Barriers and Strategies to Improve Tuberculosis Care Services in Resource-Constrained Setting: A Qualitative Analysis of Opinions from Stakeholders in Oyo State South West Nigeria

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ABSTRACT

Background: Effective care for tuberculosis (TB) patients and control of TB infection suffers severe impediments that are perpetually inherent in the health system, TB programming, socio cultural facets of the environment and patients attributes during ill health. Identifying these impediments and proffering solutions to them may assist in improvement of TB management towards reduction of TB burden. This qualitative study explored the barriers of TB management in Nigeria and provides strategies to improve care services from the opinions of stakeholders and the patients themselves.

Methods: We conducted 7 focused-group discussion (FGDs) and 13 key informant interviews (KIIs) to obtain information from TB patients and stakeholders who included community service organisations, drug resistant TB supporters, non-government organisations on TB, members of TB management in the health ministry and TB home care givers.

Results: A host of barriers were identified and grouped into major themes as TB programs, health systems, socio cultural and patients-related barriers. Program barriers identified included
inadequate infrastructures including low coverage of directly observed short-course centers and shortage of TB drugs. Health systems related barriers were lack of staff training, governments’ poor funding of TB programs and intolerant to discriminatory attitudes of health workers. Patients’ related barriers included malnutrition and co-infection with HIV, poor TB knowledge and practices towards infectious disease control, and non-adherence to treatment and medical advice. Loss of job among TB patients and negative social beliefs were among the socio cultural barriers.

**Conclusion:** This study provides knowledge on the multiple factors from unavailability of infrastructure, low funding, unprofessionalism by TB health workers, patient’s issues of non-adherence to treatment, to negative beliefs hindering success in TB management in Nigeria. Suggestions to scale-up current effective programmes, adoption of modern diagnostic techniques for TB and active follow-up and case-finding, provision of financial support for patients and increased awareness on TB will add to improvements.

**INTRODUCTION**

TB is a chronic disease of the lower respiratory tract which is characterized by prolonged cough, low grade fever, weight loss, loss of appetite, generalized body weakness and can lead to death. Apart from this, it is a disease which exert a lot of burden on the carriers, the families, the society as well as the health system. In Nigeria, the burden of the disease is enormous and TB is one of the major public health threats after HIV/AIDS as it accounts for 46,000 deaths (27 per 100,000 populations) per year. As at 2014, there were 1,602 health facilities providing acid-fast bacilli (AFB) sputum smear microscopy services and 5,389 health facilities providing treatment services as Directly Observed Treatment Short-course (DOTS) centers for TB (National Tuberculosis and Leprosy Control Programme [NTBLCP], 2015), and in 2008, 99% of treatment centers had DOT coverage [1]. However, Nigeria still ranks among the highest on the burden of TB worldwide. Efforts at controlling the burden of TB are continuously being confronted by challenges including misdiagnosis of cases and treatment factors such as non-adherence to treatment owing to the long duration of treatment up to 6 months on a cocktail of highly toxic drugs. The adverse consequence of non-adherence is that it results in multidrug resistance TB (MDR-TB), a more severe disease condition requiring even longer duration of treatment and have significantly lower cure rates (40%) compared to drug susceptible cases (95%) [2].

Apart from the issues related to incomplete treatment and defaulting amongst the carriers which are major barriers to the management and control of TB, the rise in the number of unofficial treatment as well as non-treatment among the known cases of TB despite the available services is increasing the risk of MDR-TB, thereby worsening the burden of TB in Nigeria. National survey results in 2013 showed that the burden of TB was far higher than had been predicted, doubling the previous WHO estimates for TB prevalence to 323 per 100,000 population and tripling the estimates of incidence to 338 per 100,000 [3].
For a successful treatment outcome of TB and a disruption in transmission of the causative organism "Mycobacterium tuberculosis", patients need to get timely appropriate health care. However, this health care has not been without constraints mentioned earlier which are restraining progress in TB control in Nigeria. In other African and Asian countries qualitative and quantitative studies have pointed to barriers related to availability and accessibility, and direct and indirect costs related to treatment. Inconvenient routines in health care systems and interaction with health personnel have also been documented as barriers [4].

With the global commitment to eradicating TB by 2035, the World Health Organization approved a draft on the Global Strategy and Targets for Tuberculosis Prevention, Care and Control post 2015. In the same vein, Nigeria has also laid a plan for a universal access to high-quality, patient-centered prevention, diagnosis and treatment services for TB, TB/HIV and drug-resistant TB by 2020. To achieve these ambitious targets both at the international and national levels, curbing the barriers to TB management and control needs to be taken seriously. Therefore, a qualitative assessment of the barriers and enablers of the management and control of TB is imperative to provide a better understanding for improved services for patients and to add to knowledge on TB annals. As at the time of this work, very few documented qualitative studies, that investigated the barriers of TB management from the perspective of the key stakeholders and the patients. The objectives of the study are to determine the barriers to TB management from the point of view of the stakeholders and the patients as well as to suggest the strategies that could be adopted to improve TB services.

**METHODS**

This was a qualitative study conducted among the stakeholders and TB patients in Ibadan to investigate the barriers encountered in TB care services, Information was acquired through a focused group discussion (FGD) and key informant interview (KII). To recruit participants snowballing was done for the KII and homogeneity of participant was maintained in the selection for focus group discussion. There were 7 FGDs sessions which included sessions conducted among members of community service organisations (CSOs), DR-TB supporters, female TB patients, male TB patients, NGO TB group, members of TB management in the State ministry of Health and TB home care givers. While there were 13 KII with selected health workers and 6 TB patients.

Interviewers guide were developed to collect information from the selected stakeholders using the voice recorder and notes were taken during the interviews to contextualize the interview and focus groups findings and to confirm the validity of interpretations. The interviews were conducted in English and transcription of the audio recording was done verbatim, and using a grounded theory approach coded and analyzed using Atlas.ti Software. Axial coding of the content to discover major themes and subthemes was performed and eventually grouped into concept that reflect the existing theory influencing high burden of TB.
ETHICS

Ethical approval for the study was obtained from University of KwaZulu-Natal, South Africa Biomedical Research Ethics Committee’s approval number (BE233/16). Additional approval was given by the Oyo state Ministry of Health Ethics Committee (AD 13/479/1045). A full consenting process was applied in respect of all participants.

RESULTS

Majority of health providers from government and partner organisations including civil society organization involved in TB care provision had some idea about signs and symptoms for presumptive TB as those common symptoms such as coughing for more than two weeks and with haemoptysis, fever, profuse sweating, sleepless night, weight loss, slowness of breath and tiredness were mentioned during the interviews. There was knowledge among health workers about the diagnosis method available for TB, as the most commonly used method which is applied for diagnosis of TB is Acid-fast Bacilli (AFB) sputum smear microscopy. The application of the more sophisticated molecular technique for diagnosis of TB and MDR-TB using Gen expert was not available in every laboratories. The present study further revealed the aspect that posed challenges to TB programming and management, and the themes that were identified presented as follows based on the existing theory on the challenges of TB management:

Program Related Barriers

Poor or inadequate facilities

Poor or inadequate facilities at DOTS centers were reported by the healthcare workers which ultimately resulted in poor reliability and less effectiveness of the services. A CSO worker for instance is quoted here saying that;

“There are no facilities, no equipment. When a community worker returns with sputum sample and takes it to the laboratory there will be no electricity at the laboratory for the test to be carried out and in the following days samples will be contaminated or loses sensitivity to the test and only negative results will be seen from all samples even when we observed the symptoms in the clients.”
(DR-TB Treatment supporter)

Often, complaints about inadequate facilities and equipment at the treatment centers when lodged to the appropriate authorities responsible for TB management are usually neglected. A participant commenting on the issue of poor facility at a DOTS centre said:

“The Local government is responsible for managing TB programme here, but nothing has been done about the problems of our facility even when we have shown them video evidence of the problems. In this place we have the problem of flood; whenever it rains the whole place will be flooded with water. Another challenge we have in this Alafara DOTS centre is that we don’t have a toilet for the patients. Any patient who wants to urinate or defecate goes to the stream...” (CSO Representative).
Shortage of TB Drugs

Shortage of TB drugs for patients particularly the pediatric fixed drug combination was amongst the issues revealed in the study. A participant reported in one of the conversations saying that “sometime the DOTS centers do not have drugs for the children that are brought to the centre.”

“There are usually drugs for the adults but we are yet to receive drugs for the junior ones, if the junior ones do not have drugs to take how will they get better and the infection not spread?” (CSO Representative)

More than half of the patients who were interviewed in the study noted that the distance from their homes to the DOTS centers was very far. Treatment difficulty is usually experienced by patients due to distant location of DOTS. There were reports of patients missing their treatment because there are no treatment centers in their own community and will have to travel long distances to another community where a treatment centre is available.

The financial burden incurred from treatment due to transportation to the centers was also highlighted, for instance when patients were asked how distant the treatment centre was from their home and the monthly estimate of cost of transportation, a patient said;

“My place is very far and I have to stop at four different bus-stops before I can reach the treatment centre, and in a month I spend up to 20,000 Naira for transportation.” (Female Patient)

“I always tell others who have TB to come to Aderogba hospital for treatment but they say they have come many times and don’t have transport fare to come again. So treatment centers should be extended to the rural areas as well to ease transportation.” (Male TB patient)

Receiving treatment from very distant locations even had the possibility of affecting the lives of patients;

“It would be good if TB treatment can be reduced to less than six months, because I know a case of someone living at Seme, which is very far from here. After he came for treatment from there he had no strength to go back to Seme and considered coming from there every time, so he stayed back for that six months before he could travel home.” (Male TB Patient)

Although the community TB service for active case finding and care services strategy, commonly known as the door-to-door programme which is being supported by partner organisations, the implementation has been proved to be effective in providing coverage for TB services.

Health System-Related Barriers

Lack of support and funding problems

The lack of support and funding were also found as major deterrent to TB health services. There were reports of delays in the disbursement of counterpart funds by the respective agencies meant for the running of TB programmes in the State and at the local government levels.
Lack of political will by government to support TB programming was also reported as some of the hurdles faced by TB programs. Little or no support in terms of funding is given to the agencies that are managing TB services. With the advent of HIV/AIDS programmes and the rise in the incidence rate of Non-Communicable Diseases and other health interventions like Haemorrhagic Viral Disease prevention, which are now getting more attention from the government and partner organisations, TB programmes are now receiving comparatively low support which is now creating constraints in the management and control of TB.

“We need Support for funds. The government is the source of the counterpart fund and if the money is released we will be able to use the money for training and to buy equipment, training materials and modules, and also to give incentives. We are just managing without funds- we just sit here when patients come we give drugs and go, but we need training for health personnel, training for the health supervisors...” (DR-TB Treatment Supporter)

Lack of staff training

Issues of lack of provision of training and workshops for the health personnel providing TB services cropped up in many of the interviews. Some of the healthcare providers felt they lacked the skills and necessary knowledge to improve the TB care services currently experienced as they suggested that they needed training or to be sent to attend health workshops on TB.

“We need a lot of support from the government as was earlier said, because as health workers we need knowledge but we don’t have any benefits of attending workshops and trainings, nothing in the past years.” (DR-TB Treatment Supporter)

However, for some of the participants at other DOTS centers who had received training for TB management the participants said that such training was reflected in quality of service that they provided in their facility, indicating that training is paramount for better TB health care provision.

Attitude of health workers

The intolerant attitude of some health workers towards patients at the health centers was reported as some of the challenges faced by patients. Patients reported to suffer discrimination, maltreatment and even stigmatization at the hands of the health workers.

Patients Related Barriers

Malnutrition and co-infection

Poor nutrition of patients contributed in the difficulty encountered in the management of TB cases. Health workers reported that the poor nutritional intake of the TB patients was a major factor limiting the recovery rate of TB patients. One TB NGO staff who when asked what the major barriers to TB case management were, a first response was;
“From my observation I would say that one of the major factors is malnutrition. Of course study tells us that a lot of people are exposed to the TB germs but it might never get to become a disease if a person’s immune system is strong” (TB NGO staff).

“Good nutrition builds up the body and provides the body a strong immune system, in fact antibodies are actually made of proteins, so one needs good nutrition to maintain a good immune system that can withstand the TB infection. Good nutrition is a factor that contributes to improve their health” (TBNGO staff).

“HIV causes weakening of immunity of an individual, so a person may have had TB germ but not the disease, but if the person gets infected with HIV then immunity of the person drops and then disease comes up. There are still some other factors that reduce immunity; even stress can reduce immunity, that’s why we advise people to take rest when they think it’s necessary” ().

**Poor TB knowledge and practices**

Awareness and knowledge about TB can help mitigate the impact of an adverse outcome for the disease. For example, knowledge about signs and symptoms of TB, preventative measure, awareness of availability of service and the proper infectious disease control practice can reduce the spread of TB infection. However, where the knowledge and practice towards the infectious disease is poor the eventualities and outcome of the disease will not be good. We here quote few remarks of patients relating to their knowledge and practice which highlights barriers to TB.

“*When people are aware of their health problems or have knowledge of symptoms of TB then they won’t stay at home. If not for the active search that we are doing very few cases come up to the facilities. Talking about awareness, once people don’t know the services that are available it won’t be accessed.*” (TB NGO staff)

When a female TB patient was asked about the things that could make TB spread, she had this to say;

“I was advised not to spit everywhere to prevent spreading the disease” (Female TB patient).

“I contacted this disease through sexual intercourse with my wife, who has been coughing for long.” (Male TB patient).

This indicates that for those who do not receive such advice, inadequate practice from lack of knowledge will predispose to more spread of the disease.

**Non-adherence to treatment and medical advice**

It was observed that the deplorable health condition of the TB patients could add to hinder treatment effort and cause non-adherence. Deplorable health situation of a patient was seen, for example to hinder patient’s health seeking capacity and treatment, were patients on prolonged treatment got discouraged to continue treatment.
Personal habits

Interestingly it was reported that the habit of smoking was linked with recurrent tuberculosis and difficulty to cure someone who is a smoker. Alcohol consumption was also linked with problems in treatment of TB. Self-destructive habits of some patients despite adequate counseling and supports such as willingly not ready to take medications despite the availability, unprotected sexual intercourse despite counseling on the danger on co-infection with HIV. A health provider in one of the interviews had this to say:

“The problem of tuberculosis is related with cigarette smoking. People who are addicted to tobacco smoking and have TB find it difficult to be cured. Alcohol consumption also affects TB because the more you take alcohol or when you are addicted to alcohol it affects the effect of the TB drugs” (CSO representative).

Socio-Cultural Barriers

Unemployment

Loss of employment as a result of coming down with TB was a challenge mentioned by participants. Sometimes people who have been diagnosed with TB do not disclose their condition for the fear of losing their job. When employees with TB are discovered they are usually dismissed immediately from their work. Loss of employment poses major economic challenges to patients as the source of income is lost, which besides the direct effect it can have on the patient’s capacity to cater for the cost in TB care, families wellbeing can be strained particularly if the patient were to be the breadwinner of the home.

“When an employer discovers that a staff has TB within two or three weeks they will fire the person, we have cases like that. So patients usually hide to take their drugs”.

Stigmatization

Stigmatization was identified as one of the social determinants that can interfere with management of TB. Some patients and health providers reported that stigmatization of people with TB in the community where they come from was a common habit. Those individual who suffer stigmatization can be at risk of non-completion of treatment.

Socio cultural Belief and patronage of traditional healers

The present study observed that traditional beliefs and practices were some of the barriers to TB management as patients can be hindered from receiving formal diagnosis and treatment for TB which can lead to complications of their cases.

“People told me to take all sorts of leaves that my cough will go, which I often squeezed the leaves and drank, but I was not cured and it got even severe” (Male TB Patient).
“Earlier I was receiving treatment traditionally from my children in Lagos. I have taken some herbal concoction, but after there was no change and my problem even increased before they, my children, took me to the hospital” (Female TB patient).

“You know for diagnosis sputum sample is always required; we need sputum for culture, sputum for gen expert, sputum for microscopy. Sometimes when you want to take patient’s sputum specimen they are afraid of what you want to use their sputum for (laugh)!, as if we want to use it for fetish purpose. These are some of the several problem beliefs. Of course if you can’t get the sample you can’t do the diagnosis” (CSO representative).

In other instances people still attribute diseases such as TB as a spiritual attack that is caused by someone. And in attempts to find cure for their problems through traditional and spiritual means a lot of financial losses are incurred.

“There was a woman who brought her daughter here who is now placed on drugs. The woman said she had spent a lot of money on sacrifices and rituals thinking it was a spiritual attack from the family, so they sacrificed a goat, ram and offered other kinds of things spiritually, until she finally learnt it was TB. The local people don’t understand what TB is and think it is a spiritual attack and will go on spending money unnecessarily” (DR-TB Patients Treatment Supporter).

**Overcrowding and poor ventilation**

Overcrowding and poor ventilation are some of the issues that were identified that can influence TB spread. For instance, the use of air-condition in rooms reduces rooms normal ventilation and does not allow air to be expelled from the room. In the circumstance where a TB infected person is in the room and expels the bacterium into the air while coughing transmission can easily occur.

Some suggestions were provided for the improvement of TB care services in the study. These suggestions were found to be centered on the following major area, including; implementation of effective TB programmes, improved diagnosis and treatment of TB, provision of support for patients, increased awareness and education on TB by the healthcare workers and increase in government support.

With respect to implementation of programs suggestions were given to adopt in many other locations those effective community TB service. Ownership of TB programmes by stakeholder was suggested as imperative to sustainability of TB programmes. Capacity building of health providers to better equip health workers of the prerequisite skill and experience for management of TB cases in the community and provision of incentives and due payment to health providers were suggested. In the area of diagnosis and treatment, suggestions were made that there be adequate and effective counseling and treatment for TB patients, adoption of new technologies for diagnosis, adequate follow-up and new active case finding strategies.

The welfare of patients was considered as an important area to consider in TB programme implementation. Provision of incentives and financial support to help ameliorate the financial
burden of TB patients were suggested "Meal and transportation fare with effective monitoring and evaluation for effect and impact on a long term". There were also a lot of suggestions for an increased awareness and education on TB through increased media awareness creation and community advocacy and sensitization.

**STRATEGIC INTERVENTIONS**

| • Effective community TB services and decentralisation of health services closer to the patients to improve access to treatment, to ameliorate the programmatic bottlenecks of inadequate coverage of DOTS centres. |
| • Active inclusion of stakeholders in programmes, and also to create ownership of TB programmes among stakeholder to engender sustainability of TB programmes and services. |
| • Capacity building for health care providers to intimate them with changes in the management guidelines and equip them with the prerequisite skills and experience for adequate and effective counselling and treatment, and management of TB cases in the community. |
| • Motivation of health workers with incentives, conference sponsorship and other non-cash options. |
| • Expanded coverage for advanced technologies such as Xpert MTB/RIF for diagnosis, better-quality treatment and drugs. |
| • Improved administration/disbursement of the counterpart funding by the respective agencies and different tiers of government to TB programs for efficient utilization of fund and minimise fruitless expenditures. |
| • Programmers and program managers must intensify follow-up and new active case finding strategies that have been found to be effective to reduce the issues of non-adherence to treatment and continuous spread of infections. |
| • Provision of incentives and financial support (where resources is available) to help ameliorate the financial burden of TB patients to seek care and support. |
| • Increased TB awareness and education by using available media platforms media, community advocacy through key community leaders as TB advocates option and reduce stigma associated with TB. |

**DISCUSSION**

Similar to our findings, coverage of DOTS centers has also been cited as a limitation towards successful completion of treatment [1]. In countries such as South Africa, decentralizing health services closer to the patients were found to improve access to treatment [5]. Such efforts of improving access were also found to reduce direct and indirect costs incurred by patients some whom are unemployed yet have to pay travel costs to access their treatment [6].

In diagnosis of tuberculosis AFB sputum microscopy is still the most regularly applied method for case detection from samples. Although AFB microscopy is quick and result can be obtained within 24 hours the sensitivity of the method to *M. Tuberculosis* is far from perfect, more so, other acid fast bacilli can also be detected in the process, thereby giving a false results (). As such substantial numbers of people with active TB have been missed during diagnosis using AFB microscopy [7-13]. The advanced method of Xpert MTB/RIF assay for isolation and identification of M. Tuberculosis and detection of drug resistant TB which is a more sensitive test method has been recommended by WHO since 2011 as it has higher chances to detect a case of TB. However, the incredible cost for providing this technology considering the cost implication.
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