EFFECTIVENESS OF AN INSTRUCTIONAL VIDEO FOR DIAGNOSTIC SPUTUM PRODUCTION AND TUBERCULOSIS CASE DETECTION IN MWANANYAMALA AND TEMEKE HOSPITALS IN DAR ES SALAAM TANZANIA.

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Master of Public Health Dissertation
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By

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A dissertation submitted in (Partial) Fulfillment of the Requirements for the Degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends the acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled;**Effectiveness of an Instructional Video for Sputum Production and TB case detectionin Mwananyamala and Temeke Hospitals in Dar Es Salaam, Tanzania**inpartial fulfillment of the requirements for the degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences.

_____

Prof.Japhet Killewo

(Supervisor)

_____

Date

DECLARATION

AND

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I, **Grace SerafinMhalu**, declare that this **dissertation** is my original work and that it has not been presented and will not be presented to any University for similar or any other degree award.

Signature...…… **Date**……..

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DEDICATION

This work is dedicated to my beloved parents (Seraphim and Fillister) and beloved twin sister Glory for their tireless efforts and encouragement to makeme reach where I am today.

ABSTRACT

Introduction

Tuberculosis (TB) is second only to HIV as an infectious cause to adult death. The disease remains to be a major global health problem whichin 2012 it is estimated that 8.6 million people developed TB and 1.3 million people died from TB worldwide. Sputum smear microscopy remains to be a cornerstone of diagnostic algorithm for TB diagnosis in low-income settings like Tanzania. For diagnosis, presumptive TB cases with coughing for more than two weeks are asked to produce sputum spontaneously from the lungs. However, some cases are missed or given wrong treatmentdue to patients often giving only saliva from the mouth, which reduces the sensitivity of sputum smears.

Methods

An interventional study was conducted in Mwanayamala and Temeke hospitals in Dar es Salaam to assess the effectiveness of the video instruction on sputum production and submission for TB case detection. A total of 200 presumptive TB cases were recruited and divided into intervention and control groups. Intervention group received instructions on how to produce sputum by the use of the video prior to sputum collection and control group was instructed to follow routine standard care for sputum production without the use of the video.

Results

A significant difference was observed on TB case detection among intervention and control groups. TB detection was more on intervention group by (56%) more than control group which was 23% ($p<0.05$). Quality of sputum was observed to be significantly difference between the intervention and the control groups (p-value; 0.01).

Conclusion

Instructional provision for sputum production to TB patients hasbeen seen to yield positive results to production of good quality sputum for detection of TB as well as increasing the rate of acid fast bacillidetection among presumptive TB cases when video tools are incorporated into the instructions.

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ABBREVIATIONS

AFB	Acid fast bacilli
ART	Anti -retroviral Therapy
AIDS	Acquired Immune Deficiency Syndrome
DMO	District Medical Officer
DTLC	District Tuberculosis and Leprosy Center
DOT	Direct observed treatment.
HIV	Human Immunodeficiency Virus
MUHAS	Muhimbili University of Health and Allied Sciences
MoHSW	Ministry of Health and Social Welfare
MDG	Millennium Development Goals
ml-	millimeter.
MDR-TB	Multi Drug Resistant Tuberculosis
NTM	Non-tuberculous mycobacteria
NTLP	National Tuberculosis and Leprosy Program
OPD	Out patient Department
PC	Personal computer
RTC	Randomized Control Trial
SPSS	Statistical Package for Social Scientists
TB	Tuberculosis
VVU	Virusi vya Ukimwi
WHO	World Health Organization

DEFINITION OF TERMS

AFB smear microscopy -This is defined as microscopic examination of specially stained smear to detect acid-fast organisms such as mycobacterium tuberculosis and non-tuberculous mycobacteria (NTM)

Afro fast Bacilli - organisms including mycobacteria that resist decolonization with acid alcohol due to the lipid-rich mycolic acids in cell walls thereby retaining the primary stain.

Sputum Smear is defined as a small amount of primary patient sputum specimen (direct or processed) that is placed on the slide for the purpose of microscopic examination.

AFB 1+ - The abbreviation representing the number of observed bacilli ranging from 10-99 in100 fields.

AFB 2+ - The abbreviation representing the number of observed bacilliranging from1 t0 10 per field check, check 50 fields.

AFB 3+ - The abbreviation representing the number of observed bacilli being more than 20 per field check

Scanty – Insufficient bacilli observed less than 10 in 100 fields,

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Tuberculosis (TB) is second only to HIV as an infectious cause to adult death. The disease remains to be a major global health problem where it is estimated that 8.6 million people developed TB in 2012 and I.3 million people died in the world including 320,000 deaths among HIV/AIDS patients.(1) The burden of the disease continues to be very high globally, despite having an effective treatment.

Although notifications of TB cases have stabilized in recent years whereby in 2012 it was estimated to be 66% globally, but there is still a gap which can be explained by underreporting of diagnosed TB cases and under-diagnosis due to poor access to health care and failure to detect cases when people visits health care facilities specifically in under developed countries.(1)

Furthermore, 95% of TB deaths occur in middle and low in-come countries and it is among the top three causes of death for women aged 15 to 44. This is largely influenced by poor screening and diagnostic tools which cannot detect numerous cases of less infectious forms of TB in these countries.(2)

It is estimated that about one third of the world population has latent TB. This implies that people have been infected by TB bacteria but are not (yet) ill with disease and cannot transmit it.(2)

Multi drug resistant Tuberculosis(MDR-TB) is nearly present in all countries and it is estimated that globally 3.6 million people newly diagnosed as TB cases and 20% of those previously treated for TB had MDR-TB with highest level in Eastern Europe and Central Asia.(1,2)

Africa accounts for 27% of all deaths and cases. It is not among the regions on track to achieve the stop TB strategy that was linked to MDG number six that targets at 50% reduction on prevalence and mortality(3). This is largely influenced by several constraints in Africa but clearly the HIV epidemic has the biggest impact in this region where also the prevalence of HIV is as high as 4.6%. (1)

Although more men are diagnosed with TB in Africa, but more women die each year whereby it is estimated that 69% of deaths occur among women in the region which makes it to be among regions with high women mortality together with South-East Asia.(1)

Tanzania is among the 22 countries with highest burden of TB in the world. Prevalence of TB remains to be 295 per 100,000 adult populations where it is high in mainland and in rural compared to urban.(1)

In Tanzania, the burden of TB is monitored through routine systems and there is no data available which shows the prevalence and incidence of the disease. (4)

Furthermore, case detection rate of infectious TB cases was reported to be below 50% denoting a gross under detection.(4) Possible explanations are inefficient screening strategies and sub-optimal diagnostic procedures.

The provision of sputum for TB diagnosis in the country has been marked to be less in urban areas than in rural areas. This has been shown through a survey done by the MoSWH whereby among 3946 people who participated in the survey in rural areas, 3054 which accounts for 77% were able to produce the three sputum specimens required. In urban areas, among 789 participants, only 500 were able to produce sputum, which accounts for only 60%. The main reasons for this was inability of the participants to produce either one of the specimen required for diagnosis.(4)

The proportion of TB cases co-infected patients with HIV has been reported to be high in the African region where by overall 37% of TB cases were estimated to be co-infected with HIV. This accounted for 75% of TB cases among people living with HIV worldwide(1).

1.2 Problem statement

Despite recent advances in molecular methods to diagnose TB, sputum smear microscopy remains to be a cornerstone of diagnostic algorithm and a pillar of global strategy to control the disease in low-income settings like Tanzania.(5) This is the least expensive method and generally available. However, this diagnostic tool, is far from perfect, as it has low sensitivity and specificity for TB detection,(6) and it is more significantly less sensitive and specific among HIV infected TB suspects.

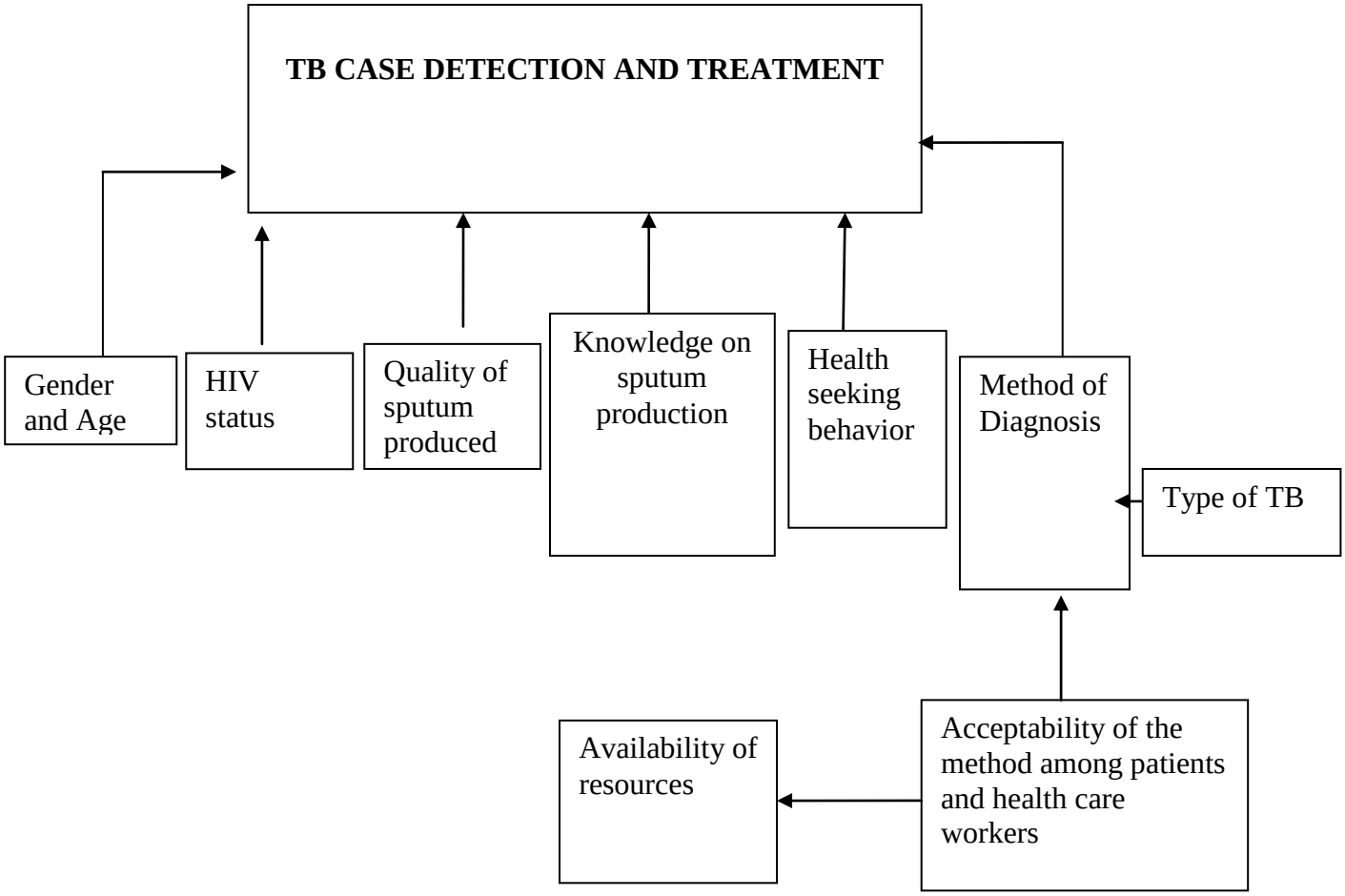
For diagnosis, presumptive TB cases with coughing for more than two weeks are asked to produce sputum spontaneously from their lungs. However, It is suggested that some cases are missed or given wrong treatment due to their failure to produce proper sputum by giving only saliva from the mouth, which reduces the sensitivity of sputum smears(7).

Furthermore, the case detection rate of infectious TB cases was reported to be below 50% in Tanzania denoting a gross underdetection(4).Possible explanations for this under detection are inefficient screening strategies and sub-optimal diagnostic procedures.

Poor TB detection leads to worsening of the disease to an individual and an increase in transmission from one person to another(8). In Tanzania, there isno published information on the quality of smear microscopy, which makes it harder also for the production of diagnostic sputum(9).Hence there is a need for high quality sputum for better diagnosis of the disease.

Therefore, this study aims at assessing the effectiveness of the instructional video for diagnostic sputum production and Tuberculosis case detection among presumptive TB cases.

1.3 Conceptual Framework



Explanatory note for the conceptual framework:

TB case detection and treatment is dependent on factors such as; gender and age, HIV status of the patient, quality of sputum produced for detection, knowledge of the patient on sputum production for TB diagnosis, health seeking behavior of the patient to either go to the healthcare facility to seek treatment or not as well as methods of diagnosis. Methods of diagnosis are also dependent on type of TB, acceptability of the method of diagnosis among patients and health care workers and availability of resources to the patient as well to the health care facility that the patient is seeking to attend.

1.4 Rationale

Working with video tools can help in advances of communications for disease control. The video could have a huge effect by improving the quality of specimen submitted for diagnosis by smear microscopy as well as other molecular techniques which are emerging as gold standards in TB diagnosis and help to increase knowledge on TB. Importantly, this will result into better control of the disease in the community since early diagnosis results into early treatment and lowers community transmission.

1.5 Research Question

1. How effective is an instructional video for the production of high quality sputum and TB case detection compared to routine Instructions provided by health care providers to presumptive TB cases?

1.6 Hypothesis

Use of instructional video does not affect the quality of sputum produced and therefore does not increase the rate of TB detection.

1.7 Objectives

1.7.1 Broad objectives

To assess the effectiveness of an instructional video for production of diagnostic sputum that can improve TB case detection.

1.7.2 Specific objectives

1. To assess the effectiveness of the instructional video in TB detection among presumptive TB cases.
2. To assess the quality of sputum produced by the intervention and control group.

CHAPTER TWO

2.0 LITERATURE REVIEW

Giving instructions on successful production of diagnostic sputum has been marked to have a greater impact in increasing the sensitivity and smear positivity. A randomized controlled trial done in Rawalpindi Pakistan to assess the effects of sputum submission instruction on female**s** revealed that instructed women were more likely to test smear positive for TB than the control group. Women in the intervention group were more likely to return with second specimen than those in the control group, which increases the rate of diagnosis(10).

Another study conducted in Klaten district Indonesia, on factors associated with insufficient sputum submission for TB diagnosis showed that patients who were instructed by health care workers on how to produce quality sputum were more likely to have positive smear results than those who did not receive instructions on how to produce sputum. The instructed patients revealed to have more knowledge on what quality sputum is than those who were not instructed(7).

In urban Indonesia, a randomized controlled trial showed that patients with similar characteristics in terms of sex, age, duration of disease, symptoms and chest x-rays, revealed different results and improved microscopic diagnosis between those who were instructed on sputum production than those who were not instructed on sputum production(11).

Using Media such as mobile phones and television has been marked to improve TB case detection and adherence to treatment. A study done in Karachi Pakistan to improve TB case detection by the use of mobile phones and television campaigns revealed increase in TB case detection and smear positivity among presumptive TB cases who participated in the study(12).

Evidence shows that gender roles, which are distinct from biological differences, affects vulnerability and diseases. They affect the health seeking behavior, health care and adherence to treatment(13). In Malawi, a study revealed that women were less in number on sputum submission compared to men and many men tested smear positive than women.

The study suggested that there is a need for examining these differences in the epidemiology of TB(14).

A study done in Osaka Japan to assess whether intervention with instruction for expectorating sputum was useful to obtain more suitable sputum for smear examination showed that smear positive rate was higher among the instructed group than the control group. The study revealed that AFB positivity was higher in the intervention group than in the control group(15).

More often, presumptive TB cases produce saliva instead of sputum for TB diagnosis. This has been suggested by a study done in Nicaragua, which reported that out of 627 samples that the patients produced 46.1% were salivary, and 39.5% were less than 5 ml. These results were mainly contributed by poor quality of sputum produced for AFB detection(16).

Providing simple instructions on sputum production have proven to yield significant results not only on the increasing rate of AFB positivity but also on the volume, color and viscosity of the specimen produced(10)(15).

Volume and appearance of sputum have been shownto have an association with smear positivity in women. However in men, volume of specimen does not directly associate with smear positive results. In Republic of Korea, a study that aimed at elucidating the impact of gross appearance and volume on smear positivity was conducted. Findings from this study revealed that the more viscous and the higher the volume of the specimen, the higher the AFB positivity(17).

Good quality sputum has been defined as one, which is either mucoid, purulent, or blood stained. This is one among the criteria, which can help to improve TB diagnosis. Poor quality sputum specimens are usually thin, watery and contain bubbles. These kind of sputum specimens are said to be not very useful for TB diagnosis and does not yield expected results(18).

Recommended sufficient volume for sputum microscopy is based on the time of the production of the specimen. For morning sputum, 3 to 5ml are recommended.

For spot sputum, volume of less than 3ml is accepted, as it is sometimes likely to yield positive results. However, health care providers should encourage the patient to expectorate sufficient sputum of 5ml for better AFB detection and diagnosis(17)(19).

Instruction and education provision on production of quality sputum does not only have effect to the patients but also to the health care providers. If well trained on sputum production and submission, health care providers contribute more on Increase of TB case detection. Astudy done in South Africa in primary care clinics found out that patients attended by health care providers who received education on sputum instruction and submission and deliver the education to the patients, there was an increase in AFB detection to those patients than those who were treated with health care providers who did not receive education on sputum production and submission(20).

Socio-demographics and geographical location has also been seen to be among Indicators for TB case detection and notification. A study done in Hong Kong to determine socio-demographic indicators for TB notification revealed that low education attainment, poverty, old age had significant association on TB indicator and notification (21).

CHAPTER THREE

3.0 METHODOLOGY

3.1Instructional video

This is a video which was developed by researchers in Pakistan (10) and offers simple instructions for sputum production and submission. This four-minute video has been adapted and translated into Swahili to be used in the Tanzanian context.

Instructions offered by the video, explain the steps that a presumptive TB case will follow in order to produce quality sputum for better TB diagnosis. The steps described by the video for sputum production are ordered in a way that the patient will understand and can easily follow.

The video starts by giving a short talk on the importance of coughing in an open air and describes the kind of sputum needed for TB diagnosis. It shows three different types of what constitutes good quality sputum and proceeds with giving the instructions to use in order to produce quality sputum.

Patients are instructed to go out in open air and far from people, inhale deeply two to three times, exhale and then cough as hard as possible so as to get sputum from the lungs. Patient**s** should repeat this procedure until they reach the required volume for TB diagnosis. If the patient cannot produce sputum at the given time, the video explains the steps to follow at home so as to produce sputum. The steps include lying down for some minutes, waking up and then sitting in a steamy environment for fifteen minutes and follow the same procedure and produce sputum. After coughing the patient is then instructed to bring the sputum container to the laboratory on the same day if possible.

The video is freely available at (http://youtube.be/92dT_kbbek)

3.2 Research Area

The study was conducted at Mwanayamala TB clinic and Temeke hospitals in Dar es Salaam, Tanzania. Dar es Salaam is the largest city in Tanzania with a population of 4.3 million with Intercensal growth rate of 5.6 from 2002 census to 2012.

Mwananyamala hospital is among a hospital that receives a lot of TB patients per day. These patients are from Kinondoni and nearby districts. The hospital receives thirty two thousand TB patients per year. The clinic is equipped with two consultation rooms for enrolment and treatment of TB, one room for voluntary counseling and testing for HIV sero-status and a laboratory, which is located 100 meters from the clinic.Direct observed treatment (DOT) is provided to patients and home based DOT is also provided after two weeks of treatment at the hospital.

Temeke hospital is also among hospitals that receive a lot of presumptive TB cases. It receives about forty thousand TB patients per year. The hospital is among the fourteen diagnostic centers for AFB microscopy in the district.It has two TB/HIV officers who are stationed at the hospital. The clinic has two consultation rooms and a laboratory, which is located 50 meters from the clinic. DOT is provided as well as home based approach. Smear positive patients seen at the clinic usually get treatment under health facility DOT for the first two weeks before transferred to home based DOT.

3.3 Study Design

This was an intervention study in which all-presumptive TB cases seen at the study sites were divided into Intervention and control group. The intervention group was instructed on how to produce sputum by the use of the video prior to sputum collection. Control group was instructed to follow routinel standard care of sputum collection without video instructions. Sputum samples were then sent to DTLC for TB diagnosis as per routine guidelines.

3.4 Study Population

The study involved patients who were eighteen years old and above with presumptive TB diagnosis (defined as coughing for more than two weeks, fever, night sweats or weight loss.) recruited at Mwanayamala and Temeke hospitals in Dar es Salaam.

3.5.Inclusion Criteria

Presumptive TB patients with eighteen years and above.

3.6. Exclusion Criteria

Presumptive TB cases that were not able to see and hear well were excluded from the study.

3.7 Sample Size

Sample size was calculated by OpenEpi version 3 under RCT/Cohort studies that follows the formula

$$n = \frac{(P1(1-P_1) + P_2(1-P_2)\, f(\alpha.\beta)}{(P_2 - P_1)^2}$$

Whereas,

P_1 = Estimated outcome in the exposed group assumed based on other studies 0.4

P_2 = Estimated outcome in the unexposed group assumed based on other studies 0.6

The figures for the proportion were obtained from a study done in Indonesia by Alsjahbana et al 2005 on better instructions for sputum sampling to improve microscopic tuberculosis diagnosis.

α= type-1 error (Significance level two sided set at 0.05%)

β = type -2 error set at 0.10

1-β = Power (% chance Power of detecting) 80%

Basing on the given assumptions, sample size when calculated with OpenEpi was

Sample size obtained for exposed group 99

Sample size obtained for unexposed group 99

Hence total sample size approximated 200.

3.8. Sampling Procedure

3.8.1. Pre- randomization

Patients were provided with instructions on sputum production for TB diagnosis prior to randomization in intervention and control group. This was done so the patients could have equal information on sputum production before randomization and ensure effectiveness of the video after randomization.

3.8.2 Routine Instructions provision

Researcher together with research assistants provided routine sputum productions instructions to the patients before randomization process. Patients were instructed to sit or stand in an open space, inhale deeply for two to three times, breathe hard each time and after the last breathe cough as harder as possible from the lungs and collect the specimen in the container. Patients were advised to place sputum container near the mouth so as to avoid spread of bacteria in air while expectorate. If the patient could not produce enough sputum at the given time, was advised to go home and try to cough again following the same procedures and bring the sputum sample the next day.

3.8.3 Randomization

Randomization of study participants so as to make the groups as similar as possible to reduce bias was done. Cards of equal number written A or B were folded and placed in an opaque bag. Patients were instructed to pick a folded card from the bag and see whether he or she is assigned to either group A OR B. Patient picked the card from the bag so as to reduce bias of assigning the patient to one of the groups by health care provider, researcher or research assistants. The process of randomization took place at the OPD section in Temeke hospital and TB clinic in Mwananyamala hospital. After the patient had signed an informed consent form he or she was recruited into the study. Research assistants and the researcher in the study areas supervised the process of randomization.New cards were generated at the beginning of each day.

3.8.4 Post -randomization

After randomization process, patients were directed to different areas. Patients in group A were individually directed to go to a room so as to receive instructions by the video. The researcher received the patient and gave brief explanations concerning the video before the patient was allowed to watch it. The video was embedded in the PC tablets. For better understanding each patient watched the video twice before sputum production. After seeing the video, the patients were given sputum containers and asked to produce sputum.

For group B patients, process of sputum production followed immediately after randomization. These patients remained in the same area and were provided with sputum containers and asked to produce sputum by the research assistants.

Patients who were not able to produce sputum on the same day, were asked to try to produce sputum at home and bring the sample to the health facility on the next day.

3.9 Study Variables

3.9.1 Independent variables

Exposure to the video.

Gender

3.9.2 Dependent variable.

Quality of sputum produced for TB case detection.

3.10 Data collection

3.10.1 Sputum collection

Patients in both groups were given sputum containers which were marked by a sharpie marker. The containers were marked with different color prior being handled to the patient. They were marked so as to differentiate patients in-group A and B. Laboratory technicians who were among research assistants at DTLC in Temeke and Mwanayamala were blinded on which color was used to mark the container for group A and group B in order to minimize bias on the result from the sputum specimen. Furthermore, sputum containers contained patient assigned study number, initials and birth date. After sputum production, patient submitted sputum container to the laboratory staff in the given study area to be processed following normal standard guidelines as stipulated by NTLP.

The investigator or research assistant collected sputum results from TB laboratory personnel after they have been processed and recorded the results of each patient in the computer.

3.10.2 Quality of sputum

Data for the quality of sputum was collected from TB laboratory. Laboratory personnel were asked to answer few questions, on volume and quality of specimen produced for each patient.Three different laboratory personnel assessed the quality of sputum for each patient. This was done by a questionnaire that contained characteristics of quality sputum. The laboratory personnel were asked to grade the quality o sputum as he observed in the

container and fill in the questionnaire.Smear microscopy was done by using Florescence microscopy in Temeke and Mwananyamala respectively.

3.10.3 Patient Information

Data on patient socio-demographic characteristics, TB history and symptoms, were collected through a structured questionnaire which was completed by the patient. For the intervention group, questions on video instructions were asked so as to get a feedback on how they view the video.

3.10.4 Feedback of the Instructional Video

Data on how the instructional video was viewed by those in the intervention group were also collected by using structure questionnaire collected the data. This was done so as to evaluate how the video was viewed among

3.11Grading of sputum smear microscopy

Sputum smear microscopy was graded basing on the grades that are provide by NTLP manual where by the results are based on the number of bacilli seen in the smear. If no AFB seen per 100 immersion fields, this is graded as smear negative results. For 1-9 AFB that will be observed in 100-immersion field, this is reported as positive scanty result.

For 10-99 AFB seen per 100 immersion field, this is reported as positive results 1+ and 1-10 AFB per 1 immersion fields is graded as positive results 2+ and if AFB observed in 1 immersion field are greater than ten, this is then reported as positive 3+(22).

3.12 Pre testing

Pre testing was conducted before actual data collection. It was done in Amana Hospital Dar es Salaam. This was done so as to ensure quality of the video tool and questionnaire used for data collection and what are the limitations that can be faced so as to be addressed prior data collection. On completion of pre testing, data obtained was reviewed and necessary modifications were made on the tool especially the structured questionnaire.

No modifications were done on the video tool as it was accepted and understood and the participants on pre testing recommended to be used as it was.

3.13 Recruitment of research assistants

Seven research assistants were recruited among which six had knowledge and skills on TB and sputum processing for TB detection were recruited. Research assistants were laboratory personnel from Temeke and Mwananyamala hospitals respectively. Laboratory personnel were used as research assistants since they are the one who provided information on quality of sputum produced as well as sputum results for the participants.

3.14 Training of research assistants

Research assistants were trained on sputum production and submission by the use instructional video and by routine procedures that are used before actual data collection. This was done so as to familiarize them with the questionnaire and the video tool that was used for the study.

3.15 Data analysis

Data were cleaned coded and double entered by SPSS software version 17. Descriptive analysis of the variables was done so as to obtain frequency distribution of all variables.

Chi-square test was used to comparebetween diagnosis results obtained from intervention and control group. Chi -squire analysis was used to compare between intervention and control on quality of sputum produced. P value < 0.05 was considered to indicate statistical significance with 95% confidence interval.

3.16 Ethical Consideration

Ethical clearance was sought from MUHAS research and publication committee. Permission for data collection was also asked from DMO office in Temeke and Mwanayamala hospitals respectively. Respondents were informed about the purpose of the study and for those who agreed to participate; written informed consent form prior to be included in the study were signed. Confidentiality of the respondent's information was kept private and guaranteed to the participant. Sputum samples obtained from the participants were disposed according to NTLP laboratory regulations.

Presumptive TB cases that were found positive were sent back to the clinicians and get treatment according to TB treatment guidelines.

CHAPTER FOUR

4.0 RESULTS

This chapter presents results that were obtained from the study. A total number of 200 presumptive TB cases attending TB clinic in Temeke and Mwananyamala hospitals were recruited in the study. Among the respondents, 56 (28%) were recruited from Temeke and 144 (72%) were recruited from Mwananyamala hospital. 100 (50%) of all the respondents were recruited in the control group and the remaining 100 (50%) were recruited in experimental/intervention group.

4.1 Social Demographic Characteristics of the Respondents

Among the 200 respondents, 106 (53%) were males and 94 (47%) were females. The mean age of the presumptive TB cases was 39.1 (SD=13.4). Majority of the respondents reported to be married 98 (49%) followed by those who were single 59 (29.5%). These were followed with those who were separated/divorced 29 (14.5%) and widowed who were less 14 (7%).

Furthermore, most of the presumptive TB cases reported to have primary level of education 121 (60.5%) secondary level of education 56 (28%), college/ university level of education 13 (6.5%) while those with no formal education were less than 10 (5%).

Information on occupation of the presumptive TB cases indicated that 65 (32.5%) were business men/ women, while 12(6%) of the participants were drivers 8(4%) were cobblers, 10(5%) mansions and 30(15%) were doing other jobs which included, teachers, cooks, industrial workers and carpenters. Of the total number of participants 46 (23%) were not employed while farmers were 19 (9.5%), students were 10 (5%) The social- demographic characteristics of the respondents are shown in Table 1.

Table 1: Distribution of presumptive TB cases by social demographic characteristics

Characteristic	All	Intervention	Control
Number of patients, n	**200**		
Age group, years, n (%)			
18-27	39 (19.5)	14(35.9)	25(64.1)
28-37	64 (32)	35(54.7)	29(45.3)
38-47	53(26)	20 (37.7)	33 (62.3)
48-57	20 (10)	12 (60)	8 (40)
58+	24 (12)	15 (62.5)	9 (37.5)
Sex, n (%)			
Male	106(53)	60 (56.6)	46 (43.4)
Female	94 (47)	54 (50.9)	42 (39.6)
Level of education, n (%)			
Primary school	121 (60.5)	70 (57.9)	51 (42.1)
Secondary school	56 (28)	22 (39.3)	34 (60.7)
College	13 (6.5)	4 (30.7)	9 (69.3)
No formal education	10 (5)	7 (70)	3(30)
Occupation, n (%)			
Business	65(32.5)	20 (30.8)	45 (69.2)
Drivers	12 (6)	8(66.7)	4 (33.3)
Cobblers	8 (4)	6 (75)	2 (25)
Farmer	19(9.5)	4 (21.1)	15 (78.9)
Unemployed	46 (23)	35(76.1)	11 (23.9)
Other	30 (15)	9 (30)	21 (70)

4.2 HIV status of the presumptive TB cases

TB case detection can be influenced by HIV status of the patients. In this study, it was observed that in the control group, 9.5% of the participants were HIV infected, 28.5% were negative 9.5% did not do HIV test and 2.5% of those who participates had unknown HIV results. Presumptive TB cases on the Intervention group were observed to have more infected cases than those in control group where 15% were HIV infected, 22% negative, and HIV test was not done on 21% of the participants. The remaining 3.5% had unknown HIV status. In the infected group17.5% of the subjects were on ARV

Table 2. **Distribution of HIV status among Presumptive TB cases**

Groups	**HIV Status (%)**				**Total(%)**
	Infected	**Negative**	**Test not done**	**Unknown**	
Control	9.5	28.5	9.5	2.5	50
Intervention	15	22.5	11.5	1	50
Total	24.5	51	21	3.5	100

4.3 Patients past TB history and known exposure.

In this study, both groups (Intervention and control) had a history of known TB exposure. We observed that, a higher percent (44%) in intervention group had previously been exposed to TB among which 33% had exposure from family members and the remaining 11% from other places such as school and working places. Only 34% of the respondents in control group reported to have been exposed to TB through mainly family members and in working places.

4.4 Effectiveness of the instructional video in TB detection

Chi square analysis indicated that smear positivity rate was significantly higher ($P<0.05$) in intervention (those who watched the instructional video) for both early and late morning sputum specimens than in control group. AFB positivity in intervention group accounted

for 56% of the respondents whereas in the control group only 23% of the presumptive TB cases were AFB positive. AFB negativity was observed to be 44% in the intervention group compared to77% observed in the control group. Linear association was observed between instruction video and AFB detection (R=0.34).This indicates that instructional video had a significant positive effect on TB detection.

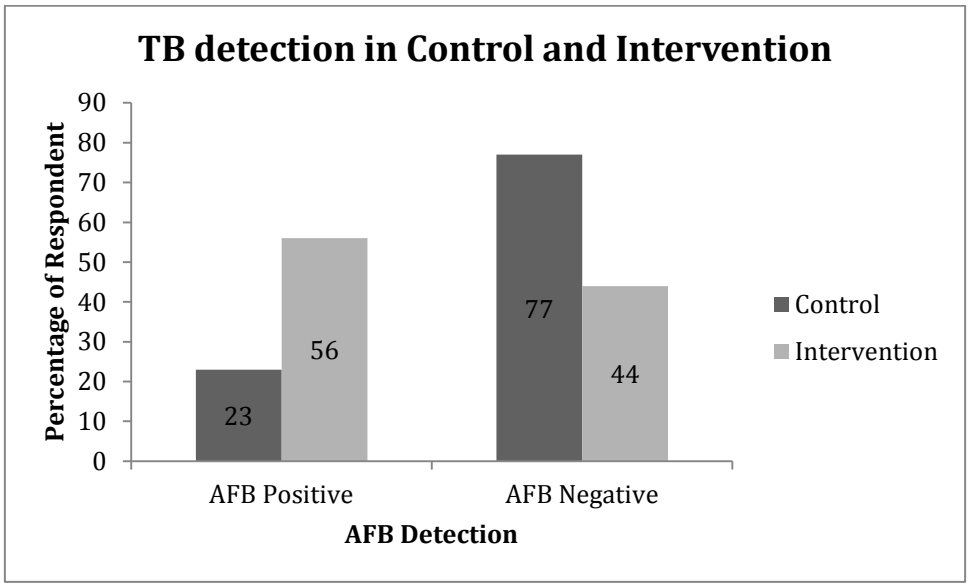


Figure 1: TB case detection

Figure 1: TB case detection in the intervention and control groups. AFB positivity in intervention group accounted for 56% of the respondents whereas in the control group only 23% of the presumptive TB cases were AFB positive. AFB negativity was observed to be 44% in the intervention group compared to77% observed in control group.

4.5 Level of sputum positivity

Level of sputum positivity was observed to be slightly different between the two groups. Although in both groups, AFB positive cases of 3+ category were observed only 13% were reported in the control group while 21% were reported in the intervention group. Subjects with scanty positive results were seen to be more in the intervention group 6% compared to the control group where only 2% were reported.

4.5.1. Quality of sputum

Instructional video on sputum production and submission was assessed to see if it had any influence on the quality of sputum produced .Chi square analysis showed that there was a significance difference between control and the intervention group on the quality of sputum produced (p-value = 0.01).

In the control group 39% of the subjects produced sputum which was more salivary while only 14% of the subjects in the intervention group produced salivary sputum.

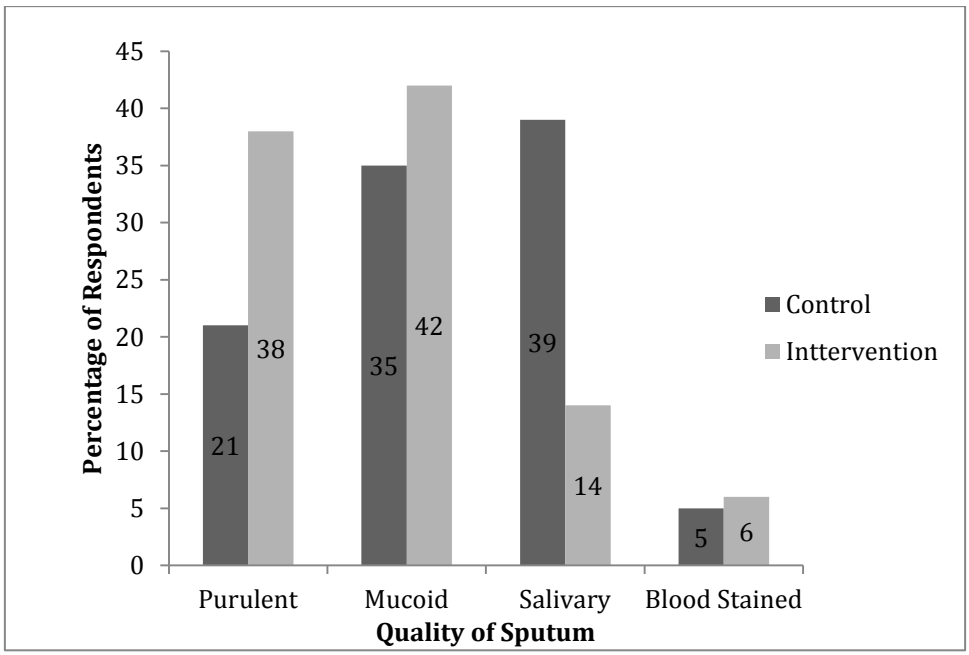


Figure 2: Quality of sputum

Figure 2 shows that majority of subjects in the intervention group produced higher quality of sputum which was either purulent (38%), mucoid (42%) or blood stained (6%) compared to the control group which produced sputum of the following quality: purulent (21%), mucoid (35%) and blood stained (5%).

4.6.2 Volume of sputum

The recommended volume of sputum for effective TB microscopy diagnosis is 5ml. In this study, only 9% of the subjects in the control arm produced the recommended 5ml of sputum whereas in the intervention arm 37% produced the recommended volume. Less that 2ml of sputum was produced by 14% of the subjects in the control group
and only 8% of the subjects from intervention group.

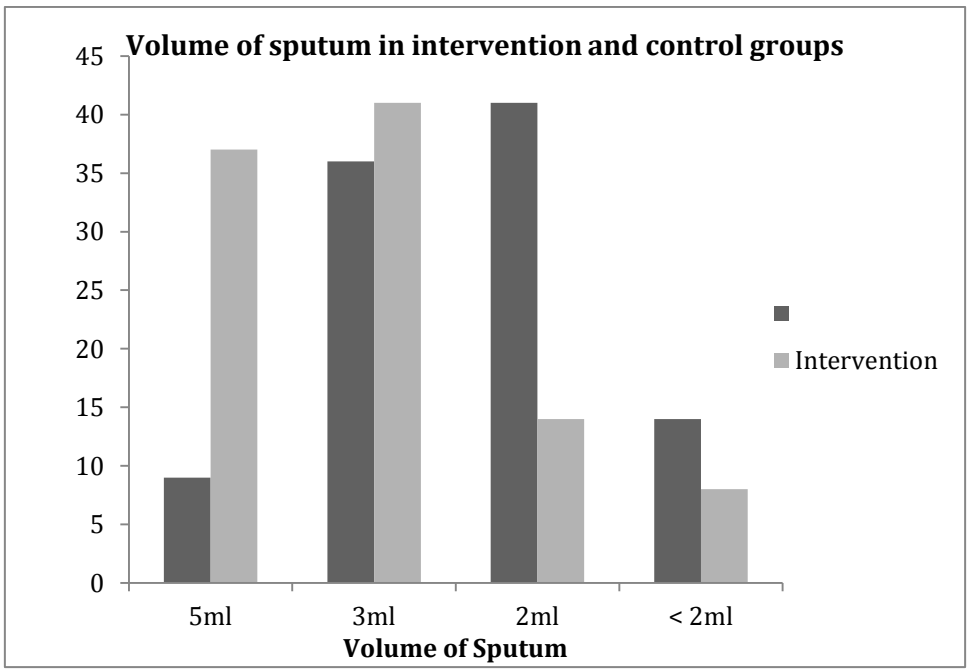


Figure 3:Volume of Sputum

Figure 3: Volume of sputum produce by control and intervention group. Recommended volume of 5ml was produced by 9% in the control group where as 37% of the intervention group produced 5ml sputum specimen.

4.7 Feedback on the video from Intervention group

Participants in the intervention group were asked to give feedback on the instructional video so as to help in understanding if whether the video was appropriate to be used in the local cultural settings or not. When asked on how well they have understood the video instruction, 73(71.6%) of all the respondents in the intervention group reported to have understood the instructions very well. Those who understood the video instructions fairly well accounted for 24(23.5%) of all participant while 3(2.9%) did not understand the video at all and 2 (2%) did not give their feedback.

Majority of the participants reported that the video was appropriate to be used in our cultural settings 91 (89.2%). Only 4 (3.9%) did not recommend the video for local settings and 5 (6.9%) had don't know response. Feedback on whether the knowledge gained through the video will help in producing good quality specimen was also reported whereby 79 (77.5%) said yes, 15(14.7%) said no it will not help and 6 (5.9%) said they don't know.

CHAPTER FIVE

5.0 DISCUSSION

Sputum submission instructions that were provided by the use of the video led to a significant improvement in TB case detection and improvement in the quality ofsputum submitted for TB diagnosis. Results from this study suggests that low case detection in the control group compared to those in the intervention group was a result of intervention group receiving extra instructions by the use of the video.

However, the results of this study should be interpreted with some caution, as this was rather a relatively small study with a small sample size which may be among hindrances to the power of the study and results that were obtained and it included only two TB clinics (Mwananyamala and Temeke) compared to other bigger intervention studies.

Severity of the disease among the presumptive TB cases that were enrolled in the study should also be considered to having an effect on TB detection among the intervention and control groups. Findings of this study should also be interpreted taking into account the fact that observed results are likely to be influenced by severity of disease among the individual subjects.

This is suggested by a study done in Indonesia which observed that patients with severe disease and abnormal chest x-rays tested more positive than those with normal chest x-rays(11). In the current study severity of disease was not investigated.

Furthermore, this study aimed at determining the quality of sputum submitted between the two groups where it was observed that those in intervention group submitted higher quality sputum which was either purulent mucoid or blood stained and few (14%) submitted salivary sputum compared to those in the control group (39%).

However, it should be noted that, experienced laboratory personnel visually assessed quality of sputum that was produced by subjects in this study. Results that were obtained regarding quality of sputum based on individual assessment of the laboratory personnel.

Visual assessment is considered to be effective for classification of sputum specimen but it should also be noted that itsubjective however, in this particular study this fact was ruled out by the use of three different experienced laboratory personnel who did the assessment

and conclusion made on the quality of sputum from two out of the three laboratory personnel whose observations were taken and reported.

A similar study conducted in a Nairobi clinic to evaluate the impact of specimen quality and differences in TB case detection observed that patients who submitted at least one good quality sputum among three that were required, yielded more positive results than those who submitted poor quality specimen(23).

Provision of sputum submission instruction by the video in this study has played an important role in increasing volume of the specimen submitted. Presumptive TB cases that received extra instructions on how to expectorate and were informed on which appropriate volume was good for TB detection, had higher percent (37%) compared to those in control group (9%).

Previous exposure to TB was also observed to have an impact on TB case detection. This study observed that presumptive TB cases that had past history of TB exposure, had more positive results than those who did not have known previous exposure to TB. In both groups (intervention and control) known previous exposure had an effect in case detection whereby 44% of previous exposure was reported in the intervention group while 34% was reported in the control group. Most of the exposure in both groups was from family members, which accounted for 34% of all exposure.

Results obtained from an evaluation study to detect and prevent TB transmission in the United States of America reported that out of 3824 patients who were screened and had known exposure to TB patients before, 62% became TB positive (24). These results suggest that known previous TB exposure may have positive outcome to TB detection as observed in this intervention study.

Although HIV status was not one of the inclusion criteria in this study, it was found to have an influence on TB case detection. Results from this study indicate that the intervention group had more HIV positive patients (30%) and more AFB positivity than the control group (19%). This is also suggested by other studies which proposed that HIV positive patients are more likely to test AFB positive (25) than HIV negative patients with presumptive TB.

Although microscopy sputum has low sensitivity and specificity in TB case detection, it has been proposed that there is a correlation between quality of sputum submitted for case detection and level of sputum positivity(26).

Similar findings have been observed from this study whereby level of sputum positivity in the intervention group was more than those in the control group. The proportion of presumptive TB cases with 3+ level of sputum positivity was found to be higher (21%) in intervention group than in the control group (13%). These findings imply that giving instructions to patients on sputum production and submission. May have a positive outcome not only in TB case detection but also in level of sputum positivity.

Using appropriate media for disease prevention and control has been proven to have positive outcomes as was observed in a study done in Karachi where they used mobile phones for TB case detection (12). This current study is in line with the findings from that study as it has observed an increase in TB detection among presumptive TB cases that were enrolled, a situation which will facilitate early diagnosis and treatment.

Findings from this study on the appropriateness of the instructional video to be used in the Tanzanian cultural setting and how well it was understood revealed that the video was appropriate since 71.6% reported to have understood the video instructions very well while (89.2% reported the video to be appropriate for giving instructions for sputum production and submission in local cultural settings.

Results on feedback given by the respondents in intervention group on how well they understood the video did not base on age of the subject or literacy level of the respondent but rather on how the patient viewed the instructional video.

From these findings on the feedback given by the intervention group, it can be concluded that the video may have a significant impact in treatment and adherence behavior to TB cases.

5.1 Study Limitations

This study was conducted under carefully controlled experimental conditions that may not provide evidence to how well the instructional video will be effective under routine conditions which therefore may reduce the effectiveness of the video in TB case detection. Effective training of health care workers on how to use the instructional video will be done after the study so as to see it is effectively used to the patients.

Some of the findings of the study based on self reports from subjects and laboratory personnel may be biased due to subjectivity of the reports.

Lastly, there is a possibility that there could be sharing of information among the presumptive TB cases in the intervention or control groups which could lead to a dilution of the video effects. This is because the controls and intervention groups were seen in the same hospital environment.

In order to control for sharing of the information between the two groups, pre-sumptive TB case were seen consecutively and in different rooms between controls and interventions so as to help in reducing information sharing among them.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Sputum submission instructions by the use of video have been seen to have a positive effect on TB case detection and quality of sputum produced. Volume of sputum produced by the intervention group also increased and most of them were able to reach the recommended volume for TB diagnosis.

Previous TB exposure, HIV Status of the patient and severity of disease are also among factors that have to be considered since they may have an effect on sputum production for diagnosis and TB case detection.

6.2 Recommendations

Since quality results require quality specimen, and accurate microbiology diagnosis of TB begins with proper specimen collection, we recommend the following to be done:

- MOHSW and NTLP should ensure proper training of health care workers who are providing services to TB patients on sputum collection procedures and submission for proper diagnosis and treatment.
- TB patients must be provided with clear instructions for sputum collection and submission.
- Video tools should be used in giving patients instructions on TB detection transmission and prevention as it may help in better understanding among patients with presumptive TB.
- Further studies are needed to further our understanding on sputum production and submission for TB detection mainly focusing on patients especially those with HIV/AIDS.

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APPENDICES

Appendix I:English Questionnaire

QUESTIONNAIRE FOR EFFECTIVENESS OF AN INSTRUCTIONAL VIDEO FOR PRODUCTION OF DIAGNOSTIC SPUTUM FOR TB CASE DETECTION

Date of Interview |___|___| |___|___| |___|___|___|___|

Patient ID|___|___|___|

Initials |___|___|___| Interviewer name …….

Health Facility Name

☐ Temeke Hospital

☐ Mwananyamala Hospital

A. SOCIO-DEMOGRAPHIC CHARACTERISTICS. (Select one)

1. Sex

☐ Male

☐ Female

2. Date of Birth |___|___| |___|___| |___|___|___|___|

3. Current marital Stratus

☐ Married

☐ Single/never married

☐ Divorced/separated

☐ Widowed

4. Patient Location…….

5. Level of Education

☐Accomplished primary school education

☐ Accomplished secondary school education

☐Accomplished college/university

6. Occupation

☐Unemployed

☐Farmer

☐ Carpenter

☐ Industrial Workers (as cement and textile workers)

☐Business man/woman

☐Student

☐Fishermen

☐ Others

B.PATIENT TB HISTORY

1. Was there known exposure to TB before

☐Yes

☐ No

2. If yes who **were** you exposed to.

☐Husband/wife/family member

☐ Co-worker

☐ School

☐ Other

3. Have you ever test**ed** for TB before?

☐Yes

☐ No

4. TB sputum microscopy results before

☐AFB +ve

☐AFB –ve

5. If +ve did you receive any treatment?

☐Yes

☐ No

C. HIV INFORMATION

1. HIV status.

☐ HIV-infected

☐ HIV-negative

☐ Test not done

☐ Unknown

2. If HIV infected, are you currently on ARV?

☐ Yes

☐ No

D.TB SYMPTOMS

1. Have you been coughing recently? Yes/No

If yes, for how long have you been coughing?

Duration |__|__|__| (weeks)

Has the cough been productive? Yes/No

Have you experienced excessive night sweats?

☐ Yes ☐ No

For how long have you been experiencing night sweats?

Duration |__|__|__| (weeks)

Have you lost weight recently?

☐ Yes ☐ No

For how long have you lose weight

Duration |__|__|__| (weeks

Have you experienced fever recently?

☐ Yes ☐ No

For how long have you experienced fever?

Duration |__|__|__| (weeks)

Have you experienced chest pain?

☐ Yes ☐ No

For how long have you experienced chest pain?

Duration |__|__|__| (weeks)

Have you experienced Hemoptysis?

☐ Yes ☐ No

For how long have you experienced chest pain?

Duration |__|__|__| (weeks)

E.TB DIAGNOSTIC INFORMATION TO BE ANSWER BY LABORATORY PERSONNEL.

Date of diagnosis|___|___| |___|___| |___|___|___|___|

Sputum Microscopy results

☐AFB +ve

☐AFB –ve

Level of sputum positivity

☐Scanty

☐1+

☐2+

☐3+

Quality of sputum produced.

☐Salivary

☐ Purulent

☐ Mucoid

Volume of sputum produced

☐5.0ml

☐3.0ml

☐2.0ml

☐Less than 2.0ml

Type of specimen

☐Early morning

☐Late morning

☐Early afternoon

☐Late afternoon

F. POST VIEWING THE VIDEO.

1. How well did you understand the instructions?

☐Very well

☐Fairly well

☐Not so well

2 Do you think the video will help in the production of sputum for TB case detection?

☐Yes it will help

☐No it will not help

☐I don't know if it will help

3. Is the video Instruction appropriate to be used in our cultural setting for giving instructions on how to produce sputum?

☐Yes

☐No

☐I don't know

Appendix II: Swahili Questionnaire

DODOSO LA KUTATHIMINI UBORA WA VIDEO YA MAELEZO YA UKUSANYAJI WA MAKOHOZI YENYE UBORA KWA UGUNDUNZI WA KIFUA KIKUU.

TareheyaMahojiano |___|___| |___|___| |___|___|___|___|

Nambaya mshiriki |___|___|___|

Jina la Mhojaji …….

Kifupi cha Majina |___|___|___|

Jina la Kituo cha Afya

☐TemekeHospitali

☐MwananyamalaHospitali

A.**TAARIFA BINAFSI**

1Jinsia

☐Mme

☐Mke

2. Tarehe ya Kuzaliwa |___|___| |___|___| |___|___|___|___|

3. Hali ya ndoa

☐Sijaoa/ olewa

☐Nimeoa/olewa

☐Mjane/Mgane

4. Mahali anapoishi mshiriki……..

5. Kiwango cha Elimu

☐Sijasoma

☐Elimuyamsingi

☐ElimuyaSekondari

☐Elimu ya chuo kikuu/ Ufundi

6. Kazi

☐Sina Kazi

☐Mkulima

☐Fundi Seremali

☐Mfanyakazi kiwandani(kama kiwanda cha nguo,kiwanda cha sementi)

☐Mfanyabiashara

☐Mwanafunzi

☐Mvuvi

☐Nyingine

B.HISTORIA YA MGONJWA

1. Kukaa kwenye mazingira hatarishi ya Kifua Kikuu

☐Ndio

☐Hapana

2. Kama ndiokutokakwa

☐Mume/mke/familia

☐Mfanyakazi mwenzangu

☐Shule

☐Nyingine

3. Umewahi kupima Kifua Kikuu kipindi cha nyuma?

☐Ndio

☐Hapana

4. Majibu ya Kifua Kikuu kipndi cha nyuma.

☐AFB +ve

☐AFB –ve

5. Kama +ve ulipata matibabu yoyote?

☐Ndio

☐Hapana

C. MAELEZO KUHUSIANA NA UKIMWI

1. Hali ya mgonjwa.

☐Ana VVU

☐Hana VVU

☐Kipimo**hakikufanyika**

☐Haijulikani

2. Kama mgonjwa ameathirika na VVU anatumia ARV?

☐Ndio

☐Hapana

D.DALILI ZA KIFUA KIKUU

1. Je umekuwa ukikohoa hivi karibuni?

☐Ndio ☐Hapana

Kwa muda gani umekuwa ukikohoa?

Muda |__|__|__| (wiki)

2. Je umekuwa ukitoka jasho jingi hivi karibuni?

☐Ndio☐Hapana

Kwa muda gani umekuwa ukikohoa?

Muda |__|__|__| (wiki)

3. Je umepungua uzito?

☐Ndio☐Hapana

Kwa muda gani umepungua uzito?

Muda |__|__|__| (wiki)

4. Je umenapata homa?

☐Ndio ☐Hapana

Kwa muda gani umepata homa?

Muda|__|__|__| (wiki)

5. Je umekuwa ukipata maumivu ya Kifua?

☐Ndio ☐Hapana

Kwa muda gani umekuwa ukipata maumivu ya kifua?

Muda |__|__|__| (wiki)

6.Je umekuwa ukikohoa damu?

☐Ndio ☐Hapana

Kwa muda gani umekuwa ukikohoa damu?

Muda |__|__|__| (wiki)

E.TAARIFA ZA UCHUNGUZI WA KIFUA KIKUU KUJANZWA NA MFANYA KAZI WA MAABARA.

Tarehe ya ugunduzi |___|___| |___|___| |___|___|___|___|

Majibu ya Makohozi

☐Scanty

☐1+

☐2+

☐3+

Kiwango cha makohozi.

☐Mate

☐Kohozi lenye usaha

☐Kohozi linalovutika na lenye kamasi

☐Kohozi lililochanganyika na damu.

Ujazo wa makohozi

☐5.0ml

☐3.0ml

☐2.0ml

☐Kidogo zaidi ya 2ml.

Muda wa utoaji sampuli

☐Asubuhi mapema

☐Asubuhi

☐Mchana mapema

☐Mchana

G.MASWALI BAADA YA KUPATA MAELEKEZO YA UKUSANYAJI WA MAKOHOZI KUTOKA KWENYE VIDEO

1.Je umeelewa maelezo ya video juu ya ukusanyaji wa makohozi?

☐Ndio nimeelewa vizuri sana

☐Ndio nimeelewa kawaida

☐Hapana sikuelewa vizuri

2.Je video hii itasaidia kujua jinsi ya kukusanya makohozi kwa ugunduzi Kifua Kikuu?

☐Ndio itansaidia

☐Hapana haitasaidia

☐Sijui

3.Je video hii inafaa kutumika kufundisha juu ya ukusanyaji wa makohozi?

☐Ndio inafaa

☐Hapana haifai

☐Sijui

Appendix III: Informed Consent English Version

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCIES

Form no…….

I am **GRACE MHALU** a student at Muhimbili University of Health and Allied Sciences (MUHAS), doing a study on Effectiveness of an instructional video for production of diagnostic sputum and TB detection in Temeke district. I have passed through your municipal health department authority leaders and they have granted permission for me to proceed with the study. However, I have met DMO and DTLC in-charge and have allowed me to proceed with my study.

Tuberculosis is still a major cause of mortality among people in our country and in the world. It is one among infectious diseases that is spread by air. This disease is preventable.

The purpose of this study

To determine the effectiveness of an instructional video for production of diagnostic sputum and TB case detection.

Participation

If you accept to participate in the study, you will be asked to either follow simple video instructions for production of diagnostic sputum or follow instructions of sputum production without watching the video and then produce sputum samples, which will be processed by following guidelines for TB diagnosis. Furthermore, you will be asked to answer questions on your TB history and symptoms.

Confidentiality

All issues concerning your participation will be treated confidential; no any unauthorized person will have access to your information. On your request, findings will be available at your Municipal Medical officer.

Risks

No harm or risk will be involved for those who will voluntarily participate in this study

Benefits

Participating in this study will give us an opportunity to understand how much the instructional video has helped in improving sputum production and be in a position to know more about the disease on how to prevent against it, practices that predispose you to infection etc. Secondly, the information obtained can help authorities to plan for better intervention against this disease in your community in future.

Contact

Please if you have any enquires, doubt or claim do not hesitate to contact me by sending a letter using the following address: **GRACE MHALU. P.O. BOX 65015 Dar es Salaam**. Moreover, if you have a serious question about your rights as a participant you may contact **Prof. Mainen J. Moshi,** Chairman of the Senate Research and Publications Committee**, P.O. BOX 65001, Dar es Salaam. Tel 2150302-6, 2152489.**

Agreement part

I therefore request you to participate in the study; participation in this study will involve asking some questions, sputum production and you will be required to respond according to what you know on the given options.

DO YOU AGREE? YES: …… NO: …… (Tick for appropriate response)

If you agree, sign it below

Participant sign …….. Date ……..

Data collector sign ……. Date ……..

Appendix IV: Informed Consent Swahili Version

CHUO KIKUU CHA SAYANSI YA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI

Fomu ya Makubaliano

Namba ya utambulisho……

Habari! Mimi naitwa **GRACE MHALU** ni mwanafunzi katika Chuo Kikuu cha **Afya** na Sayansi Shirikishi Muhimbili nikifanya utafiti kuhusu ubora wa video ya maelezo juu ya ukusanyaji wa makohozi kwa ugunduzi wa Kifua Kikuu.

Ugonjwa wa Kifua Kikuu unasababisha vifo vingi katika nchi yetu na duniani kwa ujumla.Ugonjwa huu unasambazwa kwa njia ya hewa kutoka kwa mtu mmoja kwenda kwa mtu mwingine.Ugonjwa huu unatibika.

Madhumuni

Nipo hapa kufanya utafiti juu ya ukusanyaji wa sampuli za makohozi kwa ajili ya ugunduzi wa Kifua Kiuu.Nimetoa taarifa za kuwepo kwangu kwa viongozi wa hospitali na kitengo cha KifuaKikuu, wameniruhusu kuendelea na utafiti wangu

Ushiriki

Ushiriki katika utafiti huu ni hiyari kabisa. Endapo hutokubali hakuna hatua yoyote inayoweza kuchukuliwa dhidi yako na mtu yeyote Yule na kwa namna yoyote ile. Utakachotakiwa kufanya nikutazama video ya maelezo juu ya ukusanyaji wa makohozi na kisha kutoa sampuli za makohozi kwa ajili ya ugunduzi wa Kifua Kikuu au kukusanya sampuli za makohozi bila kutazama video.Sampuli zote zitapelekwa maabara ili kuchunguzwa kama zina vijidudu vya KifuaKikuu.Pia,utaulizwa maswali na mtafiti kuhusu dalili ulizonazo za Kifua Kikuu na utajibu kulingana na unavyoelewa.

Usiri

Taarifa zote za mshiriki ni siri, na hakuna mtu yeyote asiyehusika atakayeruhusiwa kuziona wala kuziangalia. Aidha, matokeo ya utafiti huu yatafikishwa katika ofisi ya mganga mkuu wa manispaa na zitapatikana pale zitakapohitajika.

Hatarishi

Zoezi hili halina madhara yoyote yale kwa mshirikina kwa mtu mwingine yeyote.

Faida

Kuwezakujuauborawa video yamaelezojuuyaukusanyajiwamakohozikwaajiliyaugunduziwaKifuaKikuunavihatarishivin avyohusiananaugonjwahuukatikawilaya hii na hatimayekuishauriserikalinamnayakuwezakuwekamipangoya kukabilina natatizohili.

Mawasiliano.

Kwa yeyote mwenye kutaka kujua zaidi, anaweza kuwasiliana nami kwa anuwani ifuatayo;**GRACE MHALU MUHAS, S.L.P. 65015 Dar es Salaam.** Au unaweza kufanya mawasiliano na **Prof Mainen J. Moshi**, Mwenyekiti wa Kamati ya chuo ya utafiti na uchapishaji, **S.L.P. 65001, Dar es Salaam.Simu2150302-6, 2152489.**

Kipengele cha makubaliano

Baada ya maelezo hapo juu, nakuomba sasa ushiriki katika utafiti huu.

UNAKUBALI? **Ndiyo: …… Hapana: ……** (weka tiki panapostahili)

Kama jibu ni ndiyo, weka sahihi hapochini:

Sahihiyamshiriki: ……. .Tarehe…….

Sahihiyamtafiti……Tarehe.....