

# **INCIDENCE AND TREATMENTS OF TUBERCULOSIS AMONG MALE PATIENTS IN NIGERIA: THE ROLE OF SOCIAL DETERMINANTS**

**Abatan S. Matthew & Ogunsakin Adesoji**

## **INTRODUCTION**

Tuberculosis (TB) has been used as a prime example of a “social disease”, the control of which requires social, economic and environmental interventions. TB remains the most common cause of infectious disease deaths worldwide. In 2012, it was responsible for 8.6 million cases and 1.3 million deaths of which 320, 000 deaths were in people living with HIV (WHO, 2013). Although TB rates have been declining globally, the World Health Organization (WHO) considers the rate of decline to be slow in recent time. Of the estimated 9 million people who developed TB in 2013, more than 60 percent were men, and nearly two-thirds of the estimated 1.5 million TB deaths in 2013 were among men (Van den Hof, Najlis, Bloss, & Straetemans, 2010). What then is the drivers to TB incidence in Sub-Sahara Africa? TB has been classically associated with poverty, overpopulation and malnutrition. Low income countries and deprived areas, within big cities in developed countries, present the highest TB incidences and TB mortality rates. These are the settings where immigration, important social inequalities, HIV infection and drug or alcohol abuse may coexist, all factors that are strongly associated with TB. In spite of the political, economical, research and community efforts, TB remains a major global health problem worldwide. Gender explores the sociocultural roles assigned to men and women, and the dynamics between them. These roles and dynamics are almost always present and, along with one’s biological sex, are important drivers of TB outcomes. Gender influences transmission, testing, treatment, and adherence, and outcome data clearly reflect gender inequalities, as the examples below show: TB is one of the top five killers of adult women, ages 20–59 years (World Health Organization, 2015). TB is the reported cause of 6–10 percent of all maternal mortality in settings with low HIV prevalence, and 15 percent in settings with high HIV prevalence (United Nations Development Programme, 2015).

## **LITERATURE REVIEW**

Nigeria happen to be one of the developing countries included among the 30 high burden countries for TB and TB/ HIV. WHO, estimated the incidence of TB in Nigeria to be 322 per 100 000 population with only 15% of the total burden of the disease in the country being notified less than 5years now that is 2015. TB progresses more quickly in men of reproductive age than in women of the same age group (United Nations Development Programme, 2015). Although, Girls are more vulnerable to TB than boys, but between the ages of 10–16, men and boys begin reporting at greater rates than women and girls (World Health Organization, 2002). The facts that gender is the culturally defined set of expectations about roles, rights, and responsibilities associated with being female and male, as well as the power relations between and among people based on those expectations. Interpretation of gender varies over time and within and between cultures. More so, several studies have reported on the rates of DR-TB in different cohorts of TB patients across various settings in Nigeria(Nasiri et al, 2014, Lawson et. al, 2011 & WHO, 2016). However, as most of these studies were based on small sample local or facility-based data, a comprehensive analysis of the burden of DR-TB from different parts of Nigeria is urgently needed.

The intensity of local tuberculosis transmission is dependent on the prevalence of TB with the Transmission can be through social-mixing patterns like age and demographic structure, cultural behaviors, population density, and migration patterns. Also, Watkins and Plant posited that environmental factors, such as crowding and ventilation, have a direct impact on the person-to-person air exchange necessary for transmission. Cigarette consumption was a significant predictor of the sex ratio of TB notifications, and explained 33% of the variance in the sex ratio of TB notifications(Watkins & Plant, 2006). Gender aspects of TB have been neglected in the research, and little attention is given to gender in TB-control programs especially the men. This paper aim at

examine the driving factors that influences the transmission and treatment outcome of TB in Nigeria. It is expected to illuminates areas where gender has an impact on the disease and its control. Even though only a limited number of publications on gender aspects of TB are available for men, some interesting findings were presented during the past year(Thorson & Diwan, 2001). In (Chikovore, Hart, Kumwenda, Chipungu, & Corbett, 2015) the majority of people in sub-Saharan Africa who need treatment for HIV are, however, not accessing it. In addition, 3 million cases of TB went undiagnosed in 2012. Being male is specifically a risk factor for TB diagnosis and treatment, as well as death while on treatment (WHO, 2013; UNAIDS; 2014; Johnson, Mossong, Dorrington, Schomaker, Hoffmann, Keiser, 2013; Mills, Bakanda, Birungi, Chan, Ford, & Cooper ,2011; White& Cash,2003). Despite men’s key role in TB transmission dynamics, relatively limited emphasis has been put on their social positions. when a gender perspective is incorporated into policy or research, the focus is regularly on women but men are evidently less given attention in health services in the past decade. Without a more effective male inclusive approach, men will continue to serve as a major reservoir of ongoing TB transmission at community level and then achieving end TB strategy would not be achievable. The main objective of the study is to examine drivers of TB transmission and Treatment outcome. It will specifically focus on the male socio-demographic drivers that influence that TB transmission and treatment outcome.

## METHODOLOGY

### Design, participants, and sampling

Given limited understandings and the complexity around the research paper, we triangulated methods and data sources, and purposefully chose the sample and varied. The study used both qualitative and clinical records of TB/HIV co-infected patients from Nigerian Institute of Medical Research (NIMR), an agency under the Federal Ministry of Health that has treated over 5000 TB patients in the last 5 years (2011-2016). In depth interviews (IDIs) was done among 20 TB male patients or previously treated for uninvestigated chronic coughers, the stigma of TB/cough/HIV, would ensure personal data require private interview setting which is proposed to be done in the hospital; IDIs target information about individual experience and verified the drivers to transmission and treatment outcome.

## RESULTS AND FINDINGS

RECORDS FROM THE CLINICS	FREQUENCY	PERCENT
<b>Time spent in Weeks</b>		
<18weeks	7	3.8
25-34wks	25	13.7
35-75wks	4	2.2
76+weeks	15	8.2
Record missing/not found	131	72.0
<b>Treatment outcome of TB</b>		
Completed and cured	134	73.6
Missing not completed	43	23.6
Failure	1	.5
Die	4	2.2
<b>HIV Positive ART status</b>		
HIV Pos on ART	63	34.6
HIV Pos non ART	113	62.1
Missing	6	3.3
<b>Educational Attainment</b>		
No education	17	9.0
Primary	43	22.6

Secondary	81	42.6
Tertiary	49	25.8
<b>Occupation</b>		
Unemployed	21	11.5
Businessman/woman	13	7.1
Petty trader/self-skill business	22	12.1
Civil servants	9	4.9
Sport jobs/private company	8	4.4
Students	10	5.5
Manual self skill services	31	17.0
Professional skill services: engineer, doctor, etc.	15	8.2
Drivers	31	17.0
Others like Farming, Agricultural, Labourers.	22	12.1
<b>Age</b>		
<20yrs	21	11.1
20-29	13	6.8
30-39	58	30.5
40+	98	51.6
Total	190	100

Source: Author, 2019(NIMR records)

Public health professionals must understand the immediate and long-term impact of behavioral interventions in order to allocate resources optimally and design strategies for reducing STIs(Kaestle et.al., 2015). From the table above, among the patients that ever sought treatment, a vast majority of close to three-quarters (73.6%) of the patients completed treatment and were cured of Tuberculosis. While slightly more than one out of five patients (23.6%) missed and did not complete treatment. Regarding the HIV positive ART status, over one-third (34.6%) were HIV positive on ART, while more than three-fifths (62.1%) were HIV positive on non ART. Considering the occupation of the patients, 11% were unemployed, business related jobs accounted for about 19.2%, 17.0% were manual self skilled services, same as those in driving jobs and other jobs like Agricultural accounted for 12.1%. Age of the patients revealed that slightly above half (51.6%) were over 40 years, one out of ten patients were in the age bracket of 30-39 years (30.5%), while less than 20% were less than 30 years. The implication of this is that TB transmission are common among drivers, older men especially those with secondary education, the key drivers in the economic of the nation.

**Table 1.2: Demographic Drivers and Diagnosis**

Demographic Factors	Male	
	$\chi^2$	p-value
Education	14.39	0.498
Occupation	87.41	0.003
Marital Status	35.57	0.017
Age	111.43	0.000

Source: Author, 2019(NIMR records)

**Table 1.3: Demographic Drivers and Result Outcome**

Demographic Factors	Male	
	$\chi^2$	p-value
Education	9.58	0.14
Occupation	25.00	0.02
Marital Status	7.00	0.53

Source: Author, 2019(NIMR records)

Considering the bivariate table 1.2, it revealed that of the patients diagnosed of TB, occupation and Marital status showed significant relationship with the incidence of Tuberculosis. ( $\chi^2 = 87.41$   $p=0.003$  and  $35.57$   $P=0.013$ ); there is a similitude in the results of the Demographic drivers and the treatment outcome, although only occupation was significantly associated with the treatment outcome ( $\chi^2 = 25.00$   $p=0.02$ ).

### **THEMATIC QUALITATIVE ANALYSIS**

From the qualitative analysis conducted through the In-depth interviews (IDIs) revealed the followings under these sub-themes by transcribing the key responses of the respondents verbatim.

#### **Co-morbidities like HIV**

“ Tuberculosis (TB) is associated with HIV/AIDS, infact the incidence of TB could infer a likelihood of the infection of the virus” *Respondent, 33 Ado Ekiti.*

“If one is having chronic coughing that persists for several days, it is better that one consults with the Doctor in a public health facility because it could be TB occasioned by HIV/AIDS” *Respondent, 47 Akure .*

#### **Exposure smoking**

“ I agree that smoking has cancerous tendencies and its persistence could lead to chronic coughing in the form Tuberculosis”. *Respondent, 56 Lagos.*

“ people that smokes stand a greater risk of contracting Tuberculosis because it burns the heart” *Respondent, 43 Ile-Ife.*

#### **TB is Genetic susceptibility**

“ TB has a link with genetic composition of individuals, it can be a heredity or heritable from one generation to another” *Respondent, 63 Ibadan.*

### **CONCLUSION**

Factors that affected the TB transmission were age, occupation, smoking, wealth status, HIV infection while the factor that drives the treatment outcome positively include early diagnosis, HIV co-infection treatment. Early diagnosis of HIV, safe sex and the importance of social determinants is crucial in achieving END TB strategies in the nearest future.

### **REFERENCES**

- Basnyat, B., Caws, M., & Udawadia, Z. (2018). Tuberculosis in South Asia: A tide in the affairs of men. *Multidisciplinary Respiratory Medicine*, 13(1), 10. <https://doi.org/10.1186/s40248-018-0122-y>
- Chikovore, J., Hart, G., Kumwenda, M., Chipungu, G. A., & Corbett, L. (2015). ‘For a mere cough, men must just chew Conjex, gain strength, and continue working’: the provider construction and tuberculosis care-seeking implications in Blantyre, Malawi. *Global Health Action*, 8(1), 26292.
- Federal Ministry of Health. National Tuberculosis, Leprosy and Buruli ulcer management and control guidelines. 6th Edn. Federal Ministry of Health, Abuja, September 2015
- Hayward, S., Harding, R. M., McShane, H., & Tanner, R. (2018). Factors influencing the higher incidence of tuberculosis among migrants and ethnic minorities in the UK. *F1000Research*.
- Hirsch A (1886): **Handbook of geographical and historical pathology**. Vol. III. *Diseases of organs and parts*. London: New Sydenham Society, 1886.
- Lawson L, Yassin MA, Abdurrahman ST, Parry CM, Dacombe R, Sogaolu OM, et al. Resistance to firstline tuberculosis drugs in three cities of Nigeria. *Trop Med Int Health*. 2011; 16:974–980. <https://doi.org/10.1111/j.1365-3156.2011.02792.x> PMID: 21564425
- Nasiri MJ, Dabiri H, Darban-Sarokhalil D, Rezadehbashi M, Zamani S. Prevalence of drug-resistant tuberculosis in Iran: systematic review and meta-analysis. *Am J Infect Control*. 2014; 42: 1212–1218 <https://doi.org/10.1016/j.ajic.2014.07.017> PMID: 25242634
- Thorson, A., & Diwan, V. K. (2001). Gender inequalities in tuberculosis: aspects of infection, notification rates, and compliance. *Current Opinion in Pulmonary Medicine*, 7(3), 165–169.
- Van den Hof, S., Najlis, C. A., Bloss, E., & Straetemans, M. (2010). A systematic review on the role of gender in tuberculosis control. Washington, DC: United States Agency for International Development. Retrieved from [https://www.kncvbc.org/uploaded/2015/09/Role\\_of\\_Gender\\_in\\_TB\\_Control.pdf](https://www.kncvbc.org/uploaded/2015/09/Role_of_Gender_in_TB_Control.pdf)

- Watkins, R., & Plant, A. (2006). Does smoking explain sex differences in the global tuberculosis epidemic? *Epidemiology & Infection*, *134*(2), 333–339.
- World Health Organization (WHO). (2015). Tuberculosis in women. Geneva, Switzerland: WHO. Retrieved from [http://www.who.int/tb/publications/tb\\_women\\_factsheet\\_251013.pdf](http://www.who.int/tb/publications/tb_women_factsheet_251013.pdf)