug-resistant Tuberculosis (MDR-TB).

Beyond the share prevalence of TB, an even more worrisome challenge to its public health control is the high tendency for treatment default. The occurrence of Multi-drug- resistant Tuberculosis (MDR-TB) can result from patients' non-compliance to treatment or treatment default. Patients would usually default with respect to one or more parameters for which compliance is needed to achieve treatment efficacy. Treatment default or non-compliance occurs when patients miss their schedule of periodic treatment, fail to take the right dose of the treatment drug or completely drop-out of treatment schedule permanently. Patients who drop out of treatment may have died or relocated (lost to trace), or simply stopped presenting for treatment though alive and in the catchment area. This latter category of defaulters poses serious public health challenges as they remain potential foci of continuous transmission of the causative agent, mycobacterium tuberculosis.

Although several factors plausibly influence treatment default, two factors are suspected to have profound influence in the population studied. These factors are residential propinquity to DOT centers and patient perception, howbeit erroneously, of recovery or improved prognosis. Interestingly both factors are easily amenable to control or mitigation through policy and administrative intervention. It is, therefore, reasoned that if found to be associated with treatment default, former can be mitigated through plausible adoption of de-centralized system of delivery of TB management drugs. Similarly, if perception of recovery or improved prognosis is found to be related treatment default, the problem can be ameliorated through a well-packaged and implemented public health education program.

Tuberculosis can be successfully treated, but the treatment course is long, lasting at least six months. In the referent geopolitical area, the proportion of patients not completing their treatment has declined from 19.8 percent to 10.0 percent between 1997 and 2005 (Ebonyi State Tuberculosis and Leprosy Control Program, 2005). However, the WHO's target have not been met, with 8.6 percent of patients currently failing to

complete treatment. However, the background of the residual defaulters and why default still persists despite a sustained program of intervention to ameliorate same need to be unraveled. The tendency for co-morbidity with HIV infection and the social stigmatization known to be associated with HIV-positive status in the study population further informed the need for this study. The amenability to effective intervention informed the study of the relationship between TB treatment default on the one hand and, residential propinquity to DOT centers and perception of recovery or improved prognosis on the other hand.

MATERIALS AND METHOD

A sample 150 tuberculosis patients on treatment between May and August, 2016 who visited six public and private health care institution in the state were observed. These institutions were located in urban and rural areas of Abakaliki, the State capital. The cases were selected by stratified random sampling technique from a sampling frame of 389 tuberculosis patients under treatment in the Abakaliki area.

Some of the patients were receiving short course chemotherapy as outpatients while others were hospitalized. The patients' treatment cards were observed; both defaulters (cases) and non-defaulters (controls) were identified and were interviewed at home or the clinic. Besides, patients that were found in each DOT centre visited were given the pre-designed data collection protocol to fill out. Trained research assistants were used to administer the questionnaires. Only patients who gave consent were recruited. A total number of 150 patients were recruited and interviewed.

The Chi-square statistical technique available in the Statistical Package for Social Sciences (SPSS) Version 21.0 was used to analyze the data. The null hypotheses of relationship between treatment default and residential propinquity, on one hand, and perception of recovery (improved prognosis) from TB, on the other hand, were tested at 5 percent level of significance (α = 0.05) with p-value less than 0.05 considered statistically significant.

RESULT

A total number of 150 patients were recruited, eighty-three of them failed to comply with their treatment regime. This gave a non-compliance rate of 55.3 percent while 67 (44.7%) were complaints.

Data on the distribution of patients according to the residential propinquity to DOT treatment center assessed in kilometers from home to health centre they visited for treatment is shown in Figure 1 below. Of the 150 TB patients studied, 58 (38.7%) of the patients lived less than 5km to the DOT centre, 40 (26.7%) visited DOT centers whose distance is between 5km and 10km from where they resided, and 52 (34.6%) of the patients visited DOT centers situated at distances of more than 10km from their residence.

Relationship between residential propinquity to DOT treatment center and TB treatment default

Table 1 indicated that of the 83 patients that defaulted, majority of 35 (42.2%) lived a distance of more than 10 Km to the DOT Centre. Also 28 (33.7%) lived 5 – 10Km from the DOT centre while 20 (24.1%) lived less than 5 Km to the DOT centre. This was found to be statistically significant (X^2=16.7003, p-value < 0.001). Therefore default rate was greatly influenced by distance covered by patient to DOT center.

Perception of disappearance of signs/symptoms of TB as indicative of Recovery and TB Treatment Default

Proper management of TB often requires a treatment regimen that is protracted. During the period of treatment it is possible for patients to experience some changes in the original presentation of signs and symptoms of the illness. How patients perceive and interpret these changes may influence their level of compliance with the treatment regimen. Figure 2 showed the changes in the original presentation of signs/symptoms experienced by patients. "Increased appetite after commencing treatment" was reported by 43 (28.7%) of the TB patients in this study, followed by "reduction in cough" as reported by 35 (23.3%) of the patients, also "disappearance of night sweats" was experienced by 31 (20.7%) of the patients and finally "disappearance of blood stains in sputum as indicated by 17 (11.3%) of the patient.

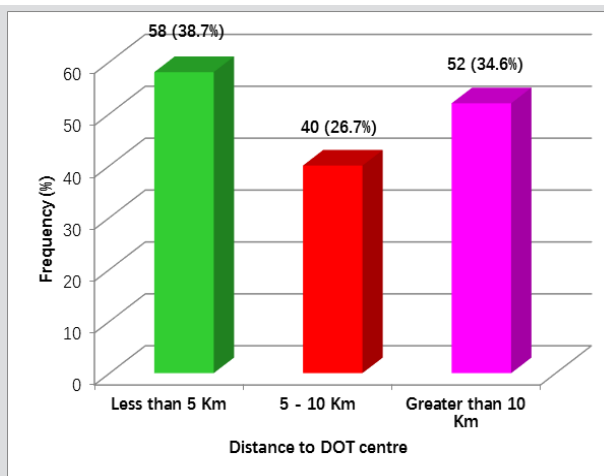## Relationship between patients' indifference

Figure 1: Distribution of patients according to residential propinquity (distance in kilometers) to DOT center they visited.
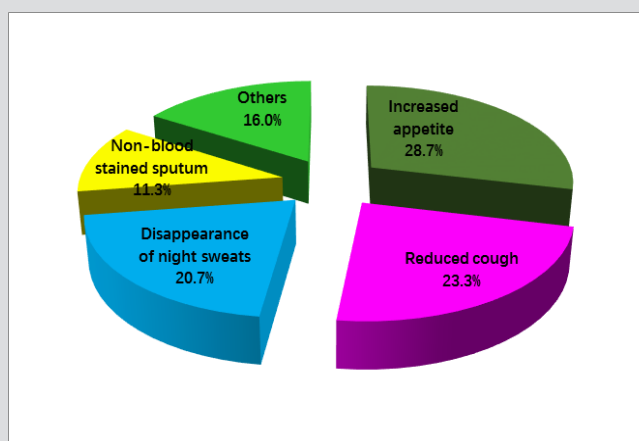

Figure 2: Improvement sign and symptom experienced by TB patient

Table 1; Relationship between distance of Health (DOT) centre visited by patients and TB treatment default

Distance	Defaulters(%)	Non-defaulters(%)	Total
<5km	20(24.1)	38(56.7)	58(38.7)
5km-10km	28(33.7)	12(17.9)	40(26.7)
>10km	35(42.2)	17(25.4)	52(34.6)
Total	83(100.0)	67(100.0)	150(100.0)

TB Treatment status

X^2 = 16.7003; df = 2; p < 0.001

Table 2; Relationship between patients' sign of improvement and TB treatment default

Improvement sign	Defaulters (%)	Non-Defaulters (%)	Total
Increased appetite	25(30.1)	18(26.9)	43
Reduced cough	21(25.3)	14(20.9)	35
Night sweat disappears	18(21.7)	13(19.4)	31
Non-blood stained sputum	13(15.7)	4(5.9)	17
Others	6(7.2)	18(26.9)	24
Total	83(100.0)	67(100.0)	150

TB Treatment status

X^2 = 12.5468, df = 4, P = 0.014

to treatment due to perceptions of recovery and treatment default

Positive changes in sign/symptoms of TB after commencement of treatment seem to have been interpreted by many patients as indicative of recovery from TB illness and plausibly the motivation to default in required compliance to TB treatment regimen. Those with reduced symptoms of TB disease drastically altered their DOT medication which they interpreted as improved prognosis. Of the eighty three defaulters; 25 indicated increased appetite as improvement sign experienced. This is followed by reduced cough as reported by 21 patients. Disappearance of night sweat was also indicated by 18 TB patients. Only 13 patients reported non-blood stained sputum as improvement sign experienced. This pattern of default as a result of improvement sign was found to be statistically significant ($X^2 = 12.547$, $P = 0.014$); as shown in Table 2.

DISCUSSION OF FINDINGS

In this study, the treatment default was found to be higher among patients who travel more than 10 Km to DOT center when compared with those with shorter distance of less than 5 km. this justifies the fact that physical access seems to be a significant determinant of treatment non compliance in Abakaliki region. This is consistent with the findings of Gleissberg (2001) where it was noted that treatment compliance was compromised if the distance from patients' homes to the nearest clinic was too great. For most patients, access to the health centre depended on distance and availability of transport as well as their physical condition. The study by Khan et al (2005) indicated that, although, the intention was for a DOT supporter to visit the patient's home, in practice, the patient has to walk to the supporter's home. This of course would prove difficult for patients with severe symptoms. Access to health facilities was better in urban areas than rural areas, as noted by Johansson (1999). If patients' homes were close to a clinic, however, a patient could attend regularly. Non-availability of transport and patients that dwell in rural areas could be at a higher risk of non-compliance compared to patients in urban areas where there is various transportation means. This no doubt, warrants further investigation.

Most defaulting patients interrupt treatment soon after they feel better around two months after initial chemotherapy. In this study, 92.8% of the defaulted patients discontinued treatment particularly during the first four months following intensive phase of treatment. Possible explanation to this finding is that during this phase most of them experienced gradual disappearance of symptoms and the patients erroneously believe they are almost cured. This may have encourage them to become reluctant to bear the "extra burden" of the cost of travel to DOT centres, time usually spent at centres and drug side effects. This proportion is significantly higher than that reported by Shargie and Lindtjorn, (2007) where 26% of 87 patients who defaulted mentioned "feeling better" as the main reason for discontinuing treatment. Moreover, in a comparative study conducted by Pronab et al (2003), it was observed that indifference attitude due to improvement was the major factor responsible for default in Tata Main Hospital (TMH, 40%) and Tuberculosis Centre, Roing (56%). Thus, the continuation phase of treatment is the most crucial time of treatment interruption.

Patients' indifference after improvement in symptoms and greater distance from treating institution caused patients to default with their treatment regimen. Most of the patients on treatment were coming from neighboring states to these DOT centers. The fear of being stigmatized when seen at a local DOT centre pushed then to resort to distant DOT centers. This contributed largely to the amount of treatment non-compliance especially when perceived symptoms subsides and also high cost of transportation to these far DOT centre of choice. This study emphasizes the need for suitable specific measures for reducing treatment non-compliance as well as proper and repeated motivation of patients during treatment e.g. referring patients to nearby DOT centers, improving contact and default tracing, DOTS expansion and consolidation etc.

REFERENCES

Ebonyi State Tuberculosis and Leprosy Control Program (2005) Ebonyi Tuberculosis Cohort Report, 2005, Abakaliki, NIgeria: Ebonyi State Government Press.

Ebonyi State Tuberculosis and Leprosy Control Program (2010) Ebonyi Tuberculosis 1st Quarter Cohort Report, 2005, Abakaliki, NIgeria: Eb-

onyi State Government Press.

Gleissberg, V.G. (2001). Patient views on tuberculosis: Is compliance with treatment the key to success or beside the point? [MSc thesis.] Uxbridge (United Kingdom): Department of Anthropology. Brunel University. 55 p.

Johansson, E., Long, N.H., Diwan, V.K., Winkvist, A. (1999). Attitudes to compliance with tuberculosis treatment among women and men in Vietnam. International Journal of Tuberculosis and Lung Disease 3:862-868

Khan, M.A., Walley, I.D., Witter, S.N. Shah, S.K., Javeed, S. (2005). Tuberculosis patient adherence to direct observation: Results of a social study in Pakistan. Health policy plan 20: 354-365

Pronab, C., Bratati, B., Debashish, D., Rama, R.B., and Ashuk, K.M. (2003). A comparative evaluation of factors and reasons for defaulting in tuberculosis treatment in states of West Bengal, Harkhand and Arunachal Pradesh, India. Indian Journal of Tuberculosis 50:17-20

Shargie, E.B., and Lindtjorn, B. (2007).Determinants of treatment adherent among smear-positive pulmonary Tuberculosis patients in Southern Ethiopia. Plos Med Journal 4(4);e165.

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