Adherence, Treatment and Health Communication among Tuberculosis Patients in Ekiti State, Nigeria

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Abstract:

Health literacy is a challenge worldwide and most especially in Nigeria. Health of many in the society may be at risk because of the difficulty some patients experience in understanding and acting on health information which, in turn, has a negative impact on health outcomes and the entire health care system. This study seeks to examine the role of health communication on treatment of tuberculosis patients in Ekiti as well as the role of provider- patient relationship on treatment satisfaction.

Theoretically, the study employed Health Belief Model, Symbolic Interactionism and Social Action Theory in explaining the phenomenon. Quantitative and qualitative research methods were adopted in the study. The study respondents consisted of patients and health providers that were drawn from tertiary, secondary and primary health institutions with DOTS centers in Ekiti. 509 patients were selected in the study. The researcher made use of key informant interview of some medical professionals from 4 out of the 8 selected hospitals. The study was complimented with in-depth interview. The quantitative data were analyzed using SPSS V18 while qualitative data were analyzed using manual content analysis.

The findings revealed that majority of the respondents (80.6%) were aware of their right to be informed about their health status while 18.7% were ignorant of their right. Total of 91.1% of the patients got their information through different sources.

Consequently, the study provides better information that will improve communication between patients and providers, as well as impact on health outcomes and the entire health care system.

Key Words: Tuberculosis, Health, Adherence, Communication, Ekiti.

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Introduction

The task of moving care might appear well defined but the neglect of one seemingly insignificant but important skill "communication", tends to overshadow the realistic goals that may have been set to achieve maximum care for the patients. Communication has long been an important tool in health promotion, and during the closing decades of the twentieth century it became an essential part of public health programs. Although its roots date back hundreds of years- to Cotton Mather's smallpox vaccination campaign during Colonial American times.

Communication is the process of transmitting and receiving verbal and non-verbal message that produce a response, while Health communication may be defined as the art and technique of informing, influencing, and motivating individual, institutional, and public audiences about important health issues.. The scope of health communication includes disease prevention, health promotion, health care policy, and the business of health care as well as enhancement of the quality of life and health of individuals within the community. Although health communication covers a wide range of topics, a central focus of the study is provider-patient communication, specifically; issues involving patient adherence and patient care satisfaction. Health communication scholars (Burgoon, Bark, & Hall, 1991) assume that if individuals are provided with the right information they would adopt the recommended behaviour.

Clear health communication is an important part of a patient's ability to understand and act upon health information. Health information can be confusing for anyone; this can include a patient's ability to follow instructions after a doctor's visit, to manage a chronic illness, or to take a medication properly. For health care practitioners, clear health communication guides which words are used, how directions are given, and what materials are presented when communicating with patients. The health literacy problem is a crisis of understanding medical information rather than of access to information. The health of many in the society may be at risk because of the difficulty some patients experience in

understanding and acting on health information — which, in turn, has a negative impact on health outcomes and the entire health care system.

Patients' satisfaction with their hospital care is important because it captures the patients' experience of health care outside of direct effects on health and acknowledges the role of the patient as partner in health care, and as such reflects the patient-centeredness of care. It also offers insight into patients' perceptions of interpersonal relations and amenities. Patient satisfaction is an important and commonly used indicator for measuring the quality in health care. Patient satisfaction affects clinical outcomes, patient adherence, patient retention, and medical malpractice claims. It affects the timely, efficient, and patient-centered delivery of quality health care. Patient satisfaction is thus a proxy, a very effective indicator to measure the success of health care delivery. Patient adherence is the extent to which patients follow clinical prescriptions, this includes all types of behaviour and behaviour modifications recommended by a care provider for the purpose of helping, curing or preventing various medical problems. Adherence describes the degree to which a patient correctly follows medical advice. Most commonly, it refers to medication or drug adherence, but may also mean use of medical appliances, self-directed physiotherapy exercises, or attending counseling or other courses of therapy. Both the patient and the health-care provider affect adherence, and a positive provider-patient relationship is the most important factor in improving adherence.

Tuberculosis or TB (short for tubercle bacillus) is a common, and in many cases lethal, infectious disease caused by various strains of mycobacteria, Tuberculosis usually attacks the lungs but can also affect other parts of the body. It is spread through the air when people who have an active infection cough, sneeze, or otherwise transmit their saliva through the air. Most infections in humans result in an asymptomatic/ latent infection, and about one in ten latent infections eventually progress to active disease, which, if left untreated, kills more than 50% of those infected. The classic symptoms are a chronic cough with blood-tinged sputum, fever, night sweats, and weight loss; Tuberculosis infection of other organs causes a wide range of symptoms.

Diagnosis relies on radiology (commonly chest X-rays), a tuberculin skin test, blood tests, as well as microscopic examination and microbiological culture of body fluids and sputum test. Treatment is difficult and requires long courses of multiple antibiotics. Patients seldom follow treatment regimens as directed, and seldom complete the course of treatment because of poor understanding of the directions for the treatment due to poor health communication.

Problem

Clearly, most health care providers hope that their patients comply with the treatment prescribed. Equally, patients desire to be treated in a way that leaves them satisfied with the experience. However, investigations regarding the provider-patient relationship over the past 50 years have resulted in little consensus, establishing the need for more research in this area; therefore the importance of health communication in health care outcome cannot be overemphasized.

Health communication intervention seeks to influence the actions of individuals to improve health, to help the patients in informed decision-making which enable them to make better health decisions in regards to adherence. Understanding the behaviors that lead to both patient adherence and patient care satisfaction could be the key to experiencing medical encounters with more positive outcomes for both the patient and the provider. Provider-patient communication has the potential to significantly increase patient adherence particularly in chronic communicable diseases such as Tuberculosis where the drug regime spread over eight to twenty months; With lives in the balance, effective communication between provider and patients as well as health professionals is a must in health care.

The extent of impact of inter-professional communication on patient adherence is a subject of debate in health communication literature, and has resulted in various perspectives ranging from paternalistic to deliberative. Poor inter-professional communication has been linked to decrease quality of patient care and increased numbers of medical errors. Despite recent improvements in inter-professional understanding, conflict and confusion regarding the scope of practice of various disciplinary delineated roles persists

and continues to hamper inter-professional communication between health care providers. Ultimately, lack of good inter-professional communication due to conflict within the team negatively affect the quality of patient care as well as treatment satisfaction. Clear communication is essential to successful public health practice at every level of the ecological model, therefore strategies that are likely to increase patient adherence and treatment satisfaction should be of great concern, with the view that both satisfaction and adherence are necessary ingredients for a successful, ethical, and mutually beneficial medical encounter.

Hence, the study seeks to understand the processes of communication, how communication can help to improve health, and the effects of communication itself on health outcomes; shifting focus from the issue that addresses the problem of patient adherence originally on patient-centered explanations for non-adherence such as patients' age, sex, intelligence and severity of illness.

Research Question

Based on the above statement of the problem, this study is intended to answer the following research questions:

1. What level of awareness and knowledge of information does tuberculosis patients have about their treatment?
2. How does comprehension of information affect tuberculosis treatment outcome?

Objectives

The broad objective of this study is to examine the role of health communication in the treatment of tuberculosis patients. Also, the study seeks to:

1. Determine the level of awareness and knowledge of patient about the amount of information they should have access to regarding their treatment.
2. Assess the amount of information made available to tuberculosis patients.

3. Examine the degree of comprehension of information made available to patients.
4. Investigate the factors influencing comprehension of information made available to patients.
5. Determine the level of satisfaction of patients about the amount of information received.
6. Examine the effect of health communication on tuberculosis treatment outcome.

Health Communication

Health care communication is the degree to which individuals have the capacity to obtain, process, and understand the basic health information and services needed to make appropriate health decisions. The health care communication is also considered as the health care literacy which appears in different variety of ways. The health care communication can be in conversations with healthcare professionals, on prescription and over-the-counter medications bottles, health education or promotional materials, insurance or Medicare applications and other forms of health information.

Health communication is a multifaceted and multidisciplinary approach to reach different audiences and share health-related information with the goal of influencing, engaging and supporting individuals, communities, health professionals, special groups, policy makers and the public to champion, introduce, adopt, or sustain a behavior, practice or policy that will ultimately improve health outcomes, " Schiavo, R. 2007, or the mechanism by which health messages are communicated from experts in the medical and public health fields to the people who can be helped by these messages. It is the art and technique of informing, influencing, and motivating individual, institutional, and public audiences about important health issues.

Health communication is concerned with "the powerful roles performed by human and mediated communication in health care delivery and health promotion" (Kreps et al. 1998). Clear communication is essential to successful public health practice at every level of the ecological model; intrapersonal, interpersonal, group, organizational, and societal. At each level there are a variety of communication channels which must be considered, from

face-to-face to mass communications. The social contexts in which health communication occurs are also widely varied and can include (but are not limited to) homes, schools, doctor's offices, and workplaces.

The scope of health communication includes disease prevention, health promotion, health care policy, and the business of health care as well as enhancement of the quality of life and health of individuals within the community" - Healthy People 2010. Health communications examines the relationship of communication to desired patient care outcomes. The importance of the communication includes adherence to treatment, healthcare utilization, trust, and satisfaction with healthcare providers, and improvements in health status that ensures the patient's safety and high quality of care.

Tuberculosis

Tuberculosis or TB (short for *tubercle bacillus*) is an infectious disease caused by various strains of mycobacteria, usually *Mycobacterium tuberculosis*. . It was first isolated in 1882 by a German physician named Robert Koch. Tuberculosis usually attacks the lungs but can also affect other parts of the body. Most infections in humans result in an asymptomatic, latent infection, and about one in ten latent infections eventually progress to active disease, which, if left untreated, kills more than 50% of those infected. If tuberculosis does become active, it most commonly involves infection in the lungs (pulmonary TB).

The classic symptoms are a chronic prolonged cough with blood-tinged sputum, chest pain, fever, night sweats, and weight loss. About a quarter of people however may not have any symptoms. Occasionally people may cough up blood in small amounts and in very rare cases the infection may erode into the pulmonary artery resulting in massive bleeding known as Rasmussen's aneurysm. Spitting up stones known as lithoptysis has been described due to bronchial lymph nodes communicated with the airways. Tuberculosis may become chronic with scarring usually in the upper lobes of the lungs.

Extrapulmonary: In the other 25% of active cases, the infection moves from the lungs, causing other kinds of TB, collectively denoted extrapulmonary tuberculosis. This occurs more commonly in immunosuppressed persons and young children. Extrapulmonary infection sites include the pleura in tuberculous pleurisy, the central nervous system in meningitis, the lymphatic system in scrofula of the neck, the genitourinary system in urogenital tuberculosis, and the bones and joints in Pott's disease of the spine. When spread to the bones it is also known as "osseous tuberculosis", a form of osteomyelitis as a complication of tuberculosis). An a potentially more serious form is disseminated TB, more commonly known as miliary tuberculosis

The rise in HIV infections and the neglect of TB control programs have enabled a resurgence of tuberculosis. The emergence of drug-resistant strains has also contributed to this new epidemic with, from 2000 to 2004, 20% of TB cases being resistant to standard treatments and 2% resistant to second-line drugs. (Centers for Disease Control and Prevention (CDC: 2006). The rate at which new TB cases occur varies widely, even in neighbouring countries, apparently because of differences in health care systems.

Roughly a third of the world's population has been infected with *M. tuberculosis*, and new infections occur at a rate of one per second. However, not all infections with *M. tuberculosis* cause TB disease and many infections are asymptomatic. In 2007 there were an estimated 13.7 million chronic active cases, and in 2010, 8.8 million new cases, and 1.45 million deaths, mostly in developing countries (Tuberculosis Fact sheet, World Health Organization. November 2010). The absolute number of tuberculosis cases has been decreasing since 2005 and new cases since 2002. (World Health Organization: global report 2011).

The distribution of tuberculosis is not uniform across the globe; about 80% of the population in many Asian and African countries test positive in tuberculin tests, while only 5–10% of the U.S. population test positive (Kumar V, Abbas AK, Fausto N, Mitchell RN (2007). Tuberculosis is the world's greatest infectious killer of women of reproductive age and the leading cause of death among people with HIV/AIDS. This is due to the

fact that worldwide, women have a larger burden from poverty, ill-health, malnutrition and disease than men. Tuberculosis results in more deaths among women than all causes of maternal mortality combined and more than 900 million women are infected with TB worldwide (World Health Organization: Frequently asked questions about TB December 2011).It also kills more young people and adults than any other known infectious disease.

Causes

The main cause of TB is Mycobacterium tuberculosis, a small aerobic non-motile bacillus; Mycobacterium tuberculosis, was identified and described on March 24, 1882 by Robert Koch. The high lipid content of this pathogen accounts for many of its unique clinical characteristics. It divides every 16 to 20 hours, an extremely slow rate compared with other bacteria, which usually divide in less than an hour; it is as a Gram-positive bacterium. In nature, the bacterium can grow only within the cells of a host organism, but M. tuberculosis can be cultured in the laboratory.

Pathogenesis

About 90% of those infected with Mycobacterium tuberculosis have asymptomatic, latent TB infection (sometimes called LTBI), with only a 10% lifetime chance that a latent infection will progress to TB disease. However, if untreated, the death rate for these active TB cases is more than 50%.TB infection begins when the mycobacteria reach the pulmonary alveoli, where they invade and replicate within the endosomes of alveolar macrophages. The primary site of infection in the lungs is called the Ghon focus, and is generally located in either the upper part of the lower lobe, or the lower part of the upper lobe.

These cells can transport the bacilli to local (mediastinal) lymph nodes. Further spread is through the bloodstream to other tissues and organs where secondary TB lesions can develop in other parts of the lung (particularly the apex of the upper lobes), peripheral lymph nodes, kidneys, brain, and bone. All parts of the body can be affected by the disease, though it rarely affects the heart, skeletal muscles, pancreas and thyroid (Agarwal R, Malhotra P, Awasthi A, Kakkar N, Gupta D 2005). If TB bacteria gain entry to the bloodstream from an area of damaged tissue they spread through the body and set

up many foci of infection, all appearing as tiny white tubercles in the tissues. This severe form of TB disease is most common in infants and the elderly and is called miliary tuberculosis. People with this disseminated TB have a fatality rate near 100% if untreated. However, if treated early, the fatality rate is reduced to about 10% (Kim J, et all 2003: Miliary tuberculosis and acute respiratory distress syndrome).

Risk factors for tuberculosis

There are number of factors that make people more susceptible to TB infections. Worldwide the most important of these is HIV with co-infection present in about 13% of case (World Health Organization: sixteenth global report on tuberculosis 2011). This is a particular problem in Sub-Saharan Africa where rates of HIV are high. Tuberculosis is closely linked to both overcrowding and malnutrition making it one of the principle diseases of poverty. Chronic lung disease is a risk factor with smoking more than 20 cigarettes a day increases the risk by two to four times and silicosis increases the risk about 30 fold (Davies, PD; Yew, WW, Ganguly, et all 2006: Smoking and tuberculosis).

Other disease states that increase the risk of developing tuberculosis include alcoholism and diabetes mellitus. Others at risk include people in areas where TB is common, people who inject illicit drugs, residents and employees of high-risk congregate settings, medically under-served and low-income populations, high-risk racial or ethnic minority populations, children exposed to adults in high-risk categories, those who are immunocompromised by conditions such as HIV/AIDS, people who take immunosuppressant drugs, and health care workers serving these high-risk clients. Certain medications such as corticosteroids are becoming increasingly important risk factors, especially in the developed world. There is also a genetic susceptibility for which overall importance is still undefined.

Transmission

Transmission can only occur from people with active—not latent—TB. The probability of transmission from one person to another depends upon the number of infectious droplets expelled by an infected human, the effectiveness of ventilation, the duration of exposure, and the virulence of the M. tuberculosis strain. When people with

active pulmonary TB cough, sneeze, speak, sing, or spit, they expel infectious aerosol droplets 0.5 to 5 μm in diameter. A single sneeze can release up to 40,000 droplets. 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.

People with prolonged, frequent, or intense contact are at particularly high risk of becoming infected, with an estimated 22% infection rate (World Health Organization, November 2010). A person with active but untreated tuberculosis can infect 10–15 other people per year. The chain of transmission can be broken by isolating people with active disease and starting effective anti-tuberculous therapy. After two weeks of such treatment, people with non-resistant active TB generally cease to be contagious. If someone does become infected, then it will take three to four weeks before the newly infected person can transmit the disease to others.

Tuberculosis treatment

Effective TB treatment is difficult, due to the unusual structure and chemical composition of the mycobacterial cell wall, which makes many antibiotics ineffective and hinders the entry of drugs. Tuberculosis caused the most widespread public concern in the 19th and early 20th centuries as an endemic disease of the urban poor. It was not until 1946 with the development of the antibiotic streptomycin that effective treatment and cure became possible. Prior to the introduction of this drug, the only treatment besides sanatoria (that resembled prisons; the sanatoria for the middle and upper classes offered excellent care and constant medical attention), were surgical interventions, including the pneumothorax technique—collapsing an infected lung to "rest" it and allow lesions to heal—a technique that was of little benefit and was largely discontinued by the 1950s.

The two antibiotics most commonly used now are isoniazid and rifampicin and treatments can be prolonged. Latent TB treatment usually uses a single antibiotic, while active TB disease is best treated with combinations of several antibiotics, to reduce the risk of the bacteria developing antibiotic resistance. People with latent infections are treated to prevent them from progressing to active TB disease later in life.

Adherence

The term “adherence” (or “patient-centred compliance”[8]) refers to the extent to which patients follow a prescribed regimen.

It implies a more active and collaborative involvement of patients working with health-care providers in managing their treatment. "Adherence" portrays a more respectful and active role of the patient in disease management. It captures the increasing complexity of TB chemotherapy by characterizing patients as independent, intelligent and autonomous people who take active and voluntary roles in defining and pursuing goals for their medical treatment. The extent of treatment adherence may be facilitated by positive or negative attributes related to health system, social/family issues, personal factors, and drug factors (e.g. medication side-effects are negative drug attributes while a fixed-dose combination is a positive drug attribute in relation to treatment adherence). Empowerment of people with TB, and communities, through advocacy, communication and social mobilization as well as patient and community participation in TB care are important in facilitating treatment adherence using the DOTS approach.

The treatment regimen recommended within the DOTS approach is associated with ***significant side-effects*** such as hepatitis, dyspepsia, exanthema and arthralgia were responsible for termination of therapy in up to 23% of patients during the intensive phase.[2] Medication side-effects were also found to be significantly associated with defaulting impact of medication side-effects on treatment adherence as well as how adherence to tuberculosis (TB) chemotherapy should be defined and monitored.

Prevention

Tuberculosis prevention and control efforts primarily rely on the vaccination of infants, detection and appropriate treatment of active cases. The World Health Organization has achieved some success with improved treatment success and small decreases in case numbers. The only currently available vaccine as of 2011 is Bacillus Calmette-Guérin (BCG) developed from attenuated bovine-strain tuberculosis by Albert Calmette and Camille Guerin in 1906 which while effective against disseminated disease in childhood confers inconsistent protection against pulmonary disease. World wide it is the most widely used vaccine with more than 90% of children vaccinated. However the immunity that it induces decreases after about ten years.

Patient satisfaction

Assessment of patient-reported outcomes (PROs), especially treatment satisfaction, is increasingly recognized as important in determining the efficacy of new therapies. Treatment satisfaction may be associated with adherence to treatment, glycemic control, and treatment preference. Most studies of treatment satisfaction and preference assess differences between groups using different treatments. Patient satisfaction has emerged as a critical outcome of medical care due to increasing emphasis on patient as consumers of services in the medical marketplace (Davies& Ware, 1988). The extent to which different delivery systems satisfy their patients is a major determinant of viability in this highly competitive environment. Patient satisfaction has been associated with patient adherence to medical recommendations (korsch, Gozzi, & Francis, 1968)

Satisfaction looks backward, based on past experience; *satisfaction* refers to the patient's opinions of the care providers' actions. Satisfaction has been shown to predict important health-related behavior, such as adhering to treatment recommendations and maintaining continuity of care. Patient satisfaction is an important issue in Tuberculosis treatment outcome.

Theoretical Framework

Health belief model, Social action and Symbolic Interactionism

The researcher proposes to adopt three theoretical frameworks for this study, health belief model, symbolic Interactionism and Social Action Theory.

Methodology

This section focused on how the study was carried out, the research design, study population, sample size, sampling technique, method of data collection and analysis used in carrying out the study.

Research Design

The research design used for the study was descriptive survey of the exposit factor type. The empirical methods which aim at describing and interpreting systematically present events of a given population and areas of interest.

Study Area

Ekiti State is a state in southwest Nigeria, with the estimate of 2,737,186 population (Nigeria Census, 2006). It was declared a state on October 1, 1996 alongside five others by the military under the dictatorship of General Sani Abacha.

The state, carved out of the territory of old Ondo State, covers the former twelve local government areas that made up the Ekiti Zone of old Ondo State. On creation, it took off with sixteen (16) Local Government Areas (LGAs), having had an additional four carved out of the old ones. Ekiti State is one of the thirty-six states (Federal Capital Territory (Nigeria)) that constitute Nigeria. Ekiti State is reputed to have produced the highest number of professors in Nigeria. Several pioneers academics are from the state

Population of the Study

The entire medical staff of the primary health institution, private health institution, secondary and tertiary institutions; chosen for the study as well as patients that are purposefully selected for the study.

Sample and Sampling Techniques

Quantitative and qualitative research methods were adopted in the study. The study respondents consisted of patients and health providers that were drawn from tertiary, secondary and primary health institutions with DOTS centers in Ekiti. 509 patients were selected in the study. The researcher made use of key informant interview of some medical professionals from 4 out of the 8 selected hospitals.

Instrument for Data Collection

The main instrument used for data collection was structured questionnaire, the questionnaire was divided into five sections i.e. sections A-E, section A focused on the demographic characteristics of the respondents while section B focused on the level of awareness patients on the amount of information they should have about their diagnosis, care and prognosis and treatment, and the amount of information made available to patients.

Section C assessed the degree of comprehension of information and also investigated the factors that influence comprehension of information made available; section D, focused on the level of patient satisfaction with the amount of information received and the effect of health communication on treatment outcome among Tuberculosis patients.

Method of Data Analysis

Chi-square and Correlation analysis were used for the objectives stated above to explore the relationship between the variables. It also was used to involve the use of descriptive statistics such as frequency distribution tables, percentage distribution

and Pearson chi-square and Pearson correlation.

Ethical Consideration for the Study

This study is wholly designed for academic gain. The anonymity of all respondents is of paramount significance to the researcher. At no point during and after the study would any information given be used in a manner that would make it feasible to identify the respondent. Participant has the right to decline from the study at any stage should he/she found it uncomfortable to continue.

Due to the nature of the study, which dealt with painful emotional experiences of the respondents involved, it became very important to strictly adhere to ethical standards. Authorization to carry out the survey was obtained from the joint University of Ibadan and University College Hospital Institution Review Committee. Verbal and written informed consent was obtained and confidentiality was assured for all the participants. This is because many of the participants could not read or write and could be difficult to maintain only written informed consent

The consent of the respondents was sought and obtained. The literate respondents were enjoined to sign consent forms. They were made to know that they were at liberty to withdraw from the research any time they feel that their rights were trampled upon. To achieve this, there was a guarantee of anonymity and confidentiality of the records from the respondents in the course of data analysis and report writing.

Confidentiality:

All information collected in this study was given absolute confidentiality and the identity of any of the participants would not be used in any publication or reports from the study.

Translation of protocol to the local language

The questions were translated into local language, which is Yoruba as result of the fact that many of the respondents may not understand English.

Beneficence:

The goal of this research is to examine the adherence, treatment and health communication among tuberculosis patients in Ekiti-State, Nigeria. **Non-malfeasance to participate**

This research study will not in any way have negative effect or do any harm to the participants.

Voluntariness:

Participation in this research is entirely voluntary and no participant wasin form force to participate.

COPY OF THE THE INFORMED CONSENT FORM

IRB Research approval number:

This approval will elapse on: / /

Title of the research:

Adherence, treatment and health communication among tuberculosis patients in Ekiti-State, Nigeria.

Name of researcher:

This study is being conducted by Owoseni Joseph Sina of the department of Sociology, Ekiti State University.

Sponsor of the research:

The study is Self Sponsored.

Purpose of research:

The purpose of this research is to find out the adherence, treatment and health communication among tuberculosis patients in Ekiti-State, Nigeria.

Expected duration of research and of participant(s)' involvement: The study lasted for 3months and participant was expected to use 15 minutes answering the questionnaire.

Risk: There was no risk involved in participating in this research.

Cost of participant(s):

Your participation in this research would not cost you anything.

Benefit(s):

The goal of this research was to examine the adherence, treatment and health communication among tuberculosis patients in Ekiti-State, Nigeria.

Confidentiality:

All information collected in this study was given absolute confidentiality and your identity will not be used in any publication or reports from the study.

Voluntariness:

Your participation in this research is entirely voluntary.

Alternatives to participation:

If you choose not to participate, this would not affect your personality in any way.

Consequences of participants' decision to withdraw from research and procedure for orderly termination of participation:

You can also choose to withdraw from the research at anytime. Please note that some of the information that has been obtained from

you before you choose to withdraw may have been modified or used in reports and publications. These cannot be removed anymore. However the researchers promise to make good faith effort to comply with your wishes as much as is practicable.

Findings:

4.1: PERCENTAGE DISTRIBUTION OF PATIENT RESPONDENTS BY DEMOGRAPHIC CHARACTERISTICS

Source: Fieldwork, 2013

Characteristics	Frequency	Percentage %
Sex		
Male		73.5
Female	374	26.5
Total	135	100.0
	509	
Age		
<21	12	2.4
21-25	90	17.7
26-30	217	42.6
31-35	49	9.6
36-40	124	24.4
41-45	2	0.4
46 and above	15	2.9
Total	509	100.0
Marital status		
	176	>
Single never	277	34.6
married	5	54.4
Married	49	1.0
Separated	2	9.6
Widow	509	0.4
Divorced		100.0
Total		
Educational status	74	14.5
	85	16.7
No formal	107	21.0
education	137	26.9
Primary not	106	20.8
completed	509	100.0
Primary completed		
Secondary		
Tertiary		
Total		
Hiv status		
		1.0
Positive	5	84.5
Negative	414	12.0
Not sure	59	2.4
Never be tested	12	100.0
Total	490	
Religion		
		54.4
Christianity	227	45.6
Islam	232	100.0
Total	509	
Literacy status		
Read & write	365	71.7
Read & cannot write	43	8.4
	28	5.5
Write & cannot read	73	14.3
	509	100.0
Cannot read & write		
Total		

In Table 1.1 above, majority of the patients are male 73.5% while female respondents were 26.5%, the disease affected mainly people at the prime of life – the working class i.e age 19-45 constituted 64.4% and out of these 45.2% are people with age range of 23-34. Most respondent were married (54%), followed by single never married (34.6%), 9.6% were widows while 1% was separated.

Furthermore, 14.5% have no formal education while 35.6% of the respondents were drop out, more than half of the respondent have only primary education 52.3%; 26.9 have secondary certificate, only 20.8 have post secondary education. 54.4% are Christians while 45.6% are Muslims, 84.5% tested negative to HIV only 1.0% of the respondents were HIV positive while 2.4% were never tested.

The Table below (Table 1.2) shows that majority of the respondent (80.6%) are aware of their right to be informed about their health only 0.6% are ignorant while

18.7% are not sure of their right. Total of 91.1% of the respondents got their information through different sources, (51.1%) got informed through the mass media while 34.1% were enlightened by co-patients and 6% got to know about tuberculosis through other means, while only 8.8% were informed by the medical staffs.

Moreover, 62% of the respondents know the disease they are suffering from, but only 10% knows the prognosis while 18% of the respondent have ideas about the mode of treatment, others merely used the drugs give to them and go for investigation with little or no knowledge about it. Larger number of respondents has adequate information of the duration of treatment (68%). Only 11.8% knows the possible side effect and only 19.4% knows about complication that may arise from using the drugs.

Majority of the respondents (60.1%) had chest x-ray while 28% did sputum test, only 11.9% had mantuex test done, these are mainly patient attending teaching hospital, All the respondents (100%) claimed the investigations were explained to them. 62.1% of the respondent knows that their health condition will deteriorate if drugs are not taken as prescribed while 37.9 believe that it could lead to death.

Majority knows the importance of balanced diet, (68.5%) claimed the drug will not work well, while 31.5% said they will not have enough strength to cope with the disease condition, while 8.8% believed it would increase the spread of the disease: 10.6% thought that it could lead to death. 63.4% of the respondent claimed the drug will not work well if they lack health education, 17.2% believe that there could be re-infection, while 8.8% claimed it will lead to spread of disease.

Table 1.2: LEVEL OF AWARENESS AND KNOWLEDGE OF PATIENT ABOUT THE AMOUNT OF INFORMATION THEY SHOULD HAVE, AND THE AMOUNT OF INFORMATION MADE AVAILABLE REGARDING THEIR HEALTH

Responses	Frequency	Percentage %
Awareness of right to information	171	34.1
Diagnosis	256	51.1
Prognosis	44	8.8
Mode of treatment	30	6.0
Investigation	501	100.0
Knowledge about drug		
Duration of treatment	334	68.9
Possible side effect	57	11.8
Complications	94	19.4
Total	485	100.0
Investigation done		
Chest x ray	292	60.1
Monteux	58	11.9
Sputum AFB	136	28.0
Total	486	100.0
Outcome of non adherence	300	62.1
My condition will get	183	37.9
worse	483	100.0
Death		
Total		

The 4.2 above shows the knowledge of the respondents about their health. The data indicated that 34.1% of the respondents were aware of diagnosis; 51.1%, which is highest percentage were prognosis while 8.8% were mode of treatment and 6.0% were investigation. Furthermore, on the knowledge of the respondents about their drug, 68.9% of the respondents knew the duration of treatment; 11.8% understood the possible effect of the drug while 19.4% of them got to know the complications of not using their drug accordingly.

On the investigation the respondents were told to do, 60.1% of the respondents were chest X-ray; 11.9% were Monteux while 28.0% were Sputum AFB. To understand what may likely happen if the respondents do not take their drugs accordingly, 62.1% of the respondents indicated that their condition would get worse while 37.9% of them believed that it would result in death.

FGD: *Through FDG, responses to knowledge about drug, it was noted that all the patients have adequate information about how long individual patient will use the drug.*

According one of them, "I have to use the drug for 18 months this time because it has re-infected"

All that participated do not know the kind of drug they are using neither can they

"I know that the drug will make my urine and feaces yellow and make me eat a lot"

Observation: Through my observation, I discovered that majority of the patients do not come to the Centre with cloth/handkerchief to cover their mouth while coughing, when they were asked. Many claimed they could not afford handkerchief.

FDG: *One man said as long as he is not with his family, he is freely spit anywhere.*

FIG 1.1: BAR CHAT ON WHETHER THE PATIENTS ARE CARRIED ALONG IN THEIR CARE PLAN

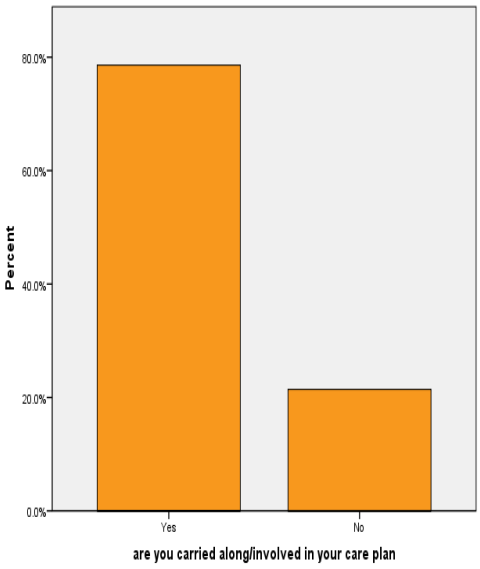

Fig. 1.1 above indicated that 78.6% of the respondents said that they were carried along in their care plane while 21.4% of the respondents were not carried along in their care plan

TABLE 2.1: RESPONDENTS' DISTRIBUTION ON THE LEVEL OF SATISFACTION OF PATIENT ABOUT THE AMOUNT OF INFORMATION RECEIVED AND PATIENTS – CARE PROVIDER RELATION

Responses	Frequency	Percentage %
Are you satisfied with the medical care giving or you are receiving?		
Yes	458	90.0
No	51	10.0
Total	509	100.0
Will you recommend this hospital to somebody else seeking health care?		
Yes	401	78.8
No	108	21.2
Total	509	100.0
Are you allowed to say what is on your mind during medical visits?		
Yes	462	90.8
No	47	9.2
Total	509	100.0
Do the care providers listen carefully to what you have to say? Always	373	73.3
Sometimes	130	25.5
Never	6	1.2
Don't know	509	100.0
Total		
Do the care providers usually spend plenty of time with you?		
Always	433	85.6
Often	67	13.2
Occasionally	9	1.2
Never	509	100.0
Total		
Does my care provider treat me in a very friendly and courteous manner?		
Always	397	78.0
Often	110	21.6
Occasionally	2	0.4
Total	509	100.0
Do the doctors who treat you have a genuine interest in you as a person?		
Yes	443	87.0
No	66	13.0
Total	509	100.0
Are the nurses available when you need them?		
Always	416	81.7
Often	83	16.3
Occasionally	0	0
Never	0	0
Total	499	100

Source: Fieldwork 2013

Table 2.1 above depicts that 90% of the respondents were satisfied with the medical care giving to them while 10% of them were not satisfied with the medical care giving to them. Furthermore, on whether the respondent could recommend the hospital to somebody else seeking health care, 78.8% said yes while 21.2% said no. 90.8% said they freely express how they feel to the care giver while 9.2% claimed there was no freedom of expression.

Moreover, on whether the care providers listen carefully to what the respondents have to say 73.3% of them chose always, 25.5% said sometimes while 1.2% said never. On whether the care providers usually spend plenty of time with the patients, 85.1% indicated always; 13.3% was often; 1.2% indicated that it was occasionally while 0.6% said never. To understand whether care provider treats the patients in a very friendly and courteous manner, 78.0% indicated always; 21.6% of the respondents chose often while 0.4% of them beloved that the care provider occasionally treat them in a very friendly and courteous manner.

On whether the doctors who treat the respondents have a genuine interest in them

Responses	Frequency	Percentage %
Are you satisfied with the medical care giving or you are receiving?		
Yes	458	90.0
No	51	10.0
Total	509	100.0
Will you recommend this hospital to somebody else seeking health care?		
Yes	401	78.8
No	108	21.2
Total	509	100.0
Are you allowed to say what is on your mind during medical visits?		
Yes	462	90.8
No	47	9.2
Total	509	100.0
Do the care providers listen carefully to what you have to say? Always	373	73.3
Sometimes	130	25.5
Never	6	1.2
Total	509	100.0
Do the care providers usually spend plenty of time with you? Always	433	85.1
Often	67	13.2
Occasionally	6	1.2
Never	3	0.6
Total	509	100.0
Does my care provider treat me in a very friendly and courteous manner?		
Always	397	78.0
Often	110	21.6
Occasionally	2	0.4
Total	509	100.0
Do the doctors who treat you have a genuine interest in you as a person?		
Yes	443	87.0
No	66	13.0
Total	509	100.0
Are the nurses available when you need them?		
Always	416	81.7
Often	83	16.3
Occasionally	0	0
Never	0	0
Total	499	100

as a person, 87.0% of the respondents said yes while 13.0% said no. From the finding, it be inferred that highest percentage of the respondents were treated by the doctors with a genuine interest as person and as a patient. Also, to know whether the nurses are available when the patients need them, 81.7% of the respondents indicated that the nurses were always available; 16.3% of them said that the nurses were often available while none of the respondents indicated that the nurses were never available. This shows that the nurses really took their time to attend to the patients as the need arose.

TABLE 3.1: RESPONDENTS' DISTRIBUTION ON THE LEVEL OF SATISFACTION OF PATIENT ABOUT THE AMOUNT OF INFORMATION RECEIVED AND PATIENTS – CARE PROVIDER RELATION

Source: Fieldwork 2013

Table 3.1 above depicts that 90% of the respondents were satisfied with the medical care giving to them while 10% of them were not satisfied with the medical care giving to them. Furthermore, on whether the respondent could recommend the hospital to somebody else seeking health care, 78.8% said yes while 21.2% said no. 90.8% said they freely express how they feel to the care giver while 9.2% claimed there was no freedom of expression.

Moreover, on whether the care providers listen carefully to what the respondents have to say 73.3% of them chose always, 25.5% said sometimes while

1.2% said never. On whether the care providers usually spend plenty of time with the patients, 85.1% indicated always; 13.3% was often; 1.2% indicated that it was occasionally while 0.6% said never. To understand whether care provider treats the patients in a very friendly and courteous manner, 78.0% indicated always; 21.6% of the respondents chose often while 0.4% of them beloved that the care provider occasionally treat them in a very friendly and courteous manner.

On whether the doctors who treat the respondents have a genuine interest in them as a person, 87.0% of the respondents said yes while 13.0% said no. From the finding, it be inferred that highest percentage of the respondents were treated by the doctors with a genuine interest as person and as a patient. Also, to know whether the nurses are available when the patients need them, 81.7% of the respondents indicated that the nurses were always available; 16.3% of them said that the nurses were often available while none of the respondents indicated that the nurses were never available. This shows that the nurses really took their time to attend to the patients as the need arose.

Discussion

The findings suggest that interplay of factors is involved in patients' decision-making about use of concomitant treatment for TB. For the individual patient, barriers act against a set of facilitating factors, and the final decision about treatment depends on which factors predominate. Although some of the factors are related to poverty, and are more difficult to tackle, other factors are liable to improvement through intervention. Factors associated with adherence we have identified in this study have previously been described in the literature on adherence to TB treatment in different contexts. These include side effects, rigidity of DOT, social support and interaction with health personnel (Blumer, Herbert, 2009). Other factors appear to be more specific for patients who use concomitant treatment for TB, such as beliefs about concomitant illness and the experience of stigma. Our focus in this study was adherence to TB treatment in co-infected patients on concomitant treatment for TB. Adherence to treatment of one illness was found to affect adherence to the treatment of the other illness: among the defaulters, one patient was found who gave

up TB treatment and continued ART after weighing in benefits and costs associated with disease severity; and other patients had decided to discontinue both treatments.

Adherence counseling and information

Pill burden and side effects were major challenges to concomitant treatment. The adverse impacts of pill burden on adherence to treatment have previously been documented (Garner P, Smith H, Munro S, Volmink, 2007) and so have those of both perceived and experienced side effects [11,18,34-38]. The situation is further aggravated if health professionals do not warn patients about side-effects. Our findings suggest that adherence counseling might facilitate adherence. TB clinics should work in collaboration to provide patients with uniform and complete information. Patients should be well informed about co-infection and concomitant treatment. Side effects, pill burden and timing of ART in the course of TB treatment should be thoroughly addressed. Beliefs related to amount and quality of food that needs to be consumed should be addressed. The importance of social support for adherence to treatment should also be discussed with patients.

Conclusion and Recommendations

Health professionals and policy makers should be aware of factors influencing TB treatment in TB infected patients on concomitant treatment for TB. Our findings suggest that provision of food and minimal financial support might facilitate adherence. Counseling might also facilitate adherence, in particular for those who start ART in the early phases of TB treatment, and beliefs related to side-effects and pill burden should be addressed.

Information to the public may reduce TB related stigma. Conducting intervention studies addressing these different dimensions and documenting the impacts on adherence is recommended.

References

Andy B. (2000): Marketing Social Change: Changing Behavior to Promote Health, Social Development, and the Environment. San Francisco: Jossey-Bass Publishers.

Agarwal R, Malhotra P, Awasthi A, Kakkar N, Gupta D (2005). "Tuberculous dilated cardiomyopathy: an under-recognized entity?"*American Journal of Health-System Pharmacy vol. 64 no. 5 497-505*

Becker, Eraker, Kirscht,.(1984): The Health Belief Model and Personal Health Behavior. Health Education Monographs. Vol. 2 No. 4.

Blumer, Herbert. (2009). *Symbolic Interactionism: Perspective and Method.* Englewood Cliffs, NJ: Prentice-Hall. Building on and enhancing DOTS to meet the TB-related Millennium Development Goals Geneva

Centers for Disease Control and Prevention (CDC) (2006). "Emergence of Mycobacterium tuberculosis with extensive resistance to second-line drugs—worldwide, 2000–2004"

Cline R., American Public Health Association (APHA) Health Communication Working Group 2003. http://www.healthcommunication.net/APHA/APHA.html. Retrieved on January 2010.

Conner, M. & Norman, P. (1996). *Predicting Health Behavior. Search and Practice with Social Cognition Models.* Open University Press: Ballmore: Buckingham.

Conrad P. The meaning of medication: another look at compliance. Soc Sci Med. (1985) ;20:29–37. doi: 10.1016/0277-9536(85)90308-9. [PubMed] [Cross Ref

David H. Thom, Mark A. Hall and L. Gregory Pawlson *Health Affairs*, 23, no.4 (2004):124-132 Measuring Patients' Trust In Physicians When Assessing Quality Of Care

Fry RS, Khoshnood K, Vdovichenko E, Granskaya J, Sazhin Shpakovskaya L, et al. Barriers to completion of tuberculosis treatment among prisoners in St. Petersburg, Russia. Int J Tuberc Lung Dis. 2005;9:1027–33.

Garner P, Smith H, Munro S, Volmink J: Promoting adherence to tuberculosis treatment. Bull World Health Organ. 2007

Glanz, K., Rimer, B.K. & Lewis, F.M. (2002). *Health Behavior and Health Education. Theory, Research and Practice.* San Fransisco: Wiley & Sons. Academy Press

Graeff, J. A.; Elder, J. P.; and Booth, E. M. (1993): Communication for Health and Behavior Change. San Francisco: Jossey-Bass Publishers.

Griffin, E. (1997). A First Look at Communication Theory. New York: The McGraw-Hill Companies

Hornik, R., ed. (2001). *Public Health Communication: Evidence for Behavior Change.* Mahwah, NJ: Lawrence Erlbaum Associates

Kumar V, Abbas AK, Fausto N, Mitchell RN (2007). Robbins Basic Pathology (8th ed.). Saunders Elsevier. pp. 516–522

Ley P. Satisfaction, compliance and communication. Br J Clin Psychol. 1982;21(Pt 4):241–54.]

Ley P, Llewellyn S, Broome A, Llewellyn S. , editors. Healthy psychology: Processes and Applications. 2. London: Chapman and Hall; 1995. Improving patients' understanding, recall, satisfaction and compliance; pp. 75–98.

Maibach, E., and Holtgrave, D. (1995) "Advances in Public Health Communication." *Annual Review of Public Health* 16:219–238.

Maibach, E., and Parrott, R. L., eds. (1995). *Designing Health Messages: Approaches from Communication Theory and Public Health Practice.* Thousand Oaks, CA: Sage.

National Research Council (1989). *Improving Risk Communication.* Washington, DC: National Pascoe GC. Patient satisfaction in primary health care: a literature review and analysis. Eval Program Plann. 1983;6(3-4):185–210. doi: 10.1016/0149-7189(83)90002-2.

Peyrot M, Rubin RR. Validation and reliability of an instrument for assessing health-related quality of life and treatment preferences2005

Schiavo, R. Health Communication: From Theory to Practice. San Francisco: Jossey-Bass, 2007.

Stop TB Partnership (4 December 2002). "London tuberculosis rates now at Third World proportions"

Talcott Parsons, *Social Systems and The Evolution of Action Theory* New York: The Free Press, 1975.

Tekle B, Mariam DH, Ali A. Defaulting from DOTS and its determinants in three districts of Arsi zone in Ethiopia. Int J Tuberc Lung Dis. 2002;6:573–9.]

Torun T, Gungor O, Ozmen I, Bolukbasi Y, Maden E, Bicakci B, et al. Side effects associated with the treatment of multi-drug resistant tuberculosis. Int J Tuberc Lung Dis. 2005;9:1373–7.]

Tuberculosis control and research strategies for the 1990s: memorandum from a WHO meeting. Bull World Health Organ. 1992;70(1):17–21.

Tuberculosis control and research strategies for the 1990s: memorandum from a WHO meeting

Bull World Health Organ 1992, 70(1):17-21.

WHO Report 2009. WHO/HTM/TB/2009.411 Geneva, WHO; 2009. World Health Organization Global tuberculosis control: epidemiology, strategy, financing.

World Health Organization. November 2010. "Tuberculosis Fact sheet N°104".

World Health Organization: sixteenth global report on tuberculosis". 2011

World Health Organization (2009). "The Stop TB Strategy, case reports, treatment outcomes and estimates of TB burden". Global tuberculosis control: epidemiology, strategy, financing