

Pre-phase data collection tools:

Supply 1: Structure questionnaire with validated world health organization step-wise non-communicable disease and risk factors screening procedure tool.

Questionnaire:

The aim of this study is to assess Integrating non-communicable disease comorbidity and risk factors with newly enrolled tuberculosis patients care in Hadiya zone health facilities, which provides evidence for policy development and provide information for tuberculosis patients, even for the community on early screening and integrate management.

Study participant selection

After district health facilities selection from the Zone randomly, we included all of the newly enrolled TB patients in the TB care program until final sample size adequacy and the study participants were enrolled by consecutively for three months.

Part I: Participant Information Sheet

Introduction

Dear Participants, this PhD thesis questionnaire was developed by Mengistu Handiso for collecting information on the behalf of Wolaita University College of Medicine and Health Sciences public health department. It was translated into the local language/Amharic, and being a participant there is no incentive or unnecessary harm and you can stop at any time while you not comfortable. However, your information is crucial for this study to provide evidence for policy and the country at large.

Benefits and risks:

It is also very important for you in order to screen NCDs and risk factors specifically your blood pressure and glucose for further treatment links and it will provide information on risk prevention and control strategy. However, the study will take time for you and may have a little discomfort while measuring B/P, height, Wiest Circumference and MUAC and blood sample taking but does not have any risk. There might be also some words that might be confusing so please ask me as we go through the information and I will take to explain.

Confidentiality and right of participant: All the responses given by you and results obtained will be kept confidential using a coding system whereby no one will have access to your response. Without permission from you, any part of this study will not be disclosed to a third person. You are not expected to give your name and your participation in this research is voluntary. You have full right to refuse to if you don't want to answer the question and discontinuous from participation at any time if you don't wish to continue. However, you may be asked and assessed continuously while you are following the treatment by the researcher's assistance. There will not be any negative consequences because of participating and not participating in the study. However, your participation in this study is very important for the achievement of the study. I hope you will participate in the study for the sake the benefit of the research result.

Part II: - Informed Consent

I have read this form or it has been read to me in the language I understand and I had the opportunity to ask questions and it has been answered satisfactorily. I understand that I can discontinue the interview without any problem. Therefore

1. I agree to participate 2. I refuse to participate

If the participant agrees to participate skip to the next page.

If no, skip to the next participant by writing the reasons for refusal _____

Data collector

Name:- _____ Signature: - _____ Date:- _____

Checked by Supervisor

Name:- _____ Signature:- _____ Date:- _____

Background of questionnaire

These data collection tools had four parts include sociodemographic characteristics part, knowledge and perception towards NCDs part, patients clinical review part and validated tool of WHO stepwise screening procedure.

For qualitative method in-depth interview guidelines and observation checklists were used. In quantitative component there are skipping questions and open ended question. So be careful and put the answer in space provided by × Mark

I. Sociodemographic characteristics

Sr.n	Variable	Category
COD.A	Age in year	
COD.B	sex	(0) male (1) female
COD.C	Education	(0) not read and/or not write (1) primary (2) secondary (3) college and above
COD.D	Occupation	(0) Government (1) Non-government employee (2) Self-employed (3) farmer (4) housewife (5) Student (6) other (Specify)-----
COD.E	Ethnicity	(0) Amhara (1) Oromo (2) Hadiya (4) kambata (5) other (Specify)-----
COD.F	Religion	(0) Orthodox (1) Muslim (2) Protestant (3) Other (Specify)-----
COD.G	Household income per month in USD	
COD.H	Area /resident	(0) Urban (1) semi- urban (2) rural
COD.I	Availability of shelter	(0) no (1) yes
COD.J	Availability of fuel or electricity	(0) no (1) yes
COD.K	Availability of pipe water/clean water	(0) no (1) yes
COD.L	Family size	
COD.M	Marital status	(0) single (1) married (2) divorced (3) widowed (4) Cohabited
II .Knowledge of NCD and risk factors among TB patients		
COD1.	Do you know the common comorbid NCD with of Tb	0)No (1) Yes

COD2.	If yes , which of them are	1. HPN (0) No (1) yes 2. Heart disease (0) No (1) yes 3. DM (0) No (1) yes 4. COPD (0) No (1) yes 5. Cancer (0) no (1) yes
COD3.	Do you know Risk factors of NCD?	0)No (1) Yes
COD4	If yes, what are	1. Smoking (0) No (1) yes 2. Alcohol (0) No (1) yes 3. Obesity (N)o (1) yes 4. Poor Physical exercise(No) (1) yes 5. Poor diet (0)No (1) yes 6. Family history (No) (1) yes
COD5.	Do you know NCDs are comorbid with TB	(0) No (1) yes
COD6	Have you ever been screened/dx for NCD	(0)No (1) yes)
COD7	Have you ever heard that ncd risk factors comorbid with TB	0)No (1) yes
COD8	Can we control NCDs disease ?	(0)No (1) yes
COD9	From where/who heard about NCDs	0 health professionals (1) friends (2) family /relatives (3) social medias (4) others
COD10	Do you know treatment side effect?	0)No (1) yes
COD11	From which methods can we control NCDs ?	1. Don't Smoke (0) No (1) yes 2. Don't alcohol use (0) No (1) yes 3. Controlling Obesity (N)o (1) yes 4. Physical exercise(No) (1) yes 5. Diet (0)No (1) yes 6. Family history (No) (1) yes
COD12	Is there any treatment for NCD	(0 No (1) Yes

III. Patient clinical information/medical review format		
SR.N	Variable	Category
COD1	Types of TB	0)PTB 1)EPTB
COD2	Health seeking time	
COD3	TB treatment initiation time after diagnosis	
COD4	Treatment category	0) New 1)Retreatment
COD5	Already diagnosed NCDs	0)family history 1 DM 2 HPN 3 cancer 4 COPD (specify)_____ 5 CVD(Specify) _____

VI : WHO STEPWISE NCDs and risk screening questions

Have you ever been diagnosed with any of the following disease?

If any of the above answer is yes, kindly guide the patient about the treatment and appropriate treatment facility

Hypertension	Heart Disease	Diabetes	Stroke	Chronic Respiratory Disease	Cancer
Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

IV. NCD Risk Determinant Questionnaire-Stage I

Question	Options	Score	Record the score
1. What is your age (in completed years)?	20-34 years	0	<input type="text"/>
	35-49 years	2	
	More than equal to 50 years	4	
2. Do you smoke? If yes, do you smoke daily? If no, have you ever smoked?	Never	0	<input type="text"/>
	Ever smoked or sometimes smoke	1	
	Daily	2	
3. Have you ever taken tobacco such as Gutkha, Khaini etc.? If yes, do you use tobacco daily? If no, have you ever used tobacco?	Never	0	<input type="text"/>
	Ever taken or take sometimes	1	
	Daily	2	
4. Have you ever taken alcohol? If yes, do you take alcohol daily? If no, have you ever taken alcohol?	Never	0	<input type="text"/>
	Ever taken or take sometimes	1	
	Daily	2	
5. How many days in a week do you consume fruits?	More than equal to 5 days	0	<input type="text"/>
	Less than 5 days	1	
6. How many servings of vegetable do you consume in a day?	More than equal to 3	0	<input type="text"/>
	Less than 3	1	
7.a Do you daily do moderate (in which your only your heart beat	Moderate to vigorous physical	0	<input type="text"/>

fastens like climbing stairs, cycling, brisk walking) or b. vigorous (in which your heart beat fastens and you become breathless	activity for more than equal to 10 min		<input type="checkbox"/>
	Moderate to vigorous physical activity for less than 10 min	2	
8. Do any of your parents or brother or sister has history of high blood pressure, diabetes, or heart disease?	No	0	<input type="checkbox"/>
	Yes	2	
9. Waist circumference (in cm): _____ _____	Less than 72/78	0	<input type="checkbox"/>
	72-79/78-89	2	
	More than equal to 80/90	4	

Note: If the total score is more than 8, then move to next part

V. Measurements: Stage II

Measurements	Options	Score	Record the score
1. Blood Pressure 1 st Reading: _____ 2 nd Reading: _____ 3 rd Reading: _____	Less than 140/90	0	<input type="checkbox"/>
	140-160/90-100	2	
	More than equal to 160/100	4	
2. Body Mass Index Height (in cm): _____ Weight (in Kg): _____	Less than 23	0	<input type="checkbox"/>
	23.0-24.9	2	
	More than equal to 25	4	

Note: If the total score is more than to 12 refer the patient to NCD clinic for DM and HPN

Supply 2: Interview guidelines and observation check list of integrating NCDs care among tuberculosis patients

A. Observation check list of NCDs care in tuberculosis patients

	Compliance with NCDs guideline	Yes	No
1	Does TB Assessed for chronic patients?		
2	Does patients Offer for blood (venous) fasting sugar levels and HPN		
3	Did you Screen NCDs risk		
	Compliance with NCDs diagnosis guideline		
4	what about blood (venous) fasting sugar levels coverage of patients with suspected NCDs		
5	Does sample repeatedly requested from patients that test negative?		
6	Did you request additional sample from laboratory for additional testing and repeat testing		
	Health professional experience		
1	Did the HCW's understand and interpret Tb symptoms?		
2	Did the staff trained on blood (venous) fasting sugar levels and new diagnosing algorism?		
3	Did the HCW'S knowledgeable on treatment?		
4	What about the implementation of new diagnostic algorism?		
5	What about HCW's attitude in following up on laboratory test?		
	Patients flow and physical infrastructure system		
1	Did the patients have flow system in the clinics?		
2	Did you have adequate infrastructure to collect sputum?		
3	Did the patients have privacy?		
4	Did you have any communication mechanisms of laboratory result to the facilities and to the patients?		
5	Did the system link patient tracing and treatment?		
6	Did the system provide adequate resource for patient tracing (telephone, locating home and accessing patients address)?		
	Patient's engagement		
1	Did the patients engaged in care and after provision of education?		
2	Did you provide follow up appointment for patients to access laboratory results		
3	Did you provide follow up appointment for patients to begin therapy		
	Quality assurance of the system		
1	Did the laboratory request form completed?		
2	Did you collect patients' locator information to facilitate tracing attempt?		
3	Did you have unique identifier linking laboratory results to the patients?		

B. Key informants In-depth interview question/guideline

Sex-----Age-----year of experience_____ type of position-----

How many Tb NCD comorbid patients are in your organization? _____

How many comorbid TB and NCD patients were identified by bidirectional screening of both diseases _____?

I. Establish mechanisms for collaboration

1. Is there any joint coordination established with relevant stakeholders in your regions, explain?
2. Is There TB surveillance among NCD patients in your settings? if so explain
3. Is there NCD surveillance among Tb patients in your settings? if so explain it
4. Do you Conduct monitoring and evaluation of collaborative NCD and TB activities? How?

II. Detect and manage TB in patients with NCDs

1. Is there any Intensify detection of TB among people with NCD? How?
2. Is there TB infection control in healthcare settings where NCD is managed? If so what?
3. Do you have high-quality TB treatment and management in people with NCD? So what?

III. Detect and manage NCD in patients with TB

1. Is there any Screened TB patients for NCDs? , if so that what about it?
2. Do you have high-quality NCD management among TB patients? If so what you are going that?

A list of questions about important issues when integrating NCD services on Tb program

1. How effective and safe will it be to use an Integration service to perform a specific task? interms of quality of services; increased awareness and improved health status, lower cost per visit, satisfactory health status, hours delivery care, number of appointments made and kept
2. Is Integration services likely to be regarded as acceptable by health workers and their clients and communities?

Provoke: In line with Satisfaction, Intent to continue use, perceived appropriateness, perceived Fit within organizational culture, perceived positive or negative effects on the organization

3. Is Integration service considered relevant by the community? How?
4. What tasks and activities should take on for integration?
5. What is most feasible for the health system to integrate services?
6. When and where will integration deliver and how much workload will it require?
7. What kind of skills and training will the integration need when performing specific tasks?
8. What type of health system support will the integration require when performing the task?
9. How much will it cost to use integration to perform the task?
10. Where is the best place in the HCS system to implement (or initiate) integration of TB and NCDs?

Key points: Access to medicines; changing of clinic schedule; managing multiple information system, waiting time; cost related to services and time saving; and medicine availability

Summary points: Training requirements, health systems support, work location, workload, and programme costs.

C. In-depth interview guideline and questionnaire for Tuberculosis NCD comorbid patients

I. Socio demographic variables:

Age-----Sex-----Educational status---_____Marital status-----
occupation_____

II. Medical variables

1. Types of TB_____ (PLTB / EPTB)
2. Treatment phase _____ (intensive / Continuous)
3. What types of comorbid disease do you have currently?
 - a. CVD(specify)
 - b. COPD(Specify)
 - c. DM(specify)
 - d. HPN
 - e. Substance use(alcohol/tobacco smoke or both
 - f. Nutritional problem(obese, overweight, undernutrition)

Post phase In-depth interview guidelines:

A. Patients interview guidelines after implementing screening for integration

- Q1. How do you see the integration and its pathway?
- Q2. What do you think the good to fit with an individual value (relation, privacy, and confidentiality) for intervention?
- Q3. What is your understanding the coherence of intervention and service delivery?
- Q4. What is your Perceived effectiveness on the availability of the quality of services; increased awareness and improved health status?
- Q5. Comfort with sitting arrangement, freedom of movement; making discussions, fixing clinic appointments and medicine adherence
- Q6. What do you think about implementing this integration related to waiting time; cost related to services and time saving; and medicine availability?
- Q7. How do you see IMPLEMENTING INTEGRATION to Transport costs, distance, access to medicines; changing of Clinic schedule; managing multiple information systems?

B. Challenges/weakness and opportunity/ strength

What factors affect this integration implementation?

What things to be done to overcome this problem?

What factors are facilitators/opportunities, while implementing this integration?

Provoke: Simplicity of screening test, Short waiting time for screening and treatment, Relevance, Commitment and support of medical coordinator, Good coordination with a partner

What Positive experiences and Negative experiences faced when implementing this integration?
 For example, (reaction with test, medical supplies, cost, attitude with HCWs, simplicity of test, privacy, waiting time, communication and referral/linkage)

Codebooks:

Supply3: Codebooks of tuberculosis and non-communicable diseases integration challenges and opportunities

Codebook 1 : TB and NCDS integration challenges			
Code	Definition	Purpose/Meaning of code	In vivo description
1. Absence of medical equipment	Participants describe the availability of medical equipment	Identifying the availability of medical equipment	I faced absence of diagnostic materials for diabetes mellitus, high blood pressure, ECG, CT scan and Waist circumferences measurement
2. Lack of skill	Respondents describe their skill and knowledge of integration	Identifying skill and knowledge training	I was screened for only TB, however I suffered by heart disease and it complicate my treatment."
3. Drugs and laboratory services not free	Participants describe their services	Identifying drug and lab test availability	The price of a bottle of insulin is not possible to pay it for patients
4. Absence of feedback and referral system	Participants describe the program communication system	Finding feedback and referral system	Tuberculosis data is reported by senior officials on a regular base, however, there is an interruption and weak supportive supervision with feedback on diabetes mellitus and hypertension surveillance data
5. Lack of record and reporting system	Participants describe record and report system	Identifying record and reporting system	I think these problems can be solved if and only if the routine data collection or surveying and report mechanism developed on patients registration format
6. Lack of cooperative integration	Respondents explain integration	Identifying cooperative integration	The organizations are not focused on an integrational report system

7. Shortage of supporting agencies	Participants describe the availability of supporting organization	Identifying the presence of supporting agencies	TB was detected and managed by challenge TB and Rich TB program , however there is no supporting organization for NCDs
8. Lack of linkage and referral system	Participants describe their service communication	Identifying linkage and referral system	Because of the unavailability of the system just like tuberculosis, the patient reappears to the outpatient service for perverted card access
9. Shortage of skilled focal person	Participants describe their focal person skill	Identifying skilled focal person presence	Making a better professional classification as a focal person brings acceptance
10. Absence of early detection and management system	Participants describe the availability of early detection	Identifying early detection and management	If I was screened early for TB, I did not suffer or delay treatment."
11. Lack of trained health worker	Participants describe their health worker skill	Identifying trained health workers	By assigning a trained professional as a focal person for both programs, quality will be improved
12. Increased work load	Participants describe their work load	Detecting health workers work overload	The HCWs believed this intervention increases the workload because there is no awareness and training.
13. Absence of awareness creation	Participants describe their awareness	Identifying participants awareness	Even assigned TB and NCD focal persons are not aware to communicate the work and integrate the report

Codebook2 : TB and NCDS integration opportunities

Code	Definition	Purpose/meaning of code	In vivo description
1. Presence of health extension program	Participants explain the support of health extension program	Identifying supportive health extension program	Health extension workers guided me on screening Diabetes mellitus after I increased body weight when I was on Tuberculosis treatment

2. Availability of NGOs	Participants explain role of NGOS	Identifying supportive NGOs	Even if in our site there is no institutional organization for integration , there have been challenge TB and Rich TB programs, and NCDs family health programs separately
3. Presence of Community health care insurance	Participants describe their community health care insurance	Identifying supportive health care insurance	Community health care insurance program was available for all poor rural people and for all people willing to register in our site to get free health services
4. Presence of association for diabetes mellitus	Participants describe the diabetes mellitus association	Identifying supportive associations	Basically in health institutions, there is no free drug for NCD patients, however in our health facilities especially in Hospitals for DM and other NCDs we established the DM association
5. Presence of Assigned focal persons	Participants describe their focal person support	Identifying assigned focal persons	we have assigned all focal person medical doctors at our health centre to increase the service and the needs of the patients
6. Availability of trained stakeholder	Respondents describe their stakeholder skill	Identifying trained stakeholder	Trained stakeholders had planned to give community awareness and cooperate the work as a new initiative.
7. Availability of guidelines and information system	Participants describe the availability of guidelines and information system	Identifying availability of guidelines and information system	We do have NCD and TB integration guidelines and DHIS even if it has no integration system at the organizational and community level
8. Presence of Compatible tuberculosis program structure	Participants describe program compatibility	Identifying compatibility of the TB program	This work of integration strengthens the work of TB, not replaces it, because it is compatible with TB's structure and functionality