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GENDER DIMENSION IN INCIDENCE OF TUBERCULOSIS AND ITS TREATMENT OUTCOME IN A DOTS CENTRE IN IJERO LOCAL GOVERNMENT AREA, EKITI-STATE

Adeusi. T.J.[1+]
Sunmola, K.A.[2]
Iluku-Ayoola, O.[3]
Olasebikan, J. S.[4]

[1,3]*Department of Basic Medical Sciences, College of Health Sciences and Technology, Ijero Ekiti, Ekiti State, Nigeria.*
[1]*Email: temitope.joshuaadeusi@chstijero.edu.ng Tel: 08062274821*
[3]*Tel: 08033957746*
[2,4]*Centre for Gender and Development Studies, Ado Ekiti, Ekiti State, Nigeria.*
[3]*Email: adebayosunmola@gmail.com Tel: 08034092402*
[4]*Tel: 08063200801*

(+ Corresponding author)

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ABSTRACT

Literature shows that Nigeria ranked among the high burden countries for TB in the world. This study therefore examined the treatment outcome and incidence of Tuberculosis across age groups and gender using data from DOTS (2008-2010) Centre in Ijero Local Government Area of Ekiti State, Nigeria. The study employed the mixed-method approach with data analyzed using the Statistical Package for Social Scientists (SPSS ver. 21). The findings revealed that in 2008, the number of new cases of Tuberculosis was more among females (35%) who were below 18 years of age than those above 18 years (15%). Also, among males and females who were more than 18 years, more females (40%) relapsed treatment than males (20%) In the year 2009 and 2010, it was observed that more females of both age categories were infected with Tuberculosis more than the males. In the year 2009, among males and females below 18years, males (33.3%) experienced treatment relapse while females (50%) above 18 years relapse treatment in 2010. In conclusion, between 2008 and 2010 in Ijero Local Government Area, it was observed that the number of new cases of tuberculosis was high; more females were infected with tuberculosis than males. Also, there is a poor treatment outcome of TB in the years under study. The study, therefore, recommends that the government should make deliberate gender friendly approaches to encourage more girls and children to participate in the routine immunization programme to eradicate the new cases of tuberculosis in Nigeria.

Contribution/ Originality: This study contributes in the existing literature on the gender dimension in incidence of tuberculosis and its treatment outcome in Nigeria.

1. INTRODUCTION

Tuberculosis or TB is a contagious infection that commonly attacks the lungs or other parts of the body, like the brain and spine. It is caused by a bacterium known as *Mycobacterium tuberculosis* [1]. Tuberculosis (TB) is rated the second leading cause of global death after Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (HIV/AIDS). TB accounted for 2.4% of all deaths caused by a single infectious agent [2]. Also, the Federal Ministry of Health (FMOH) [3] reported in Ukwaja, et al. [4] submitted that 8.8 million people were infected with Tuberculosis globally and a total of 1.4 million people died as a result of the disease. The burden of the

disease is more severe in developing countries (95%) of the world most especially Nigeria despite the availability of effective treatment [2]. TB affects both adults and children, male and female [5].

HIV is the most powerful risk factor for developing TB disease. The young economically productive age groups (15-44-year-old) are most affected by TB accounting for 73% of smear-positive cases (FMoH, 2011) cited in Ukwaja, et al. [4]. Lagos State, Kano State, and Oyo State have the highest TB prevalence rates in Nigeria while other states experienced a drop in cases notified, resulting in a 4% overall decline in 2010. Oyo State increased by 46.5% from 2008 to 2010. Benue has a high TB burden which is attributable to a high HIV prevalence (United States Embassy in Nigeria, 2012) cited in Odega [6] and Isaac, et al. [7].

Researchers across the world have implicated some social, economic and cultural factors that may determine the use of services and treatment outcome of tuberculosis among male and female. The patriarchal nature of the Nigerian society can make it difficult for women to access TB services because male family members may be unwilling to pay for TB services because women's health may not be considered as important as that of male family members. In other cases, TB in women is more stigmatized than in men. In some communities, a woman who is found to have TB maybe divorced by her husband or, if unmarried, may have difficulty in finding a husband [8].

However, there is steady progress towards achieving the Sustainable Development Goal (SDG) which seeks to achieve the global target of 90 per cent reduction in TB deaths and an 80 per cent reduction in TB cases by 2030. Nonetheless, efforts needed to be scaled-up to accelerate the rate of decline of TB prevalence and mortality in Nigeria if the SDG and Stop TB targets are to be met. Nigeria, being one of the 22 high burden countries for Tuberculosis in the world has to implement and scale-up programmes that will achieve the SDG and evaluation of treatment outcome are central to the assessment and achievement of the effectiveness of tuberculosis control programmes. Thus, it is equally important to examine the level of progress made in Ekiti State, Nigeria.

2. LITERATURE REVIEW

One-third of the world's population has been infected with *Mycobacterium tuberculosis*, and new infections occur at a rate of one per second [9]. However, not all infections due to MTB cause TB disease and many infections can be asymptomatic. The incidence of TB varies with age, sex and region. In Africa, TB primarily affects adolescents and young adults (ibid). However, in countries where TB has gone from high to low incidences, such as the United States TB is mainly a disease of older or people of the immune-compromised [10].

In Africa and Nigeria in particular, low standard of living, famine and inadequate shelter with attendant overcrowding contributed to the increased TB scourge [11] Federal Ministry of Health, 2012 cited in Oladimeji, et al. [12]. The cause of TB, Mycobacterium Tuberculosis (MTB), is a small aerobic non-motile bacillus. High lipid contents of this pathogen account for many of its unique clinical characteristics [13], [14]. It divides every 16 to 20 hours, an extremely slow rate compared with other bacteria, which usually divide in less than an hour [15] and the Federal Ministry of Health [14].

On the risk of developing TB, research has shown that persons with silicosis have an approximately 30-times greater risk for developing the disease. Silica particles irritate the respiratory system, causing immunogenic responses such as phagocytes, which as a consequence, result in high lymphatic vessels deposits. Some possible indoor sources of silica include; paint, concrete and Portland cement, masonry, sandstone, rock, paint, and other abrasives [16]. It is this interference and blockage of macrophage function that increases the risk of Tuberculosis [17]. Persons with chronic renal failure and also on haemodialysis have an increased risk; 10-26 times greater than the general population.

Furthermore, the Centre for Diseases Control and Prevention (2010) cited in Castro, et al. [17] warns that people with diabetes mellitus have a risk for developing TB that is two to four times greater than persons without diabetes mellitus and this risk is likely greater in persons with insulin-dependent or poorly controlled diabetes.

Also, Low body weight is associated with risk of Tuberculosis as well. A Body Mass Index (BMI) below 18.5 increases the risk [18]. Other conditions that increase risk include the sharing of needles among drug users; recent TB infection or a history of inadequately treated TB; chest x-ray suggestive of previous TB, showing fibrotic lesions and nodules; prolonged corticosteroid therapy, immune-compromised patients (30 – 40% of AIDS patients in the World also have TB), haematological and reticule endothelial diseases; end-stage kidney disease; intestinal bypass; chronic mal-absorption syndromes and vitamin D deficiency [19].

TB can be transmitted when people suffering from active pulmonary TB coughs, sneeze, speak or spit; they expel infectious aerosol droplets 0.5 to 5µm in diameter. A single sneeze can release up to 40,000 droplets [9]. Each one of these droplets may transmit the disease, since the infectious dose of Tuberculosis is very low and inhaling fewer than ten bacteria may cause an infection (Ibid).

3. STATEMENTS OF THE PROBLEM

Researchers and programmers across the world have in the past pay low attention to gender analysis and gender-responsive programming in tuberculosis management even though the disease is now the leading cause of death among women and children. Thus, research attention should be concentrated on understanding how the risks and effects of TB are determined by sex and gender roles [8].

In addition to this, many studies have suggested biological differences and TB vulnerability among men and women: Some studies posited that men may be biologically more vulnerable to pulmonary TB than women, while others suggested that TB is more difficult to diagnose in women. Other studies opined that women with pulmonary TB have different symptoms from men and may not test positive on microscopic examination of the sputum, or that TB lung lesions might not be as severe in women as in men, resulting in women not being accurately diagnosed.

4. OBJECTIVES OF THE STUDY

4.1. Broad Objective

The objective of the study is to examine treatment outcome and incidence of Tuberculosis across age groups and gender.

4.2. Research Questions

i. Have there be any difference in Tuberculosis treatment outcome of males and females?
ii. To what extent is the incidence of tuberculosis of males differ from females?

5. METHODOLOGY

This study is a mixed research method and data was gathered using a cross-sectional research design. Quantitative data was collected using a secondary data from Directly Observed Treatment Short-course Headquarters in Ijero Local Government Area of Ekiti State from 2008 to 2010 while the qualitative data was gathered in 2019 using a Key Informant Discussion Guide. Data on new cases, defaults and relapse were gathered and disaggregated by sex and age. There are only two government-approved TB treatment Centre in Ijero LGA, the TB DOTS Centre and the State Specialist Hospital while other health facilities help to administer drugs to patients since they are closer to the patients. They also help to refer patients to any of these DOTs approved Centre. Patients from around the Local Government Area patronize any of these Centers for treatment. The TB Centre has well-trained staff to respond to cases. The Centre has a mini-laboratory for diagnosis. Diagnosis is usually through microscopy examination and x-ray. The Local Government DOTs centre do not have a gene expert machine for rapid diagnosis but specimens are taking to a nearby Local Government DOTs centre for a confirmatory test.

6. DATA ANALYSIS

The Statistical Package for Social Scientists, SPSS 21 was used to analyse the incidence and treatment outcome of Tuberculosis across age groups and gender for three consecutive years (2008-2010). Key Informant Interview conducted (2019) was recorded verbatim with an electronic device and transcriptions were done. The raw data collected was coded. The codes were collapsed into themes emphasized by the interviewee during the discussion. The Key Informant was conducted in the English language.

7. ETHICAL CONSIDERATION

Ethical approval was sourced from Ijero-Ekiti Local Government Area Research Ethics Committee at TB DOT Centre.

8. PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

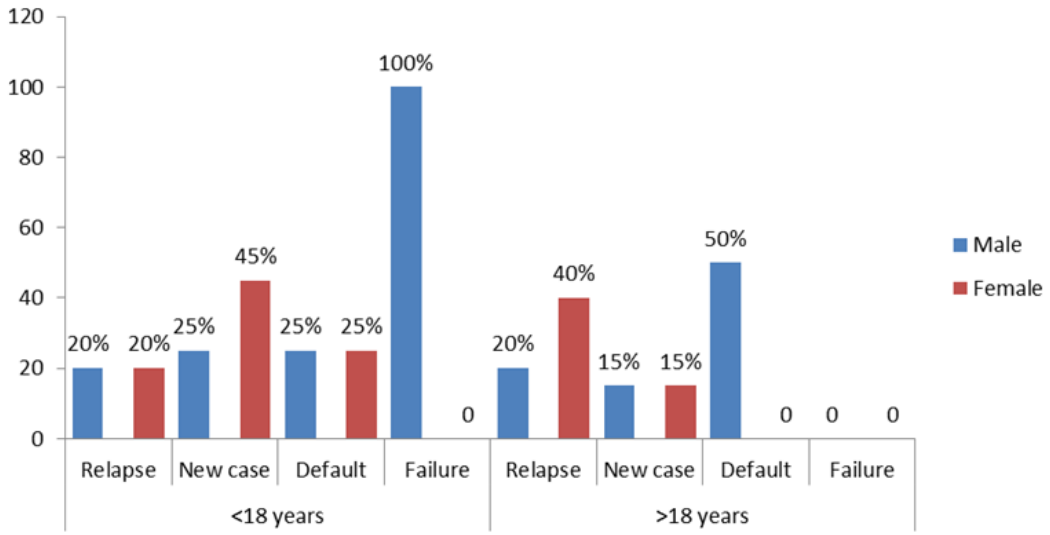

Figure-1. Treatment Outcome and Incidence of Tuberculosis in 2008.
Source: DOTS Centre, Ijero Local Government Area, 2012.

The above result Figure 1 showed that among patient below 18 years in 2008, male and female had equal relapse rates (20%). Also, more females (45%) had new cases than males (25%). In addition to this, equal numbers of males and females default treatment while (100%) males on treatment-experienced treatment failure. On the other hand, among males and females who were more than 18 years, more females (40%) experienced relapsed treatment than males (20%). Besides this, males (100%) default treatment while equal numbers of new cases (15%) were observed for both male and female.

It was also observed that between the age and sex categories that, females below 18years had the highest number of a new case of Tuberculosis in 2008. More so, the only male below 18 years (100%) experienced treatment failure across the age groups and gender. Apart from this, more males (50%) above 18 years of defaulted treatment than others while an equal proportion of males and females below 18 years defaulted treatment regimen. Aside this, more females (40%) above 18 years relapse treatment more than other age and sex categories which shared an equal proportion (20%) each.

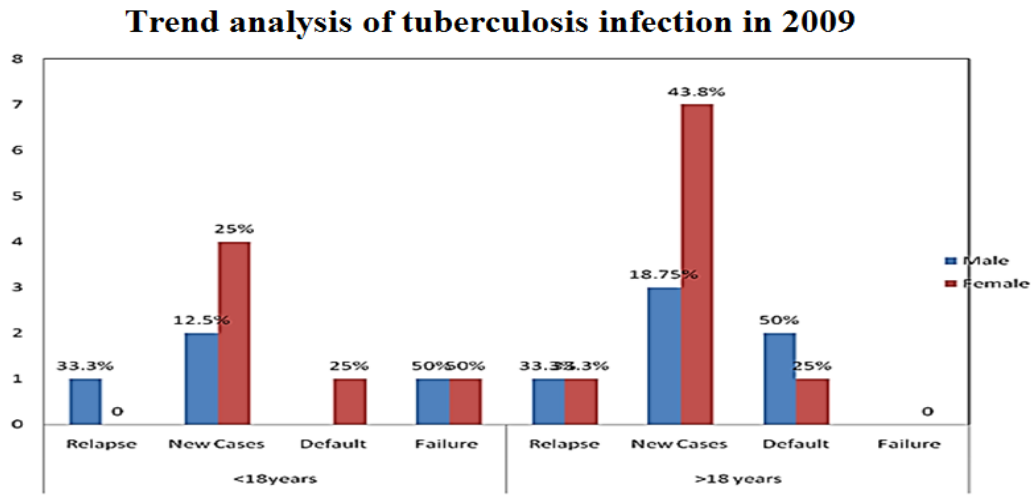

Figure-2. Treatment outcome and incidence of tuberculosis in 2009.
Source: DOTS Centre, Ijero Local Government Area, 2012.

In the year 2009, Figure 2 among males and females below 18years, males (33.3%) experienced treatment relapse. More females had new cases (25%) more than the males (12.5%). Females also default treatment while equal percentages of males and females experienced treatment failure (50%). For males and females above 18 years of age, equal numbers of treatment relapse were observed (33.3%). More females had a new case (43.8%) than the males (18.75%) while, more males (50%) default treatment regimen than the females (25%). Conclusively, it was observed that more females of both age categories were infected with Tuberculosis more than the males. Also, both male and female above 18 years relapsed treatment while males below 18 years experienced treatment relapse. Only female below 18 years defaulted treatment while both sexes above 18 years experienced default treatment. In addition to this, both sexes below 18 years failed drug regimen in equal proportion while drug failure was not experienced among male and female 18 years and above.

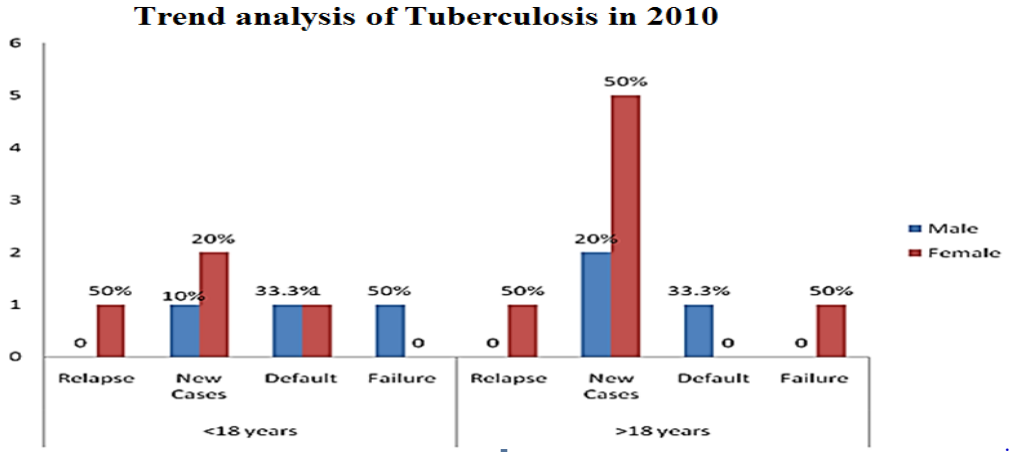

Figure-3. Treatment outcome and incidence of tuberculosis in 2010.
Source: DOTS Centre, Ijero Local Government Area, 2012.

Figure 3 showed that only females (50%) above 18 years experienced treatment relapse. More females (50%) in this age group were infected with Tuberculosis than the males (20%) and (33.3%) of females and (33.3%) males defaulted treatment. Furthermore, females (50%) below 18 years of age experienced treatment relapse while equal numbers of males and females (33.3%) default treatment each. Also, males (50%) experienced treatment failure, while more females (20%) had new cases of Tuberculosis than males (10%). Besides, more females of both age categories had higher numbers of new cases of tuberculosis in 2010. Also, only females of both age category relapse treatment. The result also showed that there is an equal proportion of distribution of the default rate across sex and

age distribution. Lastly, the only male below 18 years and female above 18 years experienced treatment failure and this is in equal proportion (50%).

9. DISCUSSION OF FINDINGS

This study revealed that there is a poor treatment outcome of Tuberculosis during the three (3) year period under review. Males and females of both age categories experienced treatment relapse, treatment failure and default. A research conducted by Babatunde, et al. [20] reported a similar treatment outcome due to the high default rate of Tuberculosis at the Federal Medical Centre, Ekiti-State. This study equally revealed that the incidence of tuberculosis was higher among females of both age groups than males. This report is also corroborated by the Key Informant Interview conducted in 2019 that revealed that *"the number of new cases of tuberculosis is still high in Ijero LGA of Ekiti State. Also,* "more *females than males are infected with tuberculosis. Though the new cases of tuberculosis among children have reduced drastically, new cases are still ramparted among adults and old people". "This can be due to lifestyle and some other disease condition of the older adults". The study additionally revealed that the routine immunization exercise has helped in reducing the new cases of TB among children. More so, positive parents are encouraged to bring fort their wards for test and treatment. These approaches have been said to be the contributing factors to the low incidence of tuberculosis among children in Ijero LGA".*

Contrary to this result, the data also revealed *that "the treatment outcome of tuberculosis among patients in Ijero LGA has improved tremendously among male and female, young and old. Patients now adhere strictly to the drug regimen and this is achieved through constant counselling of the patients on the benefit of drug adherence, diet management and elimination of some other risk factors such as smoking, alcohol and eating of fried foods and treatment of immune-suppressed diseases such as HIV/AIDS by skilled and trained personnel".*

This study equally revealed that the management of TB is still mainly done by the faith-based healers; most people do not visit the hospital until the disease is at an advanced stage and therefore the TB is not detected on time. This is why a few of the patient may die. Another challenge to good treatment outcome is that the gene machine is not available in Ijero LGA; officials of TB DOTS have to take the specimen to a nearby LGA for analysis.

10. CONCLUSION

In conclusion, between 2008 and 2010 in Ijero Local Government, it was observed that the number of new cases of tuberculosis is high; more females were infected with tuberculosis than males. Also, more adults are affected with TB than children. There is a poor treatment outcome of TB in the years under study. Although treatment outcome has improved (KII report) there are still cases of death, non-adherence and failure to drug regimen. The poor treatment outcome observed could be due to immunes' suppressed factors like HIV/AIDS, old age, malnutrition and resistance to anti-tuberculosis drugs, smoking and alcohol intake. The study equally noted that treatment of tuberculosis is still largely managed by faith-based healers rather than medical care.

11. RECOMMENDATIONS

The study, therefore, recommends that the government should make deliberate gender friendly approaches to encourage more girls and children to participate in the routine immunization programme to eradicate the new cases of tuberculosis in Nigeria. The continuous counselling of the patients on the benefit of drug adherence, diet management and elimination of some other risk factors such as smoking, alcohol and eating of fried foods and treatment of immune-suppressed diseases such as HIV/AIDS by skilled and trained personnel should be encourage by government and non-governmental organisations. Also, the government should enact laws to reduce stigma and discrimination of infected persons most especially women and children. In addition to this, the government should procure a rapid and accurate test machine for all the Local Government DOTS Centres. Additionally, health

workers should continue the follow-up treatment approach to consolidate on the gains achieved in the improved treatment outcome of tuberculosis in the state.

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