Determinants of patient delay in seeking treatment among pulmonary tuberculosis cases in a government specialist hospital in Ibadan, Nigeria

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Abstract: Patients delay in seeking care increases the transmission of pulmonary tuberculosis and hence the burden of the disease. This study investigates the pattern and determinants of patients delay in seeking treatment among pulmonary tuberculosis cases attending a Government Chest Clinic in Ibadan, Nigeria. A descriptive cross sectional study was employed. A face to face interview of 102 newly diagnosed tuberculosis patients at the clinic was conducted using a structured questionnaire. The mean age of respondents was 45.4 ±13.5 years and 61(59.8%) were females. The overall median delay in seeking treatment among study subjects was 60 days (range 3 to 180 days), with 61.8% patients delaying for more than 30 days. Binary logistic regression model showed that female sex (OR=5.3), place of residence (OR=3.9), outside Ibadan vs. within Ibadan), age group >45 vs. ≤45 years (OR=2.4) and reported stigma (OR=7.6) were significantly associated with longer patients delay. The results showed that delay among patients in seeking care is common and some groups of patients may be experiencing problems in seeking care in our environment.

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Introduction

The burden of tuberculosis (TB) on public health is staggering, and has become of growing concern to stakeholders in recent times worldwide. In 1993, the World Health Organization (WHO) declared a state of global emergency for TB (WHO, 2006). By 1995, the directly observed treatment short-course (DOTs) strategy was established to achieve TB control (WHO, 2006; Maamari, 2008). Two of the key component of a good TB control programme are an early diagnosis and prompt institutions of effective treatment. This is especially important in patients with smear positive pulmonary tuberculosis (PTB) in order to reduce the transmission time of *Mycobacterium* TB in the communities. TB case detection is predicated on passive case finding using sputum smear microscopy (WHO, 2006; Mesfin *et al*., 2009). This is limited and has not been able to confront the growing burden and transmission of TB in most developing countries.

In Nigeria, TB is a serious public health concern with an estimated prevalence of 64,000 cases and an incidence of 283 cases of all forms of TB per 100,000 population (WHO, 2005; FMOH, 2007). This data placed the country as one of the highest TB burdened country in Africa and fifth highest in the world, among the 22 high TB burdened countries (WHO, 2005). Though Nigeria commenced the implementation of WHO's recommended DOTs strategy in 1993, and achieved 100% state-wide coverage in 2003, accessibility to DOTs services is still sub-optimal. This is worse among rural dwellers, most of who are poor and live several kilometres from DOTs service centres. As a result, the facts about TB are often

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misconstrued, resulting in poor knowledge of TB and stigmatization of TB patient (FMOH, 2007).

Delayed presentation is a major problem contributing to the high burden and transmission of TB (Mesfin *et al.*, 2009). Patient delay, time from the onset of symptoms to first consultation to modern health care, is alarming prolonged with studies reporting from 2 to 12 months (Asch *et al.*, 1998; Long *et al.*, 1999; Madebo & Lindtjorn, 1999; Demissie *et al.*, 2002). Various cut -off limits have been ascribed depending on researcher's discretion (Asch *et al.*, 1998; Long *et al.*, 1999; Madebo & Lindtjorn, 1999; Demissie *et al.*, 2002; Olumuyiwa & Babafemi, 2004). A study in Lagos, Nigeria defined patient delay as any delay beyond 30 days (Olumuyiwa & Babafemi, 2004). Patients' decision on seeking health care, however, depend on several factors, some common to many countries and settings, and some context specific (Liefooghe *et al.*, 1997; Asch *et al.*, 1998; Long *et al.*, 1999; Grover *et al.*, 2006; Mesfin *et al.*, 2009). Very little is known regarding the pattern of TB patients' delays and factors influencing it in our setting. Identifying the magnitude and risk factors of such delays will help improve TB control. This study was therefore, developed to assess the delay to seeking treatment and the risk factors for patient delays from the onset of symptoms to seeking care at the government specialist chest hospital which offers DOTs treatment in Ibadan, South-west Nigeria.

Materials and methods

Study setting
The study was conducted at the chest clinic, Jericho Ibadan from 1st June to 30th August, 2008. The clinic is a specialist chest clinic where diagnoses and treatment of TB and other related respiratory conditions, are carried out. The institution is located in Ibadan North Local Government Area of Oyo State but it is owned by the State government. The clinic is supported by the Damien Foundation, Belgium and works through the State Ministry of Health to support the National tuberculosis response. Passive case finding principle by the WHO and the guidelines for implementing community TB care in Nigeria is being followed in the clinic (WHO, 2005; FMOH, 2007).The clinic attends to an average of between 60 to 70 patients monthly, and is open for services' Mondays to Saturdays. It is the largest designated DOTs referral centre in the State. The clinic was purposively selected as the study site considering the large number of patients seen on average per month and the feasibility of implementing the study.

Study design
The study was cross sectional in design, involving a consecutive sampling of PTB patients accessing care and treatment at the study site.

Study participants
The study subjects were all newly diagnosed PTB patients, who had started taking treatments one week before or within the study period. Non-ambulatory patients were excluded. Informed verbal consent was sought from all the participants. Confidentiality of information was also maintained. Ethical approval for the study was sought from the State Ministry of Health ethics committee.

Data collection
An interviewer administered semi-structured questionnaire was used to elicit relevant responses from study participants. The questionnaire sought information about the demographics, socio-economic characteristics, experience of stigma, and knowledge of TB among respondents. Others included disease history and health care seeking experiences of the subjects including duration from the onset of symptoms to obtaining a TB diagnosis. Face validation of the instrument was done through peer review and pretesting. In this study patient delay was defined as the duration from the onset of cough to the first visit to the clinic. A cut off of 30 days was used to denote prolong delay.

Data analysis
Data was serially coded, entered, cleaned and analyzed using the SPSS version 15 software package. The duration of diagnostic delay was skewed, so medians and range of values were reported. The proportion of subjects with more than 30 days delay was estimated. Bivariate tests; Chi-square, Fishers' exact and the Student t tests were used as appropriate to identified variables that were associated with prolonged delay. Variables with $P < 0.2$ were entered into a binary logistic regression model to identify the risk factors of prolong delay by eliminating confounding effect among potential risk factors. Odd ratios (OR) and their 95% confidence intervals (CI) were used as estimates of relative risks.

Results

Sociodemographic characteristics of the study participants
A total of 102 new smear positive PTB patients were enrolled in the 3 month study period, of which 41 (40.2%) were males and 61 (59.8%) were females. The mean age was 45.4±13.5 years. Among the study subjects, 32 (31.4%) lived outside Ibadan City. Occupationally, 40 (39.2%) of respondents were self employed (farming and trading), 26 (25.5%) were civil servants and 13 (12.7%) were unemployed. Income distribution showed that 21 (20.6%) did not have a defined income, 65(63.7%) had a regular income of between US$ 0.1 to ≤ 36 per month and 16 (15.7%) had income of >US$36 per month. Religious distribution shows two groups; Christianity (58.8%) and Islam (41.2%). With regards to education 2% were illiterates, 16.7% had completed primary education while 41.2% and 40.2% had completed secondary and tertiary education respectively. Approximately, 19.6% of the respondents never married, while 60.8% were married at the time of the interview (Table 1).

Patients delay
The median delay from the onset of cough to first visit to the clinic was 60 days with a range of 3 to 180 days. The prevalence of prolong patient delay was 63 (61.8%). Reasons given by respondents with prolonged delay included health facility too far 22.2%, lack of awareness of DOTs service on time 12.7%, and domestic work prevented coming on time 9.5%. Majority (52.4%) did not give any specific reason (Table 2).

Knowledge and sources of information about TB among study participants
The overall mean knowledge score was 8.5±1.3 on an 18–point scale. There was no significant difference in the mean knowledge score of those who had prolonged delay (8.6±1.4), and those who did not (8.4±1.2) P=0.542 (Table 3). Respondents' first source of information about TB and DOTs were as follows; 38.2% of respondents heard from the mass

media, radio and television, 20% from health workers, 18.2% heard from previously treated TB patients, 10.9 % from family members while 12.7% from friends.

Table 1: Socio-demographic status of the patients

Variables	Category	Delay duration				Total	
		≥30days		<30days			
		n	%	n	%	N	%
Gender	Male	16	25.4	25	64.1	41	40.2
	Female	47	74.6	14	35.9	61	59.8
Occupation	Self employed	32	50.8	8	20.5	40	39.2
	Unemployed	9	14.3	4	10.3	13	12.7
	Civil servants	8	12.7	18	46.2	26	25.5
	Private employee	8	12.7	--	--	8	7.8
	Retired	3	4.8	7	17.9	10	9.8
	Others	3	4.8	2	5.1	5	4.9
Education	Informal	2	3.2	--	--	2	2.0
	Primary	15	23.8	2	5.1	17	16.7
	Secondary	26	41.3	16	41.0	42	41.2
	Tertiary	20	31.7	21	53.8	41	40.2
Marital status	Single	9	14.3	11	28.2	20	19.6
	Married	44	69.8	18	46.2	62	60.8
	Widowed	10	15.8	10	25.6	20	19.6
Religion	Christianity	44	69.8	16	41.0	60	58.8
	Islam	19	30.2	23	59.0	42	41.2
Tribe	Yoruba	38	60.3	31	79.5	69	67.6
	Ibo	10	15.9	--	--	10	9.8
	Hausa	2	3.2	6	15.4	8	7.8
	Others	13	20.6	2	5.1	15	14.7
Residence	Within Ibadan	37	58.7	33	84.6	70	68.6
	Outside Ibadan	26	41.3	6	15.4	32	31.4
Age group	<45 years	27	42.9	25	64.1	52	51.0
	≤45 years	36	57.1	14	35.9	50	49.0
Income	Undefined	12	19.1	9	23.1	21	20.6
	US$0.1 - ≤36	41	65.1	24	61.5	65	63.7
	>US$ 36	10	15.8	6	15.3	16	15.7

Table 2: Reasons for delaying for more than 30 days before presenting for DOTs

Reasons	N	%
Health facility too far	14	22.2
Lack of awareness of DOTs	8	12.7
Because of domestic work	6	9.5
Poor socio-economic condition	2	3.2
No specific reason	33	52.4
Total	63	100

Table 3: Knowledge of Respondents about Tuberculosis by patient delay

TB issues	Delay ≥30days Correct responses n=63		Delay <30 days Correct responses n=39		P value
	n	%	n	%	
Have heard of TB before	63	100	35	89.7	*0.02[†]
Causes TB (Microbes)	55	87.3	35	89.7	1.000[†]
Symptom of TB: Cough lasting more than three weeks	55	87.3	31	79.5	0.292
Symptom of TB: Night sweat	7	11.1	9	23.1	0.106
Symptom of TB: Weight loss	19	30.2	9	23.1	0.436
Symptom of TB: Chest pain	48	76.2	28	71.8	0.621
Symptom of TB: Loss appetite	17	27.0	4	10.3	0.042
Symptom of TB: Fever	22	34.9	15	38.5	0.718
Symptom of TB: General body weakness	19	30.2	11	28.2	0.833
TB can be contracted from one person to another	57	90.5	33	84.6	0.528[†]
TB is transmitted by airborne contact with droplet nuclei during coughing	52	82.5	37	94.9	0.123[†]
There is association between HIV/AIDS and TB	26	41.3	20	51.3	0.323
TB can be cured	56	88.9	39	100.0	*0.04[†]
Using of Anti-TB drugs is effective in treating TB	51	81.0	28	71.8	0.282
Was awareness of free TB treatment	30	47.6	25	64.1	0.105
Normal duration of DOTS therapy (months)	6	9.5	0	0.0	0.079[†]
Regular taking of prescribed medicine help control/ cure TB	63	100	39	100	--
You may discontinue DOTS once symptoms have cleared even when prescribed treatment during has not been completed	13	20.6	4	10.3	0.172
Having loss of appetite before the first consultation	24	38.1	4	10.3	*0.002
Mean Knowledge score (Standard deviation)	8.6 (1.4)		8.4 (1.2)		0.542[††]

[†]Fishers exact test; [††]Student test otherwise Chi-square test; * Significant association

Factors associated with patient delay

Table 4 showed the estimates of risk (OR and 95% CI) for risk factors in the binary logistic regression model. Female sex (OR=5.3), place of residence, outside vs. within Ibadan (OR=3.9), age group >45 vs. ≤45 (OR=2.4), and experience of stigma (OR=7.6) were significantly associated with prolong patient delay.

Table 4: Binary Logistic Regression Analysis of risk factors for prolong patients delay

Independent Variables	Odds Ratio	95% Confidence Interval	
Experienced Stigma	7.6	2.8,	21.2
Female sex	5.3	1.1,	14.1
Residence	3.9	1.3,	12.1
Christianity	3.3	1.0,	17.2
Age > 46 years	2.4	1.0,	15.0

Discussion

The findings of this study suggest that there was a prolonged health care seeking for TB among TB patients after the onset of symptoms. The median delay of 60 days in this study

was longer than the reported median of 10 days (Xu *et al.*, 2005), 12.5 days (Cheng *et al.*, 2005), and 21 days (Wang *et al.*, 2007), indicated in China but consistent with 7.7 weeks (Long *et al.*, 1999), 60 days (Enwuru *et al.*, 2002) or 8 weeks (Olumuyiwa & Babafemi, 2004) found in Vietnam and Nigeria. However, the prevalence of delay among patients (63%) found in this present study in Ibadan, Nigeria was lower compared with the previous prevalence of 83% (Olumuyiwa & Babafemi, 2004) and 81% (Enwuru *et al.*, 2002) reported among TB patients in Lagos, Nigeria. The differences in peculiarities of the two cities, especially the complex socio-cultural and cosmopolitan milieu of Lagos, coupled with her large population density may have contributed to the observed difference. Reasons adduced by some respondents who had prolonged delay in seeking care in the present study; health facility too far, too busy, lack of awareness of DOTs services were similar to those reported among 800 new smear positive pulmonary TB patients in Syrian Arab Republic in a study to assess the diagnostic and treatment delays and their determinants (Mesfin *et al.*, 2009).

Health care seeking is a complex process influenced by many external and internal factors. Although studies that have assessed health seeking among TB patients in relation to knowledge are not common, our findings in this study indicated that there was no relationship between prolonged delay and knowledge of causes, transmission routes, symptoms and curability of TB. This contrasts with the report of a study in Vietnam where a relationship was established (Hoa *et al.*, 2003). However, unlike in the present study the knowledge of TB was generally low. For instance, about 82% of women and 74% of men did not know that TB is caused by a bacterium in that study, whereas in the present study only 11.8% did not know this fact. Although our finding indicated that mass media (radio and television) was the major source of health information about TB among the TB patients, it has been reported that promoting health education through radio and television may not be enough if the wish is to reach and influence potential TB cases. This is because globally TB is most common to the socioeconomically disadvantaged, and if equal opportunities to education and media access are not forthcoming, health communication may fail despite a good intention (Hoa *et al.*, 2003).

Several factors were found to be associated with prolonged delay on a logistic regression model, this included, female sex, place of residence, age group >45, Christian religion and experience of stigma. The association of prolonged delay with female sex collaborates with findings by some African studies (Lawn *et al.*, 1998; Pronyk *et al.*, 2001) and studies elsewhere (Yamasaki-Naagawa *et al.*, 2001; Giasuddin & Jalaluddin, 2004). This finding, however, conflicts with other studies in Ethiopia (Mesfin *et al.*, 2009), Vietnam (Long *et al.*, 1999), Lagos, Nigeria (Olumuyiwa & Babafemi, 2004) and in India (Rajeswari et al, 2002), where all showed no statistical significant association between sex and prolong patient delay. Females' tendency to delay has been attributed to their limited decision making power, engagement in domestic work, unemployment and facility too far (Yamasaki-Naagawa *et al.*, 2001; Mesfin *et al.*, 2009). Moreover, in line with previous reports (Madebo & Lindtjorn, 1999; Demissie *et al.*, 2002; Rajeswari *et al.*, 2002) rural residency (resident outside Ibadan) was significantly associated with prolonged patient delay. Poor access to healthcare in terms of travel time from patient's areas of residences to public facilities is closely related to income level. The lack of association of low income with prolonged delay in this study could be due to is its interaction with patient area of residence.

Using the mean age of 45 years as cut off, we found that those who are above this age have a 2.4 fold increase in odds of prolonged delay compared with those below this age group. This is consistent with the findings in India (Rajeswari *et al.*, 2002), which showed,

using the same patient delay cut-off > 30 days, that older patients (>45 years) delayed health seeking for TB following onset of symptoms. The study adduced preoccupations with family commitments as the likely reasons why older TB patients delayed care seeking. The odd of patient delay for Christians was about 3.3 fold higher compared with Muslims. This perhaps could be attributable to the "faith cures all things syndrome" which is highly prevalent among modern day Christians in our society today. A study in Ethiopia has documented a related finding where the use of holy water by followers of an Orthodox Christianity as an initial treatment was identified as a cause of patient delayed presentation in areas where public health facilities are remotely located (Mesfin *et al.*, 2009). Lastly, we found that prolonged patient delay was common to those who reported having experienced any form of stigma. Studies have reported that stigma attached with TB often deters patients from seeking early treatment (WHO, 2005; Godfrey-Faussett, 2002). With the spread of HIV, TB-related stigma has been heightened in sub Saharan Africa (Banerjee *et al.*, 2000; Lawn, 2000).

There are obvious limitations in this study. The study relied entirely on responses as given by respondents and only hope for objective and honest responses. For instance, we were unable to determine the time of onset of symptoms in all patients in the study. Information depended on self reports based on recall history and individual variations in perception of disease. We, however, limited participants to recently diagnosed cases to minimize recall bias. Moreover, questionnaires were pretested to make sure that all questions were understandable.

In conclusion, our study showed that delay among patients in seeking care is common and some groups of patients experienced problems in seeking care in our environment. Public health education targeting the identified groups may go a long way in reducing patient delay in accessing DOTs services.

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