

## Journal of Obstetrics, Gynecology and Women's Health

### Exploring the Determining Factors for Utilization of VCT Service among Primary School Teachers in South-West Ethiopia

Dr. Bediru Abamecha Sheki\*

Department of Research and Ethics, keamed medical college, addis ababa, Ethiopia

#### Abstract

**Background:** Voluntary Counselling and Testing (VCT) is a key entry point for prevention, care and support. However, available evidence indicated the low uptake among primary school teachers in Ethiopia. On the other hand, there are limited studies that explored the major factors influencing utilizations of VCT services.

**Method:** A qualitative data collection methods was conducted to explore the interplay between VCT service delivery and its utilizations amongst primary school teachers in the study area. Twenty-four VCT providers, among which twelve VCT counsellors, six Hospital Managers and six head of health centers and twenty primary school teachers were selected using information saturation as a cut point as participants for qualitative data collection. Data analysis was conducted using thematic area analysis approach.

**Results:** The study summarized major factors influencing the utilization of VCT services and the interplay between VCT service delivery and its utilization. Factors such inadequacy of waiting area, the lack confidentiality and privacy of the service and stigma and discrimination were explored as the major determining factors for the utilization of VCT service. There is need to improve awareness of teachers, advocate for VCT uptake, reduce stigma and create conducive environment to increase of VCT uptake. Accordingly, it is vital to design strategic framework, which will contribute for the increase of VCT uptake amongst primary school teachers in the study area.

**Keywords:** Stigma, Discrimination, Voluntary Counselling and Testing, Strategic framework.

#### Introduction

Human Immunodeficiency Virus (HIV), which causes Acquired Immune Deficiency Syndrome (AIDS) is one of the most destructive pandemics human kind has ever faced and continued to be a major global public health challenge [1] Sub-Saharan Africa remains the most severely affected by HIV/AIDS, accounting for just over 5% of the world population but with an estimated 24.7 million (71% of all people living with HIV in the world) [1,2]. In Ethiopia, 790 000 (720 000-890 000) people were living with HIV in 2013, and prevalence among adults aged 15-49 was estimated at 1.5%.

The HIV/AIDS epidemic affects the education sector mainly the supply of education through availability of teachers and quality of education, since the absenteeism of teachers from schools and ultimately their deaths affect the teaching resources available [3]. HIV/AIDS is

#### Article Information

**Article Type:** Research

**Article Number:** JOGWH103

**Received Date:** 26 April, 2019

**Accepted Date:** 06 May, 2019

**Published Date:** 13 May, 2019

**\*Corresponding author:** Bediru Abamecha Sheki, Department of Research and Ethics, keamed medical college, addis ababa, Ethiopia, Tel: +251917809377, Email: [bederus\(at\)gmail.com](mailto:bederus(at)gmail.com)

**Citation:** Sheki BA (2019) Exploring the Determining Factors for Utilization of VCT Service among Primary School Teachers in South-West Ethiopia. J Obstet Gynecol Womens Health Vol: 1, Issu: 1 (01-14).

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having a devastating effect on the already shortage supply of teachers in Africa [4]. In Ethiopia, the impact of HIV/AIDS on education sector, the most human intensive sector is being severe by increasing the number of staffs who are unable to work effectively as result of HIV/AIDS related illness and deaths [5].

The 2011 UN High level meeting, at its political declaration on HIV/AIDS set ten targets, among others clearly underscores an urgent need to increase access to HIV services [6]. African Union embraced the goal of ending the AIDS by 2030 in 2013 [7,8]. Ethiopia also responded to the HIV/AIDS epidemic as early as 1985 [9-11]. The country has enacted a comprehensive national AIDS policy and workplace HIV framework, including for schools and workplace and implemented strategic plans.

Voluntary HIV Counselling and Testing (VCT) is the process in which individuals undergoes counselling enabling them to make an informed choice about being tested for HIV [12]. VCT may have potential preventive effects on HIV transmission and serves as a gateway to HIV/AIDS-related services [1].

VCT may have potential preventive effects on HIV transmission and serves as a gateway to HIV/AIDS-related services [1]. For the individual, VCT enhances the ability to reduce one's risk of acquiring or transmitting HIV, to access HIV-specific treatment, care and support to manage one's health, and to plan for the future [6]. For society, widespread knowledge of one's HIV status can lead to better community mobilization against the epidemic, and may reduce HIV related stigma and discrimination. Thus, expanding access to VCT services has both individual and societal benefits [1].

Despite the benefits of VCT uptake, its utilization is often poor regardless of the availability of the services and millions of apparently healthy-looking people remain without knowing their HIV status [13]. Similarly, although various efforts were made to improve VCT utilization, its uptake has been disappointingly low amongst teachers in Ethiopia [14].

On the other hand, there were only very few studies that have explored the determining factors for the utilizations of VCT services and the interplay between VCT service delivery and its utilization in the education sector in Ethiopia. Furthermore, those very few available studies are out dated and not detailed enough to identify the socio-economic and psychological factors influencing the delivery and utilizations of VCT services [6].

Hence, yet very little is known about what influence VCT services in the education sector in Ethiopia. This creates difficulty to find an up to date and detailed information that can be used to design effective strategies that would help to increase the uptake of VCT services. In response to these drawbacks, the current study, with supporting role of previous quantitative study as part of PHD project was explored factors influencing the delivery and utilizations of VCT services in the study area.

## Research Methodology

Methodology is defined as the strategy or plan of action lying behind the choice and use of particular method and linking the choice and the use of method to the desired outcomes [15]. Methodology shows the comprehensive ways of approaching research questions, which may be qualitative, quantitative or combination of the two (mixed methods research) [16]. In the current study, methodology refers to the logical sequence in which the researcher was used to conduct the research. As the study was aimed to explore the interrelation ship between VCT service delivery and its utilization amongst primary school teachers in the study area. Accordingly, qualitative data collection method was used in the current study.

The qualitative method research aims to gather an in-depth understanding of human behavior and the reasons that govern such behavior [15]. The qualitative method also investigates why and how of decision making. The qualitative method allowed the researcher to explore and to understand better, the complexity related to VCT delivery and its utilization amongst primary school teachers in Jimma Zone, South-west Ethiopia [17].

This qualitative study, was conducted with role of supplementing quantitative findings, which was conducted as part of the study previously. Hence the study was explored the interrelation ship between VCT delivery and its utilization amongst primary school teachers in the study area.

## Research design

Research design is a plan of action that is adopted by researcher to answer questions of validity, objectively, accurately and economically [15]. It is a specific structure that shows in detail how exact chosen method would be applied to answer particular research questions and how the research method will be applied to achieve the desired objectives [18].

A mixed method design is used to modify a lifestyle change program for health care and to evaluate the processes and outcomes associated with the implementation of the program [19]. Quantitative study designs are more suited to find out the extent of variation and diversity, while qualitative study designs are appropriate to explore this variation and diversity in any aspect of social life [15].

In the current study, cross-sectional study design using the sequential quantitative and qualitative data collection method was used. The study was begun with a quantitative method, which was the predominant phase of the study and followed by qualitative study with the role of supporting the predominant phase of the study. In the quantitative phase of the study, six hundred three self-administered questionnaires were used to collect information on socio-demographic and psychological factors influencing VCT uptake amongst primary school teachers quantitatively. The quantitative survey was followed by a qualitative method involving detailed exploration with twenty individuals (ten primary school teachers and ten VCT providers) using in-depth interview as method of data collection.

The rationale for using qualitative research design was premised on the fact that the researcher intends to explore, describe and identify challenges experienced by primary school teachers towards the utilization of VCT services. It was involved and focused on natural observations, understanding, and description of phenomena using interview guide to facilitate data collection process.

### Research Setting

The study was conducted in Jimma Zone, South-west Ethiopia. Administratively, Jimma Zone is divided into 18 Woredas (woredas) with a total projected population of 2,770,329. In Jimma Zone, there were 10264 primary school teachers working in 1020 primary schools in the zone [19]. Regarding the number of health facilities, there were 3 district hospitals and 90 health centers functioning in the Zone and 79 of them were providing integrated VCT services [20].

### Sampling method

Sampling method is a process of selecting a small number of units from a large population in such a manner that can be used to make estimates about the whole group [21]. Broadly, sampling methods can be classified as probability and non-probability sampling methods [22].

Probability sampling is the process of selecting a sample from the sampling population or the bigger group to become the basis for predicting prevalence of outcome regarding the sampling population [15]. Careful sample selection using one of the probability sampling methods enhances the likelihood that samples will be representative, where sampling procedure can be placed in a larger known pattern of variation. On the other hand, non-probability sampling methods are those in which the sample elements are arbitrarily selected on the basis of their relevance to the topic of the study [15,23].

In the current study, probability sampling method was used to arrive at each representative sample for the quantitative study in phase one and non-probability sampling method was used to arrive at specific sampling unit in phase 2.

### Population

Population refers to a big group that meets the criteria for study established by researchers. It is the target population that meet the sample criteria for inclusion in a study and in which the researcher wishes to study about and desires to make generalization [15].

The target population for the study included was included public primary school teachers in the study area. The target population elements for the quantitative phase of the study was included 630 primary school teachers, 394 males and 236 females. In addition, ten VCT providers and ten primary school teachers, those not included in the quantitative study were included in the qualitative study during the second phase of the current study.

### Sampling

Sampling is selecting a subset of a population in the way that sample can be used to make estimates about the big

group [21]. In a broad terms, sampling can be categorized as probability sampling and non-probability sampling [15]. Most commonly, probability samplings are used for quantitative study and non-probability sampling are used for qualitative study [21].

In quantitative study, sampling refers to the statistical process of selecting portion of a population of interest for the purpose of making observations and statistical inferences about target population [16,24]. Whereas, in qualitative study, sampling is not only selecting the study individuals, but also it is about selection of contexts, time, events, experiences and social process [15,25]. Hence, repetition of ideas or words and persistent observation should be the goal of every researcher [24].

In the current study, non-probability sampling was used to select individual study participants for qualitative study.

### Sample size determination

Sample size determination depends on what the researcher wants to do with the findings of the study, the level of accuracy in the results and the type of relationships to be established [15]. In order to select appropriate sample size, the sample size determination should be based on the understanding of the objectives and the theoretical and statistical assumptions of the study [26].

In the current study, since the main focus of the study was to explore and summarize a situation, issues, process or phenomenon, the sample size was determined based on the information saturation in terms of discovering new information [23]. Therefore, the sample size was determined using information saturation as a cut point. Data was collected to a point where not getting new information and this stage was determined the sample size for qualitative study. Accordingly, twenty-four VCT providers, among which twelve VCT counsellors, six hospital managers and six head of health centers and twenty primary school teachers were included in the qualitative study.

### Sampling procedures

Broadly sampling procedures can be categorized as probability sampling and non-probability sampling techniques [15]. In non-probability sampling, sample elements are arbitrarily selected by the sampler because of their relevance to research questions and/or explore and describe a situation, process or phenomenon [23]. Purposive sampling techniques is extremely useful to construct a historical reality, describe a phenomenon or develop something about which only a little is known [15].

In the current study, purposive sampling was used to reach to individual qualitative study participants. Study participants were selected based on their relevance to the second objective of the current study (to explore the interplay between VCT service delivery and its utilizations). To the knowledge of the researcher, qualitative study participants of the current study were considered to be profoundly knowledgeable and have in-depth information concerning the factors influencing VCT service delivery and its utilization. The information saturation in terms

**Table 1:** Data collection approaches used in phase one and phase two of the current study.

Approach	Phase 1	Phase 2
	Quantitative	Qualitative
Population	Public primary school teachers found in Jimma Zone	VCT counsellors, health centers head, hospital managers and primary school teachers not included in the quantitative study
Sampling method	Simple random sampling followed by systematic random sampling	Purposive sampling
Sample size	630	6 VCT counsellors, 2 head of health centers, 2 hospital managers and 10 public primary school teachers (5 male and 5 female)
Instrument	Self-administered survey questionnaire	Interview guide
Analysis	SPSS Version 22.0	Word processor

of exploring new information was used as a cut point for the determination of sample size for qualitative study. Accordingly, a total of forty-four study participants, twenty primary school teachers and twenty-four VCT providers were selected for an in-depth interview. Twelve of the twenty primary school teachers were tested for HIV at least once in their life time. With regarding to VCT providers, twelve of them were VCT counsellors, six of them were head of health centers and the rest six were hospital managers (Table 1).

### Data collection

Data collection refers to the systemic gathering of information relevant to the research objectives and questions of a study [15]. It is a process of collecting organized information, usually the result of experience, observation and experiment in the form of numbers, words or images, particularly as measurements for a set of variables [23].

In the current study, data was collected on various socio-demographic and psychological factors influencing utilizations of VCT services and the interplay between VCT services delivery and its utilizations using quantitative and qualitative data collection approaches respectively.

### Data collection approaches

In a broad term, data collection approaches can be categorized as quantitative and qualitative approaches [15]. The qualitative data collection approaches such as an in-depth interview and focus group discussions are applied on small group that provide many more clues about the central issues of the study [27,28]. In the current study, qualitative data collection approaches, an in-depth interview was used for data collection. An in-depth interview was used to collect detail information on various factors influencing VCT delivery and utilization at individual, facility and system levels.

### Data collection methods

Data collection methods can be broadly categorized into quantitative and qualitative data collection methods [27,29]. Depending on research type, methods of data collection include: documents review, observation, questioning, measuring, or a combination of different methods [30].

Qualitative data-collection methods can help researchers understand not only client's health care experiences (VCT service), but also their views on service provision [31]. Qualitative collection methods such as in-depth interview and Focus Group Discussion (FGDs) are used especially when richest data, details and new insights are needed [32].

An in-depth interview is particularly appropriate to include in situations involving complex subject matter, detailed information and highly sensitive subject matter and it provides complete freedom in terms of content and structure [15,33]. An in-depth interview is used in policy research, where interviews can be used as a primary data gathering method to collect information from individuals about their own practices, beliefs or opinions [29].

There were many benefits of qualitative data collection method (an in-depth interview) in the study; first, the approach provided more contextual details than is possible with use of survey methods alone. A decision to utilize a voluntary counselling and testing service may be influenced by personal experience or societal factors. Consequently, in order to answer the questions of what factors influence an individual decision to utilize a VCT service, this study was considered an individual level, facility or provider level and system level factors.

Secondly, utilizing VCT services was at the heart of this study. For VCT service to be of benefit to the primary school teachers, it must be modelled to fit the target group. Primary school teachers' context here was deemed to be particularly important in that primary school teachers are tend to differ significantly in many ways. For example, primary school teachers normally spend most of their time in the school and may not be available in specific time when VCT center is opened during the normal working hours. Other contexts such as culture, religion, income and so forth within the targeted community were taken into consideration while designing the study. Furthermore, VCT is related to HIV/AIDS which has a bearing to sexuality.

Another advantage of including aspect of qualitative inquiry is that it can offer understanding of the meanings behind the actions and terminologies that may be used by the respondents. Finally, the inclusion of qualitative aspects in the current helped in correcting the bias that may occurred during the survey method.

### Data collection tools

Data collection tools are the instruments used for data collection, which may include questionnaire, observation and reading [34]. The development of data collection tool is an extremely important, because any conclusions reached by the study is based upon the type of information collected, which is entirely dependent upon the questions that the researchers asked respondents [15].

An in-depth interview guides are used to facilitate and guide an in-depth interviews process [32].

In the current study, an interview guide was developed by researcher to facilitate and guide qualitative data collection process (an in-depth interview) and daily contact summary sheet was used to summarize contact information. During the development of interview guide, the guide questions were ordered in the way would be asked, but the questions were standardized and probes were provided to ensure that the same questions were posed to all study subjects.

Since primary school teachers with diploma and certificate level followed their college diploma and certificate in local language, in the current study, data was collected using local language. The interview guide were prepared first in English and then translated into Afan Oromo by health professional (BSc public health). Afan Oromo version of the in-depth interview guide were pretested for clarity, acceptability and flow among the non-study subjects. Based on the findings from pre-test, items that were difficult to answer were modified and the corrected interview guide was used to facilitate in-depth- interview process.

### **Measures of ensuring trustworthiness**

In a qualitative research, quality of data is assessed using the principle of trustworthiness. Four criteria have been developed as a framework for trustworthiness of a qualitative inquiry: credibility, dependability, confirmability, and transferability.

#### **Credibility**

Credibility criterion is similar to internal validity in quantitative study and refers to the extent to which the findings obtained through qualitative study are confirmed by those who participated in the study [15]. Credibility is focused on establishing a match between the responses of the study participants with realities represented by research instruments or by the study design [35].

In the current study, to ensure credibility of data collection tools, several measures were taken: The objective of the study was clearly communicated to study participants before data collection was started and interviewers and study participants' roles was defined. Credibility of the study was also ensured by collecting all information needed in a detailed format. In addition, information collection on more than one occasion and data that can be considered by multidisciplinary teams, clearly linking to a study's aims and objectives, all enabled credibility. Furthermore, the data analysis team (principal investigator and research assistants) with experience in qualitative research was guided data collection and conducted data review and coding, compare and discuss differences between coding and then clarify the codes.

#### **Dependability**

In qualitative research, dependability is similar to the concept of reliability in quantitative research, where it concerned with the researcher would obtain the same results if the researcher would observe the same thing repeatedly [15]. The dependability of qualitative data refers to the stability of data over time and over conditions [36].

As the current qualitative data collection tool was carefully designed, commented and validated by experts on the study subjects including the current PHD project Advisor, the repeatability of this study would be increased. In addition, the tool was gone through peer review, commentated and validated by research ethics committee, which was also another input to ensure dependability of data collection tools. The researcher was also carefully monitored any changes that would be occurred in the setting and how these changes would affect the way of this research approach. Finally, the team work during data collection and analysis, experiences of the research team was also helped to ensure dependability of data collection tool. Finally, the study findings would be communicated to University of South Africa (UNISA), published in international journals and also communicated to study areas.

#### **Confirmability**

Confirmability refers to the degree to which the results could be confirmed or corroborated by others. In the current study, to ensure confirmability of data collection tools, the researcher was documenting the procedures for checking and rechecking of the data throughout the study and beyond, until the findings was accepted and published. In addition, data collectors also learned to a multi-task, to manage the data collection process and to capture the available data by listening, recording and note taking and the collected data was kept in locked and safe box. Furthermore, consistency and careful calibration of data collectors through an intensive initial training and field experience during pre-test kept the data collectors centered on the research goals and their skills sharp. Furthermore, coding procedure was applied and there was discussion amongst principal investigator and independent coder (RAs) to validate data and the team openness to the creation of new was insured confirmability of data collection tools.

#### **Transferability**

Transferability refers to the extent to which findings can be transferred to or have applicability in other settings or groups. Transferability is the degree to which the current findings of qualitative study can be transferred or generalized to other settings [15]. In the current study, transferability was ensured by thick description of the process. The researcher presented the information in a sufficient detail as part of the analysis to enable someone interested in making a transfer to reach a conclusion about whether transfer can be contemplated.

#### **Recruitment and Training of Research Assistants**

The study was recruited Research Assistants (RAs) who were helped data collection, processing and analysis. Advertisement on the recruitment of research assistants was posted in different public places. Diploma and above in Public health, knowledge of local culture and language of the study area and previous experience of qualitative data collection was used as minimum requirement. After all documents was reviewed, shortlisted individuals were interviewed and successful six candidates were recruited. Two-day training was provided by researcher for all RAs on

the methods, objectives, study instruments, consent form, how to conduct in-depth-interview and other technical procedures.

### **Pilot study**

A pilot study was conducted prior to the actual data collection period to test the relevance and adequacy of the methodology, data collection tools and analytic processes of the study [15]. In the current study, a pilot test was conducted amongst four primary school teachers and four VCT providers to test interview guide from four-six October, 2015. Pilot study participants were excluded from main study.

The pilot study was also helped the researcher to test the interview schedule and the level of the research questions' complexity, as well as assessed the adequacy of the interview's length. Furthermore, it was helped to identify problems and omissions as well. Following the pre-test of study instruments, ambiguous or unclear questions were either rephrased or removed and the corrected for the main data collection.

### **Data quality assurance mechanisms**

To ensure data quality, several actions were taken at different stages. Prior to the actual data collection, the intended data collection tools were pre-tested on similar non study population and edited accordingly. The schools and health facilities involved in the pre-test activity were not included in the main study. Those selected facilities had similar characteristics to the facilities included in the main study. So that, the pre-test was helpful to identify problems and omissions as well as checking time spent in responding. Pre- test of data collection tools was improved the precision, reliability and cross-cultural validity of data. Utilisation interview guide was also helped to formally probe and to collect detailed data.

An in-depth interview process using local language (Afan Oromo), the language that was familiar and well understood by all teachers was also helped to ensure data quality. The translation of English version questionnaire into local language, then back into English deferent persons with health background and pre testing the Afan Oromo version prior to final data collection were important steps taken to ensure data quality. The recruitments of experienced research assistants and intensive training given for data collectors on research ethics and data quality assurance was also another measure to ensure data quality.

### **Data collection process**

Data was collected from ten primary school teachers, six health centers and six primary hospitals using in-depth interview as the data collection method. These sites were chosen for their physical accessibility and capacity to recruit and enroll the required number and composition of qualitative study participants in the time period determined. In-depth interview process was facilitated using interview guide.

Interviewers begin by introducing themselves and the research project, discuss the researcher role and

expectations from participants and encourage participants by reminding them of the vital information they have to share and worked to create an environment that felt secure. Questions were organized in the same order, unless multiple forms, with exact question wording used to reduce bias and increased objectivity. Similarly, in interview length across participants was encouraged to equalize the participant experience. Some casual conversation before the interview is a friendly way to get the participant talking and begin to build trust. Written informed consents were obtained after data collectors were informed study participants about the overall goals of the study, data collection procedures and sample selection process.

Then after, un-threatening and easy questions related to work experiences and for how long they were served in their current location related information of a descriptive nature pertaining to the general topic at the start of the interview. Questions pertinent to the VCT uptake and of greater specificity questions followed in a patience, curious and persistence ways. Interviewers listen and strive not to judge. Interview process took information from both research paradigms presented to enhance validity and lead to interviewers asking all interview questions so that all research questions were addressed, probing and follow-up questions were done in formal ways when it was needed.

Respondents provided rich and in-depth information that helps us to understand the unique and shared aspects of VCT uptake and meanings attributed to the interplay between VCT service delivery and its utilizations. Note taking and tape recording were used at the same time to collect reach and detailed data. The note was taken in detail and tried to capture all the information needed and the tape recording was also used as supplementary to collect reach and detailed data. The interview process was concluded with a summarization of key ideas. The interviewers were also asked if there was anything else the participant would like to add or if there were any remaining questions that participants were need to ask. Finally, interviewers were appreciated participants for their time and for their valuable information. Daily interpretive analysis was done using contact summery sheet format.

### **Data collection period**

In the current study, data was collected from 10 to 22 January 2016. Since the data collection was conducted in the opposite shift, it was not clashed with normal teaching/ learning program. Local language (Afan Oromo) was used during data collection, where the back translation to English was done by another person with public health background and the English version will be used for data entry and analysis.

### **Data management and analysis**

Data were transcribed by two research assistants in order to compare the accuracy of the data. Each transcript was then audited by principal investigator against the original audio-tape and was edited accordingly. The hardcopy and softcopy of the data were stored in file box and data folder with locked by password respectively, where data was

accessed by principal investigator, data entry clerk. The stored data will be destroyed by researcher after the finding will be published.

In the current study, the grounded theory data analysis method was used for qualitative data analysis in the second phase of the study. Grounded theory analysis is a way of working with qualitative data by identifying, analyzing and reporting patterns (themes) within data [37]. It is an approach that involves the formation and application of coding to data [38].

Coding is the procedure of examining the unprocessed qualitative data that is in the form of words, phrases, sentences or paragraphs and assigning codes or labels [17]. Coding involve organizing, accounting for and explaining the data or making sense of data in terms of the participants' definitions of the situation, noting patterns, themes, categories and regularities [39].

In the current study, the three-phased coding of grounded theory: open, axial and selective coding [16], was used. In open coding the data are broken down into discrete parts, closely examined, compared for similarities and differences and questions are asked about the phenomena reflected in the data [16]. Axial coding is a process of putting those concepts back together in new ways after identifying the relationship among the open codes and by making connections between them as categories and sub-categories will follows [38]. Selective coding is a way of finding out the core variable that includes all of the data will be done by repeatedly reading the transcripts to selectively code any data that relates to the core variable identified [16].

Accordingly, the notes and tape records were reviewed on a daily basis by qualitative data collectors and researcher and the obtained information was summarized and interpreted using the standard format. The tape records and notes were analyzed to collect reach and detailed data from the dynamic and interrelated various pieces of information that the study participants presented. The tape records were played a critical role in reproducing direct quotes of the study participants. The summery report was included information about the interview and sufficient information to link the report to the field notes and the tape records.

Initially open coding that was involved identifying; naming, conceptually categorizing, labelling and describing phenomena was done, where the data was broken down by asking simple questions such as what do the data say, where was that said, how was that said, when was it said and how much emphasis was put on that point and the coding was done based on the repetition of key words, phrase or statements in the transcripts. Then after, those concepts were putted back together in new ways using their relationships identified during the open coding and by making connections between them as categories and sub-categories. Finally, data analysis team were take a more holistic constructive perspective of the data to identify the essential processes and sub-categories related to the descriptors of the central themes in order to come up with a more abstract core category.

During data analysis, attention was paid to the different and multiple perspectives of the interviewers and the issues and concerns each raised. The researcher and qualitative data collectors also reviewed personal notes and reflected on project experiences. The vast validity literature also served to assist the analysis through the contemplation of useful ideas for researchers conducting quality interpretive interviews within various contexts. All of these data points and their resulting patterns formed the in-depth interviews ideals.

### **Ethical consideration**

For any research that involves human beings or animals, researchers must address a range of ethical issues. In this study, the researcher made use of different ethical approaches to address ethical issues as a top priority of the study. As the current study was an academic research, in addition to the sensitivity of the study topic, the researcher believed the necessity to maintain the highest ethical standards of research. Therefore, high concerns for the standard of ethical issues were applied during all the activities of this study. Since young and adult populations in schools were the study subjects involved, due considerations were given for the ethical principles of respect, voluntary informed consent, beneficence, privacy, confidentiality and justice during all the activities of this study.

In the current study, as the minimum age of the study participant was 21 years, all the study subjects were able to give consent themselves, since the age of consent in Ethiopia starts from 15 years according to HAPCO [11]. Obtaining truly informed and culturally relevant consent is fundamental to the ethical conduct of research particularly for developing countries [34].

The overall goal of the study was clearly informed to every person from whom data were gathered. In addition, they also informed about the type of data to be collected, data collection procedures, how study subjects were selected, about potential benefit of this study and as no potential risk of being participated. Furthermore, they were communicated about confidentiality, right to withdraw and/or withhold information.

The current study also emphasized on a moral responsibility to do things for the benefit of others. The researcher and research assistants guarded against any discomforts that might occur and immediately phrase the question so that it could not appear to be a personal experience.

In order to minimize the risk of losing confidentiality of participant from accidental disclosure to the third parts, one isolated room for an in-depth interview time was arranged by school director in each school. To avoid any possible fear or negative effect on the participant by involving in the study, orientation about keeping the anonymity, confidentiality of the information and voluntarily participation were explained as an introduction. In addition, the purpose and possible benefits of study was also clearly communicated, the benefits of the study findings in improving VCT uptake and in preventing the spread of HIV/AIDS amongst primary

**Table 2:** The summary of the findings of the qualitative study consisting of two themes, two categories and six sub-categories.

Themes	Categories	Sub-categories
<b>Theme 1</b>		
	Knowledge about VCT process and prevention of HIV/AIDS	-
<b>Theme 2</b>		
	Factors determining utilization of VCT service	
	2.1 Driving factors for the utilizations of VCT services	An individual level driving factors
	2.2 Hindering factors for the utilization of VCT services	Stigma and discrimination
		Partners and friends' attitude towards VCT uptake
		The location of VCT centers
		Confidentiality of VCT services
		Providers skill gaps and lack of strong system

school teachers and beyond was clearly informed. In addition, the right of each participant to join or withdraw from study at any point of interview process if they feel necessary was guaranteed.

Personal identification of those from the data were gathered was not recorded in the study and any data obtained from them was not disclosed to anybody. Soft copy of the study was kept in the researcher personal computer and locked with password with backup in disk drive and the hard copy was put in a secure and locked cabinet.

Participants were assured that the information that they provided orally or in written would be used only for the research purpose and therefore would be strictly confidential. They Qualitative study participants were also strictly informed not to mention their names at any time of data collection and in case if it was happened, they guaranteed as it was cut off not to relate any comment to identified individuals.

Finally, written informed consents were obtained from all the study subjects, after all the necessary information were given for their decision without coercion, influence or intimidation. The written informed consent was used as an evidence for their voluntary and free choice of participations.

### Ethical clearance collection process

Research proposal developed in consultation with advisor and submitted to department of higher degree committee of University of South Africa (UNISA) and Research and Ethics Committee of UNISA. The Ethical clearance was secured from department of higher degree committee of University of South Africa (UNISA) and Research and Ethics Committee of UNISA. The copy of ethical clearance letter was submitted to UNISA regional branch in Addis Ababa and support letter was secured from the regional branch. The support letter with ethical clearance letter and research proposal were submitted to research and ethics committee of Oromia Regional Health bureau (ORHB) in Ethiopia, as per the requirements to secure permission letter. Permission letter secured from ORBH was submitted to Jimma Zone health office to secure support letter that helped to get institutional consent from study woreda. Institutional consent was obtained from woreda education offices. Finally, written

consent was obtained from all those from data was collected and formal data collection process was started as per the schedule and sampling procedures.

### Results

A total of forty-four study participants were participated in the in-depth interview process, where data saturation was used as the turning point for data collection. An interview guide was used to facilitate an in-depth interview process conducted with twenty primary school teachers, twelve VCT counsellors, six head of health centers, six hospital managers and twelve VCT counsellors. The rest of the results were presented according to themes that emerged during the data analysis. As it was showed in table 2, the findings of this qualitative study included two themes, two categories and six sub-categories and they were presented below.

Theme 1: Knowledge about VCT process and prevention of HIV/AIDS

This theme did not have any category or sub-category and the information from participants regarding the theme has been presented, with quotations and literature control related to this theme was done.

With regard to the knowledge about HIV/AIDS and VCT services, majority of the qualitative study participants were showed relatively high knowledge of HIV, VCT process and service availability. The qualitative study participants were asked to explain about VCT services, HIV/AIDS and its prevention mechanisms. All participants were discussed about the availability of VCT services in the public and private health facilities. Majority of them were able to describe about VCT process like pre-test counselling, testing for HIV and post-test counselling. Regardless of their academic achievements (having diploma or degree) or their history of conducting VCT services, all interviewed primary school teachers talked about the severity of contracting HIV/AIDS.

Most of them were also elaborated on different prevention mechanisms, where some of them even explained ABC, abbreviation for abstinence from having sex until marriage, being faithful in one-to-one relationship and using condoms while having sexual intercourse. In addition, the study participants were talked the benefits of condom as prevention mechanism and revealed different factors



that can limit the utilization and effectiveness of condoms, including its availability, in-appropriate use and utilizations of expired condoms. Most of them stressed on the shortage of condoms, especially in the rural areas.

In agreement with the study participants, VCT counsellors were also indicated that condom distribution, especially in rural areas was limited and always below the need. One counsellor working in one of the visited health centers explained the shortage of condoms in rural area in the following manner:

“While I was in my family village in rural area in the last January (2015), I was visited a shop to buy a mobile card. At that time, I found a couple in the shop asking the shopkeeper if there were another shops, however, the shopkeeper told them as he was the only one who was distributing condom in that village. I really appreciated their confidence and how they openly discussed in such conservative and religious community, however, I was become sad, when I thought that, they might have unprotected sex after unsuccessful search for condoms.” (Female, 35 years old, and counsellors in one of the health centers visited).

This was supported by another qualitative study conducted in Nigeria, where in-accessibility and unavailability of condoms were reported as the main barriers for the utilizations of condoms in rural areas [40]. Another study conducted in two district of Tanzania, was also reported as the supply of condoms in the community was occasionally running out of stock and thus affecting the utilization condom in that particular area. However, this finding was not consistent with the finding of the study conducted in South Africa, where male condom accessibility was reported to be high, with both youth and adults reporting they are easily accessible.

When study participants were asked to suggest on the overall awareness level of primary school teachers in rural and urban areas about HIV/AIDS and VCT services, all of them agreed that the awareness level of primary school teachers in rural areas was relatively low when compared with those of in urban areas. According to the study participants, this disparity was happened, because most of HIV/AIDS prevention and control programs were concentrated in urban areas and there was limited access to information in rural areas. One qualitative study participant was explained on the issue in detail in the following manner:

“To my knowledge, the awareness of primary school teachers about HIV/AIDS and VCT services in rural areas was low when compared with teachers in urban areas, because, teachers in urban areas have more access to mass-medias in addition to different HIV/AIDS prevention and control programs that concentrated in urban areas.” (Male, 29 years old, diploma holder and teaching in one of the schools visited).

This finding was supported by another qualitative study conducted in Ethiopia, in which counsellors were reported that there is a difference in knowledge about HIV/AIDS between rural and urban population [41]. This finding was also in agreement with another qualitative study

conducted in Nakuru Woreda, Kenya, which was reported as the majority of the study participants (FGDs & IDI) were perceived inaccessibility of information about VCT services in rural areas [42]. Similarly, another study conducted in South Africa was also reported in-accessibility of information and VCT services.

Besides participants having an agreement, concerning the teachers who are in rural area being less access to information, majority of them were also mentioned the importance of individual commitment and availability of different HIV/AIDS interventions as a factors behind having such information and knowledge. All participants concurred regarding the importance of different kinds of interventions to improve the awareness level of primary school teachers and beyond, especially in rural areas. One of the hospital managers was discussed about the importance of increasing awareness of the community on HIV/AIDS and utilizations of VCT services in the following manner.

“I can tell you proudly how awareness creation programs on HIV/AIDS made a change in the community, now days at least there is common understanding among urban settlers to conduct HIV test before marriage, so that further awareness creation should be done in rural areas using different medias, especially through radio, which is easily accessible in rural areas” (Male, 30 years old, BSc, MPH and hospital manager in one of visited hospitals).

This was also supported by another qualitative study conducted in South Africa, where representative of all the FGDs were mentioned the importance of increasing awareness campaigns in rural areas in order to boost VCT uptake [43]. Another qualitative study conducted in Nepal was also reported similar results, majority of study participants were discussed and explained about the need to increase awareness about HIV/AIDS and VCT services in the general community [44].

Theme 2: Factors influencing delivery and utilizations of VCT services

This theme has two categories and six sub-categories and the information from participants regarding the theme has been presented below, with quotations. Literature control was also done for both categories and six sub-categories.

The qualitative study participants were asked to discuss and explain in detail on the major factors influencing the delivery and utilizations of VCT services amongst primary school teachers in the study area. Accordingly, the major factors influencing the delivery and utilizations of VCT services at individual level, facility (provider) level and system level were discussed and presented below under the two categories.

Category 2.1: Driving factors for the utilizations of VCT services

The study participants were discussed and explained on the major driving factors for the utilization of VCT services in the study area. Accordingly, the major driving factors for the utilization of VCT services discussed by study participants were summarized in the following manner. This category consists of one sub-category bulleted below.

- Individual level driving factors for the utilization of VCT services

The qualitative study participants were discussed about individual level driving factors such as the plan for marriage, blood donation and lack of trust on sexual partner as driving factors for the utilization of VCT services. Among an individual level driving factors, majority of the study participants were discussed and explained about the lack of trust on sexual partner as driving factors for the utilization of VCT services. Most of them added that, especially when one of the partners perceive that as his/her sexual partner is not faithful in their relationship, they put themselves in danger situation and started worrying that they might be infected as result of their partner's behavior and become eager to know their HIV status. One of the qualitative study participants was discussed on the issue in the following manner.

"Let me share with you, my own first incident to VCT services. I was working in the same school with my boyfriend for the last years, until he was transferred to another school in the capital before two months. Although, we were in relationship for the last 5 years, he always tries to divert the issue when I ask him to plan for our marriage and he always tries to convince me as he loves me. One day I told him that, as I am going to stop the relationship, unless he is in the position to discuss seriously on the issue. That day, he told me as we have to post-pone our marriage programme to another time and as we have to focus on our academic achievement. However, finally, I heard and also confirmed that he had a wife and two children from his birth place after he already transferred to another school. That was the first incident for me to conduct VCT service in order to know my HIV status. Thanks to Allah (GOD), my test result was negative." (Female, 27 years old, Diploma holder and teaching in one of visited primary schools).

Similarly, VCT counsellors were also discussed, the lack of trust in sexual relationship as one of the driving factors for VCT clients, especially among females. Most of the counsellors were also indicated as most of their most of the female clients complained about the unfaithfulness of their male partners as the reason for having VCT services. One VCT counsellor was explained about the issue in the following manner.

"Out of ten female clients, at least three of them mentioned directly or indirectly, the lack of trust on the faithfulness of their boyfriend/husband as the reasons for having VCT services." (Male, 30 years old, BSc and VCT counsellor at one of the hospital).

Similarly, another qualitative study conducted in southern Ethiopia was also reported an individual level factors such as having a marriage plan, repeated illness and planning for future as the driving factors for the utilization of VCT services [45]. In addition, the systematic review of the study in Sub-Saharan Africa was also reported the plan for marriage and blood donation as individual driving factors for the utilizations of VCT services [46]. It was also supported by another qualitative study conducted in Tanzania, which was also reported that, people have been influenced to know

their HIV status after they suspected an activity they were involved might be cause them to contract HIV.

#### Category 2.2: Factors hindering utilization of VCT services

The study participants were asked to discuss and explain on the hindering factors for the utilization of VCT services. Accordingly, the major factors hindering the utilization of VCT services were explored and summarized in the following manner. This category consists of five sub-categories bulleted below.

- Stigma and discrimination

The study participants were discussed about the stigma and discrimination related to HIV/AIDS. According to the study participants, stigma and discrimination by general community including close family members were the main reason not to conducting VCT services. Participants also talked about the inability to cope with HIV positive test results in conservative and very religious community as hindering factors for VCT uptake. One qualitative study participant was explained about his first incident to VCT services.

"My first time test for HIV was full of fears and worries. I was conducted VCT to start relationship with my wife five years ago, as it was her requirements. I was decided to have VCT in advance and visited the center. I was welcomed by assistant counsellor, who was standing on the gate of VCT room. She said welcome to VCT center and told me as I have to wait for an hour because, there were three clients before me, where there was only one counsellor. For me, that one hour was equal to a year because, I was remembering what would happen if my test result was going to be positive, since no one in the community including my loved one accept me at all. Finally, I was very happy since my test result was negative." (Male 28 years old, BSc and teaching in one of the schools visited).

In agreement with the current study, the fear of stigma and discrimination by the community were reported as inhibiting factors for the utilizations of VCT services in the qualitative study conducted in southern Ethiopia [45]. Similarly, the fear of stigma and discrimination was also reported as the main inhibiting factors for the utilizations of VCT services in another qualitative study conducted in South Africa [47]. The current finding was also in agreement with the finding of the study conducted in Nepal, which was also reported, the presence of stigma and discrimination in the general community [44]. Another qualitative study conducted in South Africa was also reported that, there was a common feeling among all study participants that people who test positive to HIV may not disclose their HIV status as a result of stigma and discrimination by the general community [42].

- Parents and friends' attitude towards VCT uptake

The qualitative study participants were discussed about their parents and friends' attitude towards utilizations of VCT services. Accordingly, parents and friends were said to be barriers to primary school teachers, those want to conduct VCT service. Majority of study participants were discussed and explained their families and friends' as barriers for VCT

utilizations in occasions where they motivated to conduct VCT services. Most of them discussed, as their family and friends were blocked them from having VCT service by negative feedback, when they shared the information with them. One qualitative study participant was explained the issue in the following manner.

“Family and friends are parts of this conservative community and they have their own way of understanding about the issue, as long as they share this conservative community believe about HIV/AIDS, where they themselves also didn’t undergone VCT.” (Male, 27 years old, diploma holder and teaching one of the visited schools).

However, most of the study participants were discussed as it was not the same for every family member, because there were some parents and friends who were very positive about the issue. One qualitative study participant was explained the issue in the following manner.

“When I was told my older brother, as I need to conduct VCT, he asked me for the reasons with smile face, “would you like to start new relationship or for any other reasons?”, However, he appreciated the idea before I replied even for the question. He said, whatever the reasons you have, VCT uptake is an important step to know your HIV status. I told him, as I want to donate blood for Red Cross Association and surprisingly he was said that let’s go together. Then after, we done the test in the same day and started blood donation together before 2 years ago.” (Female, 25 years old, Diploma and teaching in one of the visited schools).

The current finding was in line with the finding of qualitative study conducted in South Africa, where majority of the study participants were perceived that, their families and friends were not supportive for VCT services, while only few of them were mentioned the presence of supportive and non- judgmental environment in their family [47].

Similarly, another study conducted in South Africa was also reported partners and friends’ attitude as determining factors for the utilizations of VCT services [48].

- The location of VCT centers

Regarding the location of VCT centers, the study participants were discussed and raised different issues related to the location of VCT centers within health facility. Most of them were not happy with the current location of VCT centers, where VCT service is integrated with other health care services and provided in the same health facilities.

Most of the qualitative study participants were talked that, such arrangements were not convenient for VCT clients, because of the high probability of being seen by someone who know them including their family members and close friends; those might be there for other health care services. Most of the study participants talked repeatedly about the loss of confidence to enter into the VCT room from the common waiting areas. One qualitative study participant was talked about the issue in the following manner:

“How can I enter into the VCT room found in our village the health center, where everybody in our village, including my close family and friends visit the same health center

for any health care services. Imagine, if one of my husband friends was in that health center while I was entering into VCT room. To me, it is difficult to conduct VCT service in such context.” (Female, 28 years old, BSc and teaching one of the visited schools).

This finding was supported by similar study conducted in Ethiopia, where VCT counsellors reported as the counselling room was not conducive for their clients, where the room was narrow and very hot, especially in the mid-day [41]. Similar result was also reported in the study conducted in South Africa, where the study participants were talked about the locations of VCT centers and privacy of the services were directly affecting the utilizations of VCT services [47]. However, the current finding was not in agreement with the study conducted in Addis Ababa and Adama, Ethiopia, in which most of the respondents were believed that they were satisfied with the confidentiality and privacy of the rooms [41]. This might be related to the difference in organizational setup and VCT providers’ motivations, since that study was focused on the services provided by non-government organization.

On the other hand, hospital managers and heads of health center were stressed on the importance of service integration. They discussed and explained the importance of service integrations in terms of service accessibility, where the community can access all services they need, including VCT services in the same compound. They were also indicated that, service integration is the policy priority, where its importance also proven practically by the efficient utilizations of resources and by reducing indirect costs for the clients. One of the three heads of health center was explained the importance of service integrations in the following manner:

“I believe that, service integration is very important to provide services in the same compound for the community, especially for mothers where it is not only save their time but also their energy. But there should be appropriate rooms that can ensure the privacy.” (Male, 30 years old, BSc, head of health center).

Similarly, the study conducted in South Africa was reported, the importance of service integrations for vulnerable people to access VCT services starting with conditions that are curable, including sexual transmitted infections and tuberculosis. This was also supported by the findings of the study conducted in Uganda and Burundi, where health policy and health facility structures were reported as the factors facilitating the utilizations of VCT services [49]. This finding in agreement with the study conducted in Nepal, where VCT providers were reported the benefits of service integrations, where clients easily access all services in the same compound [44]. In agreement with the current finding, the study conducted in Canada and the United Kingdom was identified service integration as facilitators for the increase of the utilizations of VCT services [50].

- Confidentiality of VCT services

With regard to confidentiality, the study participants were concerned with the confidentiality of the VCT services.

Majority them raised worries that, counsellors cannot keep their clients' secrets. According to majority of the study participants, it is difficult for counsellors to keep the secrets of their clients in all the time, because as they are also human beings, there is a probability of making mistakes. Regardless of their testing history for HIV, all study participants were agreed on the possibility of doing a mistake by VCT counsellors by not keeping the secrets of their clients. One study participant talked about the reason why it was difficult to him to trust the confidentiality of VCT services in the following manner:

"Imagine, if a counsellor was greeted one of his positive clients in the café, while he was enjoying with his boyfriends and if one of them asked about her. Do you think that, it is not difficult for him to kept the secret while his friend was eager to know about her? To my understanding, it is difficult but generally I believe as there are also committed counsellors who are strong enough to kept the secret of their clients." (Male, 30 years old, diploma holder and teaching in one of the visited primary schools).

Similarly, VCT counsellors were also discussed regarding the confidentiality of VCT services. Most of them were talked about the responsibility VCT counsellors, with regard to keeping secretes of their clients and also indicated about ethical issue, as the counsellors need their clients consent prior any disclosure. One senior counsellor was discussed about the issue in following manner:

"To me, this is private issue and difficult to speak on behalf of other counsellors to conclude that, all counsellors can or cannot kept confidentiality of their clients in all of the time. However, ethics should be remembered in all the time." (Male, 30 years old, BSc nurse and VCT counsellor at one of visited hospitals).

In agreement to the current finding, the lack of trust on confidentiality of VCT services was also reported as hindering factor for the acceptance and utilizations of VCT services by another study conducted in Ethiopia [45]. In addition, qualitative study conducted in South Africa was also reported, privacy and confidentiality of VCT services as the factors directly affecting utilization of VCT services [47]. Another qualitative study conducted in South Africa, was also reported as majority of the study participants did not want to use VCT services, because of they were not sure of the confidentiality of the services.

- Providers skill gaps and lack of strong system

With regard to providers' skills, all VCT counsellors participated in the current study were received the basic HIV counselling and testing training. However, only some them had additional training on youth friendly health services. Most of the counsellors revealed that, counselling was a hard task, which needs effective trainings to handle their clients with different background history. They also indicated that, without such trainings they may face serious challenges when providing counselling, especially to young people, because the basic counselling lacks some of very important components in counselling young people. One junior counsellor expressed his experience as follows:

"I was started counselling in this health center two years ago, after I was graduated as BCs nurse from Jimma university, where I was also trained on patient counselling as part of academic course. However, the training provided by Ministry of Health on youth friendly services, was dramatically improved my counselling skills. I was learned how to approach to the youth in a way acceptable to them" (Male, BSc, 26 years old and counsellor in one of visited health centers).

Similarly, hospital managers were also discussed the importance of capacity building for VCT counsellors as a key tool to improve their counselling skills on welcoming, client handling. One hospital manager was explained the issue in the following manner:

"To me, an effective trainings and regular review meetings helps the counsellors to improve their counselling skills and to make sure the confidentiality of the services." (Male, 36 years old, BSc, MPH and hospital manager in one of visited hospitals).

The finding of the current study was in agreement with study conducted in Canada and United Kingdom, which was reported providers related factors, such as the skills of VCT providers, confidentiality of VCT service and privacy the services as determining factors for utilizations of VCT services [50]. The finding of the current study was also in line with the study conducted in South Africa, which was reported, as the shortage of trainings was negatively affects the utilisation of VCT services among young adults.

This finding was also in agreement with the study conducted in rural Tanzania, in which the study participants were raised that the services provided were poor or that healthcare workers were 'harsh' or 'impatient' [51]. In agreement to the current finding, the lack of adequate staff training was reported in the study conducted in Nepal, where almost all service providers noted, the lack of staff training as hindering factor for utilization of VCT services [44].

With regard to VCT system, qualitative study participants were discussed about the lack of strong system. According to VCT providers, the support provided by Ministry of Health for VCT service delivery was not adequate. Most of them were also discussed about the lack of continuity and uniformity in supervision, monitoring and evaluation. The study participants were also raised about the shortage of human power due to high staff turnover related to better opportunities and lack of incentives, the vacant positions are compromising quality of VCT services. One hospital manager explained on the issue in the following manner:

"As far as I know, there is no regular training given for the VCT counsellors and most of the time they did not provided refresher trainings." (Male, 30 years old, BSc in health officer and head of health center).

In agreement with the current study, the lack of training, improper use of the testing strategy, lack of supportive supervision were identified as the factors hindering utilizations of VCT services [1]. This finding was also in agreement with the study conducted in Uganda, which identified the shortage of counsellors in the hospitals as barriers for the utilizations of VCT services [52].

## Conclusion

The study was explored and summarized the major determining factors for the utilization of VCT services at individual, facility and system levels in the study area. Factors such as inadequacy of waiting area, the lack of confidentiality and privacy of the service and stigma and discrimination were explored as the major determining factors for the utilization of VCT service. It is vital to design a strategic framework, which will contribute to the increase of VCT uptake amongst primary school teachers in the study area.

Health institutions and different media should advocate the benefits of VCT. The stigma reduction intervention should be strengthened. Information, education and communication programmes should be established. Comparative study amongst primary school teachers from different schools should be done to establish factors that influence the acceptance and utilization of VCT services. In addition, a comparative analytical study among male and female primary school teachers should be conducted to find out if there is any causal relationship between gender and attitude and practice towards HIV testing. Furthermore, a large-scale population based cross-sectional study design with sequential quantitative and qualitative data collection methods would be appropriate in Jimma Zone, south west Ethiopia.

## Acknowledgment

I thank Allah (God) above all, for being by my side throughout my study. Then after, I would like to express my deepest gratitude to my supervisor, Prof PR Risenga, for assistance, constructive comments and guidance. I am also very much indebted to my wife, Naima Fathi, my mother, H/biya Abafita and my father Abamecha Sheki, for their persistent moral and material supports they rendered me during the entire period of my study. I wish also to thank supervisors, data collectors and study participants for their contribution to the success of the data collection. My special thanks and sincere appreciation also go to team of experts for their time to review the draft of strategic framework, constructive comments and suggestions. Finally, my heartfelt gratitude also goes to Oromia Regional health bureau for the provision of permission letter, Woreda Health and Education Offices for their cooperation and facilitation of data collection.

## References

- WHO (2015) Consolidated guidelines on HIV testing services. 5 Cs: Consent, confidentiality, counselling, correct results and connection.
- UNAIDS (2014a). The gap report. Beginning of the End of the AIDS epidemic.
- Menna T (2015) Effects of HIV/AIDS and interventions to mitigate the epidemic at public primary and secondary schools in Addis Ababa, Ethiopia. Doctoral thesis. Addis Ababa University.
- Kazhila CH, Choshi K, Cornelia N (2011) Impacts of HIV/AIDS on secondary school science teachers and learners in Namibia. *Journal of public health and Epidemiology* 3: 540-549.
- MOED (2009) Education sector development programme V (ESDP V).
- UNAIDS (2013) Report on the global AIDS epidemic.
- UNAIDS, AU (2015) Empower young women and adolescent girls: Fast-tracking the end of the AIDS epidemic in Africa.
- UNAIDS (2015) "15 by 15" A global target achieved.
- Garbus L (2003) HIV/AIDS in Ethiopia. AIDS Policy Research Centre, University of California San Francisco.
- World Bank & HAPCO (2008) HIV/AIDS in Ethiopia. An epidemiological synthesis.
- HAPCO (2007) Guidelines for HIV counselling and testing in Ethiopia.
- Bock M (2014) Factors influencing the uptake of HIV voluntary counselling and testing in Namibia.
- UNAIDS (2016) Global AIDS update: Enormous gains, persistent challenges.
- Bereda M (2015) Identifying factors that affect helping clients at VCT in Black Lion Hospital. Master thesis. Addis Ababa University.
- Kumar R (2011) Research methodology. 3rd edition. British Library Cataloguing in Publication data. London.
- Bhattacharjee A (2012) Social science research: Principles, methods, and practices. Florida: University of South Florida.
- Williams C (2007) Research methods. *Journal of business and economics research* 5.
- Rajasekar S, Philominathan P, Chinnathambi V (2013) Research methodology.
- Jimma Zone Education Office Annual Report (2014) Achievements against plan in 2013.
- Jimma Zone Health Office Annual Report (2014) Progress and achievements in 2013.
- Garson G (2012) Sampling. North Carolina State University.
- Datta SH, Funnel K, Ramuscak N (2012) Improving the sample size calculation process for peel health: A rapid review of the evidence.
- Robert K (2011) Qualitative research from start to finish. The Guilford Press. A Division of Guilford Publications, Inc. 72 Spring Street, New York, NY 10012.
- Howitt D (2010) Introduction to qualitative methods in psychology. 2nd edition. Loughborough University.
- Maxwell J (2008) Applied research designs: Designing a qualitative study.
- Chandrashekar S, Suresh K (2012) Sample size estimation and power analysis for clinical research studies.
- Halcomb E, Hickman L (2015) Mixed methods research. *Nursing Standard. Art & Science research series*. From: <https://www.researchgate.net/publication/266087025> (accessed on 20 June 2016).
- Cunningham K (2014) Social research design: Framework for integrating philosophical and practical elements.
- Harrell MC, Bradley MA (2009) Data collection methods: Semi-structured interviews and focus groups. National Defence Research Institute. US government.
- Abawi K (2013) Data collection instruments (questionnaire and interview).
- Zohrabi M (2013) Mixed method research: Instruments, validity, reliability and reporting findings. *Theory and Practice in Language Studies*, 3: 254-262.
- Leonard A, Jason D, Glenwick S (2015) Community-based research: A handbook for Native Americans.
- Sukamolson S (2013) Fundamentals of quantitative research. Chulalongkorn University.
- Annum G (2016) Research instruments for data collection.
- Oluwatayo J (2012) Validity and reliability Issues in educational research. *Journal of educational and social research* 2: 391-400.
- Baxter P, Jack S (2012) Qualitative case study methodology: Study design and implementation for novice researchers.

37. Braun V, Clarke V (2006) Using thematic analysis in psychology: Qualitative research in psychology.
38. Jing K, Wenglesky S (2010) Research method.
39. Cohen L, Manion L, Morrison K (2007) Research methods in education. 6th edn, London, Routledge, Taylor & Francis Group.
40. Asa UA, Nkan VV (2015) Barriers to condom use by youths in rural areas of Akwa Ibom State, Nigeria. *American journal of research communication* 3: 14-22.
41. Tamirayehu T, Tadesse T, Kebede Z (2016) Assessment of the quality of mobile VCT services in Addis Ababa and Adama organization for social services for AIDS (OSSA) branches, Ethiopia. *International journal of medicine and medical sciences* 8: 36-44.
42. Wahome M, Wiberforce Ch, Dew K, Josef M (2015) Dynamics of HIV Voluntary Counselling and Testing uptake among the rural and urban communities of Nakuru Woreda, Kenya. *Int J Appl Research* 1: 18-38.
43. Mbengo F, Ngirande H, Ndou ND (2014) Strategies to boost the uptake of voluntary counselling and testing (VCT) by university students. *Mediterranean Journal of Social Sciences* 5: 458-463. From: [http://www.nature.com/nature/journal/v528/n7580\\_supp\\_custom/pdf/nature16044.pdf](http://www.nature.com/nature/journal/v528/n7580_supp_custom/pdf/nature16044.pdf) (accessed on 10 April 2016).
44. Mahato PK, Peng B, Burgess T (2013) Voluntary counselling and testing (VCT) services and its role in HIV/AIDS prevention and management in Nepal. *South east Asia Journal of public Health* 3: 10-16.
45. Hirut B (2014) Factors influencing HIV Voluntary Counselling and Testing (VCT) service utilization among youth of Hawassa Town: Health belief model approach, Southern Ethiopia. *Journal of science & development* 2: 49-58.
46. Musheke, M, Ntalasha, H, Gari, S, Mckenzie, O, Bondi, V, et al. (2014) A systematic review of qualitative findings on factors enabling and deterring uptake of HIV testing in Sub-Saharan Africa. *BMC Public health* 13: 220.
47. George G, Rhodes B, Strauss M (2015) A qualitative analysis of the barriers and facilitators of HIV counselling and testing perceived by adolescents in South Africa. *BMC Health Serv Res* 15: 250.
48. Mohlabane N, Tutshana B, Peltzer K, Mwisongo A (2016) Barriers and facilitators associated with HIV testing uptake in South African health facilities offering HIV counselling and testing. *Health SA Gesondheid* 21: 86-95.
49. Odu O, Amu K (2013) Assessment of voluntary counselling and testing uptake among adults in Osun State Nigeria. *Asian journal of medical science* 5.
50. Kaai S, Bullock S, Burchell A, Major C (2012) Factors that affect HIV testing and counseling services among heterosexuals in Canada and the United Kingdom: An integrated review. *Patient Educ Couns* 88: 4-15.
51. Cawley C (2015) Understanding the role of HIV testing and counselling services in HIV prevention in rural Tanzania. Doctoral thesis. London School of Hygiene and Tropical Medicine.
52. Mugisha E, Potgieter E, Rensburg GH (2011) Strategic framework for increasing accessibility and utilisation of voluntary counselling and testing services in Uganda. *AIDS Res Treat*.