

Ethiopian Public Health Association (EPHA)



**EPHA Sponsored Master's Theses
Extracts on HIV/AIDS**

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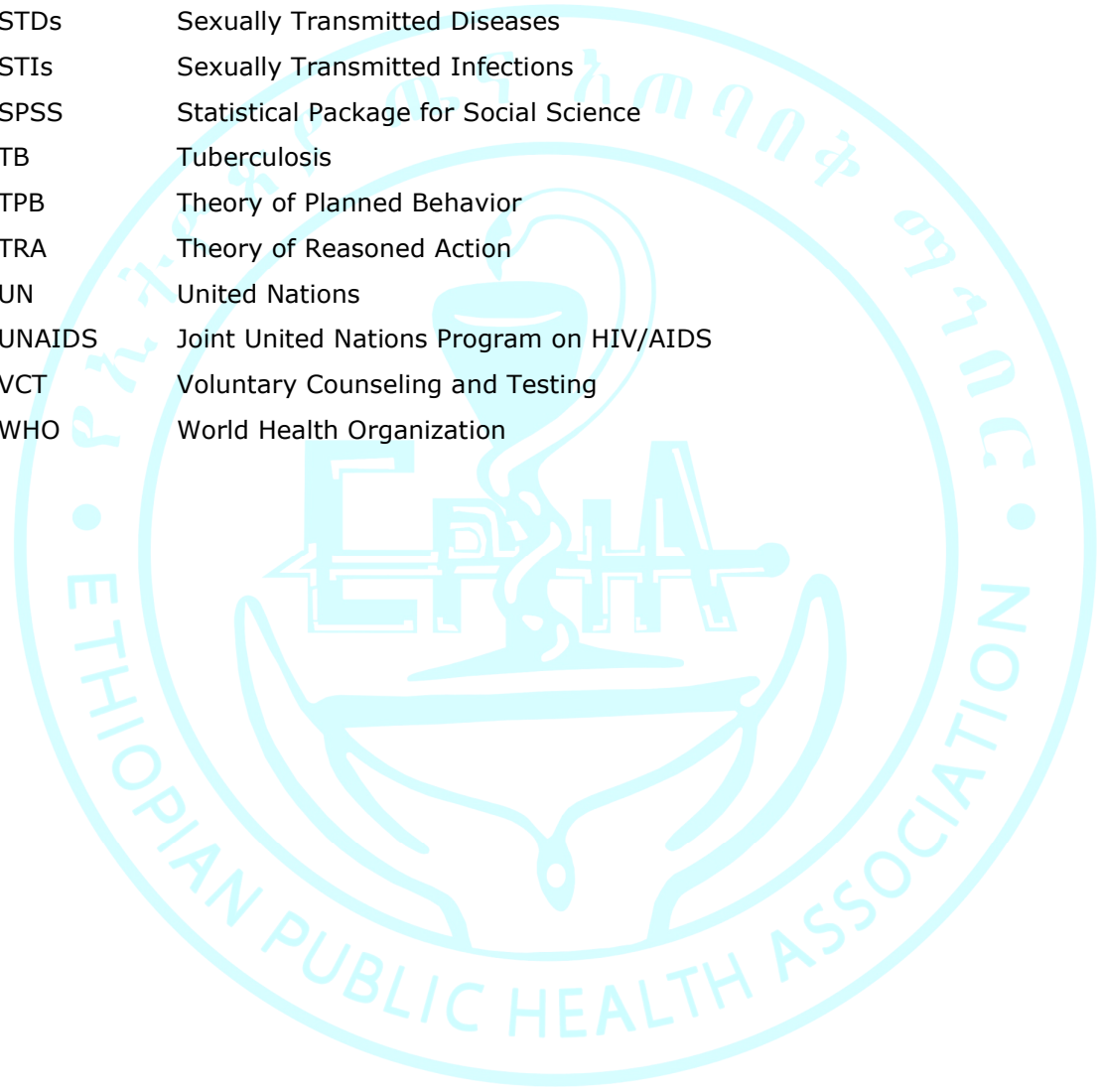
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EPHA

Acronyms

AAU	Addis Ababa University
AIDS	Acquired Immuno Deficiency Syndrome
ANC	Antenatal Clinic
AOR	Adjusted Odds Ratio
ARV	Anti- Retroviral
ART	Anti- Retroviral Therapy
BCC	Behavioral Change Communication
BSS	Behavioral Surveillance Survey
CDC	Center for Disease Control and Prevention
CD4	Cluster of Differentiation 4
CI	Confidence Interval
COR	Crude Odds Ratio
DOTS	Directly Observed Therapy Short course
EFA	Education For all
EPHA	Ethiopian Public Health Association
FGAE	Family Guidance Association of Ethiopia
FGD	Focused Group Discussion
FHAPCO	Federal HIV/AIDS Prevention and Control Office
FMoH	Federal Ministry of Health
FP	Family Planning
HAART	Highly Active Antiretroviral Therapy
HAPCO	HIV/AIDS Prevention and Control Office
HCT	HIV Counseling and Testing
HEIs	Health Extension Institutions
HIV	Human Immunodeficiency Virus
IDI	In-Depth Interview
IEC	Information Education Communication
IRB	Institute of Review Board
LTFU	Long Term Follow Up
MTCT	Mother to Child Transmission
MoH	Ministry of Health
MPH	Master of Public Health
MYSC	Ministry of Youth, Sport and Culture
NGO	Non -Governmental Organization

OR	Odds Ratio
PIHTL	Provider Initiative HIV Testing & Counseling
PLWHA	People Living With HIV/AIDS
PMTCT	Prevention of Mother to Child Transmission
RHS	Reproductive Health Service
SD	Standard Deviation
SNNPR	Southern Nations and Nationalities People Region
STDs	Sexually Transmitted Diseases
STIs	Sexually Transmitted Infections
SPSS	Statistical Package for Social Science
TB	Tuberculosis
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
UN	United Nations
UNAIDS	Joint United Nations Program on HIV/AIDS
VCT	Voluntary Counseling and Testing
WHO	World Health Organization



Message from the President of EPHA

Although global attention to HIV and AIDS remains strong, particularly regarding treatment initiatives, until recently HIV prevention has garnered scant attention. Treatment alone will not reverse the epidemic, and current prevention efforts have not been successful in halting HIV transmission.

Today, HIV/AIDS poses a major threat to development and poverty alleviation, particularly in sub-Saharan Africa. Education has been declared an effective preventive approach and the single most powerful weapon against HIV transmission. However, there is a paucity of research on the type of education required, the appropriate teaching/awareness raising methods, and generally how such education influences change of attitudes and behavior on the part of the target community.

The Ethiopian Public Health Association (EPHA), based on findings from operational research activities has been actively engaged in supporting, generating and disseminating useful information since the emergence of HIV/AIDS. EPHA disseminated these diverse findings to wider audience in and outside the country through its various publications such as; the series of MPH Theses Extracts, Public Health Digests, Felege Tena-newsletters and the Ethiopian Journal of Health Development. Furthermore, those publications are regularly posted on our website, www.ephah.org, to reach still a wider range of public, globally.

These Masters Theses compiled in 'Extract No. 13' appeal to select research output from EPHA-CDC project research awards in the area of HIV/AIDS. The Extract summarizes findings of public health research outputs that explore a number of important issues such as; risk of HIV/AIDS and preventive behaviors, Utilization of HIV counseling and testing service, Assessment of overall quality of prevention of mother-to-child transmission of HIV service, Assessment on the situation of water, sanitation and hygiene in home based care clients of PLWHA, assessment of acceptability of provider initiated HIV counseling and testing among tuberculosis patients on DOTS quality of voluntary counseling and testing services, reasons for defaulting from public ART sites, assessment of magnitude, barriers and outcomes related to HIV sero-status disclosure among ART users and other related subjects.

EPHA hopes that the information obtained from the studies will help policy makers and program implementers in their efforts to prevent and control HIV/AIDS. EPHA would therefore like to congratulate the authors as well as the participants in the research activities for their important contributions, without which the information for this extract would not be available.

In conclusion, I would like to promote this document among all its readers of this Extract to utilize the findings and recommendations of the studies in order to enhance program implementation and improve quality of services to contribute towards effectively addressing the problems and reduce the spread of HIV/AIDS infection in Ethiopia.

Dr. Wakgari Deressa

V/President, Ethiopian Public Health Association (EPHA)



Introduction

Lots of what we do in our daily lives is based on common sense, what we have learnt from others or through personal experience or observation. But sometimes common sense is not the best approach and sometimes there are conflicting theories about what is best or what works in a particular situation. Moreover, what works in one situation or for one condition might be ineffective or even dangerous in another, or when combined with other measures. Common sense approaches may overlook the impact of external factors which may contribute to what is observed. Even in the domain of healthcare, there are gaps in knowledge, in the theories about how something might work better and ideas for improvement. Obviously, as healthcare professionals the sector actors cannot defend for the measures taken blindly; research is needed.

Accordingly, EPHA believes in organized effort to generate such evidence based documents and disseminate to the respective target community. This publication counts up as the 13th MPH publication in the form of EXTRACT and comprises an abridgment of seven Master's theses carried out by postgraduate students for their partial fulfillment of the academic requirement in the Schools of Public Health, various national Universities. The Postgraduate students have challenged various public health issues regarding HIV/AIDS practices. As a result, the publication intends to encourage using evidence in the decision making and program implementation aspects of HIV/AIDS. As used in the previous mode of Extract, each of the studies included in this document has been presented independently enclosing brief abstracts, followed by an introduction, a background, objectives, study design, results, conclusions and recommendations.

The first thesis presents the perceptions of the risk of HIV/AIDS with regard to preventive behaviors among Dire Dawa University students. The second study takes up spot utilization of HIV counseling and testing service and predictors of intention to use it among teachers of Harari Region. The third research, on the other hand, deals with assessment of overall quality of prevention of Mother-to-child transmission of HIV service in Adama Town, Oromia Region. The next extract tried to assess situation of water, sanitation and hygiene in home-based care clients of PLWHA in Addis Ababa.

The fifth thesis worked on assessment of acceptability of provider initiated HIV counseling and testing among tuberculosis patients on DOTS in selected areas in Gamu

Gofa Zone, SNNPR. The last one discusses the reasons for defaulting from public ART dispenser in Addis Ababa.

To sum up, once again EPHA encourages the readers of this Extract to use the research findings in program implementation, policy making and in the overall fight against HIV/AIDS. Good Luck!



Thesis 1:

**Perception of Risk of HIV/AIDS and the Intervention needed to Adopt
Preventive Behaviors among Dire Dawa University Students**

Saba Hailemeskel

Abstract

Background : An "epidemiological synthesis" exercise commissioned by HAPCO and World Bank in 2007 indicated that in recent years a number of new training centers and higher Educational institutions have been opened in Ethiopia. These Institutions and their student populations have not been studied, but there is some anecdotal evidence suggesting widespread unsafe sexual practices.

Objective: To assess the sexual behavior, perception of risk of HIV/AIDS and intention to adopt preventive behaviors constructing Theories of Reasoned Action among Dire Dawa University students.

Methods: A cross-sectional qualitative and quantitative study was done in Dire Dawa University on March 2009. Quantitative data were collected in a self-administered questionnaire and guiding questions were prepared for the focus group discussions used to gather qualitative data. Analysis was done using the Chi-squared test of significance, correlation, multiple linear regression and Cronbach's reliability test .The qualitative data were transcribed and translated into English, and then manipulated manually by grouping the ideas into similar thematic sets.

Results: Questionnaires filled by 369 (90.2%) students were used for analysis. 129 (35%) of the students were females and the mean age (SEM) of the study subjects was 20.3 ± 1.6 . One hundred and ten (29.81%) had ever had sexual intercourse, of whom 18 (16.4%) were females. The mean age of first sexual debut was 17.9 years (± 2.2). Among the sexually active students, 33.7% had multiple sexual partners and 37.3% had sex after alcohol consumption. Trusting one's partner and falling in love were the main reasons for not using condoms. Twenty (5.42%) of the students claimed that their chance of contracting HIV/AIDS was high while 93 (25.20%) said there was no chance at all. Attitude and subjective norms were significantly correlated with intention and subjective norm was found to be the major predictor of intention to abstinence and to use condoms for both males and females.

Recommendations: The risky sexual behaviors observed in the university need the close attention of the university's anti-AIDS club, the university itself and the government.

Introduction

Ethiopia is one of the sub-Saharan countries most severely affected by the HIV/AIDS pandemic. At present the national adult HIV prevalence rate is estimated at 2.1% and an estimated number of 901,893 people are living with HIV/AIDS. Although there are some encouraging signs, surveillance results indicate that the epidemic is still progressing though at a slower rate than previously predicted (2).

An "epidemiological synthesis" exercise commissioned by HAPCO and the World Bank in 2007 indicated that in recent years a number of new training and higher learning institutions have been opened. These sites and their student populations have not been studied. But there is some anecdotal evidence suggesting widespread unsafe sexual practices in these institutions (4).

Theoretical framework

It is accepted that Investigations should be based on theoretical formulations and models, which facilitate the work of both future investigations and effective interventions (12). Among such models is the theory of reasoned action (TRA), introduced in 1967. It is based on the assumption that human beings are usually quite rational and make systematic use of the information available to them, and that people consider the implications of their actions before they decide to engage in a given behavior. According to the theory of reasoned action, intention is the immediate determinant of a certain behavior. Intention is determined by (a) attitudes toward the behavior and (b) perceived subjective norms. Attitude toward the behavior is in turn determined by behavioral beliefs, specifically the perceived outcomes of the behavior and the value placed on those outcomes. Perceived subjective norms are determined by normative beliefs, i.e., perception of significant referents' beliefs about whether one should engage in a certain behavior and the motivation to comply with those referents (8).

The theory of reasoned action is particularly relevant to sexual education because it focuses on cognitive factors — beliefs and values. It is vital to understand these cognitive factors in order to intervene since beliefs and values about sexuality influence young people's decision-making regarding their sexual behavior (20).

Objectives

General objective:

To assess the sexual behavior, perception of risk of HIV/AIDS and intention to adopt preventive behaviors among Dire Dawa University students .

Specific objectives:

- To assess the sexual experience of Dire Dawa University students.
- To describe the perception of risk of HIV/AIDS among Dire Dawa University students
- To assess intention to adopt preventive behaviors among University students using constructs from the theory of reasoned action.

Study methods

Study area

Dire Dawa administrative council is found about 525Km east of the country's capital city Addis Ababa, Ethiopia. The study was carried out in Dire Dawa University located within the city in Sabian kebele 02. It is one of the 13 universities newly established by the government of Ethiopia.

The university provides regular as well as summer continuing education programs. Presently it has 5 faculties: (Natural Science, Social and Language, Business and Economics, Technology and the Faculty of Law) The five faculties together have 28 departments with a total student population of around 4846. The University has one clinic and an anti AIDS club for students.

Study design

The study design was cross-sectional and used both quantitative and qualitative approaches (Focus group discussion). The data were collected from the students attending the regular program and excluded those enrolled under the continuing education program.

Study population

Inclusion criteria: A day time regular students with the age range between 18 and 29.

Exclusion criteria: Students attending the non regular program and with an age less than 18 or greater than 29.

Sample size

The sample size for the quantitative study was calculated using the single population proportion formula. The value of p was taken as 50% as there is no previous study done in the study area; 5% margin of error and 95% level of confidence was taken for a sample size of 384. Finite population correction formula was used since the total population was less than 10,000. And the sample became 356. Since the questionnaire was self administered, a non response rate of 15% was allowed for, making the final sample size 409.

Sampling procedure

Quantitative study

One department was selected from each of the five faculties of the university by simple random sampling. Then the students from the selected departments were stratified by year of registration and sex. After stratification, potential participants in the quantitative study were identified by simple random sampling proportional to the composition of the strata.

Qualitative study

The qualitative data were collected prior to the quantitative data. Two male and female focus group discussions were set up conducted with purposely selected participants excluded those who participated in the quantitative part.

Operational definitions

Intention: was measured with one item for each of the three preventive behaviors: "From now on I intend to abstain from sex before marriage or limit sexual partner or use condoms". Responses were structured on a five point Likert scale ranging from strongly agree to strongly disagree.

Attitude (Advantage): was assessed with three pairs of statements relating to the advantageous outcomes of the three preventive behaviors identified in the qualitative data for each of the three preventive behaviors. Each pair comprised a behavioral (outcome) belief item with a corresponding outcome statement. Statements like "For me avoiding sex before marriage will protect me and my partner from having unwanted pregnancy" and for outcome evaluation statements like "To what extent is it good or bad to avoid unwanted pregnancy" were used. These questions were structured on a five point Likert scale.

Attitude (Disadvantage): was also assessed with three pairs of statements relating to the disadvantageous outcomes of the three preventive behaviors identified in the qualitative data. Statements like "I may lose my partner if I say no to sex" and "To what extent is it good or bad to lose your partner" were used. Similarly these too were structured on a five point Likert scale.

Subjective norms: the construct assessed respondent's perceptions of the likelihood that a significant number of others would approve of their being abstinent, limiting sexual partner or condom use and the extent of their motivation to comply with such referents. Statements like "The following people would approve of my being faithful to my partner" and "I would like to do what my think I should" referring to each of the individuals identified in the qualitative data.

Data collection instruments

Quantitative data were collected using a self-administered questionnaire first prepared in English then translated into Amharic. The questionnaire was translated back into English and checked for consistency. The questions were prepared using constructs from the theory of Reasoned Action. And pre-tested at Lucy College in Dire Dawa. The variables included were :

Independent Variables:- Socio demographic characteristics sexual experience of respondents, attitude and subjective norm constructs.

Dependent variables:- Intention to adopt preventive behaviors (abstinence, limit sexual partner and condom use)

Guide questions were used in order to moderate the focus group discussions. The questions for the constructs derived from the health model were measured using a five point measurement scale ranging from 5(strongly agree) to 1 (strongly disagree). This scoring was subsequently reversed for the negative statements, so that the higher the score, the stronger the positive construct.

Data Collection Procedure and Data Quality Management

Quantitative data were collected just before the start of classes. Seating arrangements meant that no student's questionnaire was visible to any other student. The self administered questionnaire was distributed to the students by the principal investigator and coordinators after explanation of the purpose of the study. The filled questionnaires were collected by the principal investigator and facilitators upon completion. The qualitative component was undertaken by the principal investigator with the assistance

of facilitators. The FGDs were conducted in the students' HIV/AIDS club office at a convenient time for the participants and tape recorded.

Data Processing and Analysis

The quantitative data were entered and cleaned using Epi Info version 6 statistical package. While the analysis was performed using SPSS version 11. The qualitative was transcribed and translated into English. And then manipulated manually by grouping the ideas into similar thematic sets.

There were three intention questions (i.e; intention to abstinence before marriage, limiting sexual partners and using condom) which were ranked from 1-5. For each intention question, three pairs of statements regarding the advantage of the behavior and its disadvantage were used as measures of attitude. Each variable for the theoretical model was measured with the help of a five point Likert scale ranging from strongly agree to strongly disagree. Each behavioral belief score for the advantage was multiplied by its corresponding outcome belief score and the resulting cross products were summated to obtain the overall score for "advantage" and "disadvantage" of the intention respectively.

Four items about normative belief related to each preventive behavior with respective motivation to comply with referents were constructed. Each normative belief score for intention to perform the three preventive behaviors was multiplied by its corresponding motivation to comply score and the four cross products were summated to obtain the overall score for subjective norms.

To assess the relationship between the theory of reasoned action concepts and the three preventive behaviors Pearson's correlation coefficient was used. A coefficient of correlation above 0.4 was taken to indicate high correlation, 0.30-0.40 showed moderate correlation, 0.10-0.20 indicated low correlation (28).

In order to identify which theory of Reasoned Action variables were significant predictors of intention, a stepwise linear regression was done. In order to measure how strongly each predictor variable influenced the dependant variables, the standardized regression coefficients (Beta) was used. The correlation coefficient (R) was used to measure the correlation between the observed value and the predicted value of the dependant variables. The adjusted R^2 is the square of this measure of correlation and indicates the proportion of the variance in the dependant variable (intention) which is accounted for by the chosen set of predictor variables. Cronbach's reliability test

(alpha coefficient) was used to check the internal consistency of the constructs.

Ethical Considerations

Response to the survey was anonymous. A letter explaining the need for and benefits of the study, the method of questioning and confidentiality was attached to the cover page of the questionnaire. In addition participants were told why their consent was necessary for the research while the facilitators discussed the content of the letter before the participants started to fill the questionnaires. Participants were also informed that they had every right to discontinue or to refuse to participate in the study. Ethical clearance was obtained from the ethical review committee of the School of Public Health and Medical Faculty Institutional Review Board of Addis Ababa University. A letter of support to this effect was written by Addis Ababa University to Dire Dawa University.

Result and Discussion

The response rate was 90.2%. There was no statistically significant difference between age ($t_{407}=-0.33$, $P>0.05$) and sex ($\chi^2=0.39$, $P>0.05$) of the study subjects and those who returned incomplete questionnaire. The mean age was 20.29 ± 1.59 and 98.3% of the study participants were aged below 24 years.

The socio- demographic characteristics of the students were 240 (65%) male, 80 (33.3%) Amhara, 163 (67.9%) Orthodox Christian and 228 (95%) were not married.

In the qualitative findings regarding the sexual behavior of the students at Dire Dawa University, there was a sudden change in environment and trying to practice real freedom.

"There is a perspective of spending a good time (life mekchet) so they are going to respond to their emotions more easily and they can be influenced by the opinion of others" third year male participant

The presence of unsafe sexual practices for financial reasons was also reflected.

"It is not uncommon to observe cars drop students at the main gate early in the morning having spent the night somewhere else" second year female participant

The location of Dire Dawa University in one of the larger cities has its contribution.

"Often, while enjoying themselves in the town, the time that students have to be back on campus passes by, so they end up spend the night where they are" female participant

It was also mentioned that there are students working as commercial sex workers.

" Previously I used to like being a University student but these days our names are spoiled specially in Dire Dawa so I have become ashamed of being a University student currently" female participant

In the quantitative findings 110 (29.8%) had ever had sexual intercourse. This is similar to Gonder and lower than the proportion in Ghana. There was a statistically significant

gender difference in the proportion of males and females ever having sexual experience ($\chi^2 = 23.8$, $P < 0.001$) and the mean age of first sexual debut was 17.9 ± 2.2 .

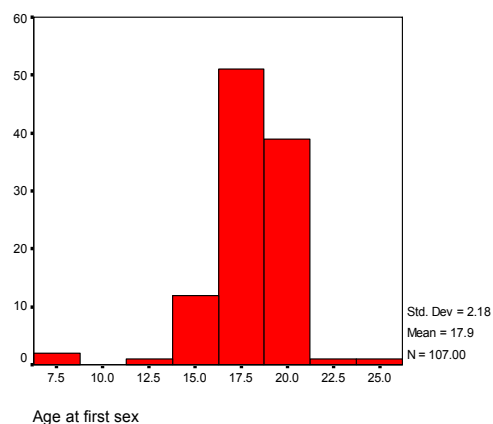


Fig1. Age distribution of sexual debut, Dire Dawa, March 2009

The reasons for not using condoms were: 24 (24.7%)- trust of partner and 19 (19.6%)- fall in love with partner. Taking appearance and reputation to determine trustworthiness has also been observed by other studies and is a dangerous way of generalization.

In the qualitative findings of risk perception male and female participants agreed that there was a spectrum of understanding of the risk associated with HIV infection from so many perspectives. In the quantitative findings 20 (5.4%) perceived their risk as high 93 (25.2%) said no chance at all and 224 (60.7%) claimed low risk with their behavior. A similar finding was observed in studies done in China and Addis Ababa.

When the effect of gender on the variables was observed intention to abstinence before marriage and disadvantage varied significantly between females and males ($t_{282.6} = -3.1$, $P < 0.05$, $t_{367} = -3.7$, $P < 0.01$) respectively. The attitudinal disadvantage of intention to limit sexual partner varied significantly between males and females ($t_{353.9} = -5.5$, $P < 0.01$). Intention to use condoms and its subjective norm also varied significantly ($t_{367} = 2.5$, $P < 0.05$, $t_{291.6} = 4.1$, $P < 0.05$) respectively.

In the qualitative finding of intention to abstinence before marriage "There is a saying 'gentility without ability' if someone claims to be abstinent" male participant and "You

are going to be laughed at if you claim that you are a virgin. Nobody is going to believe you" a female participant

Qualitatively intention to abstinence before marriage was strongly correlated with subjective norm among males (0.63, $P < 0.01$) and females (0.51, $P < 0.01$). A significant correlation was observed with all the components of the constructs among males and Cronbach's alpha was greater than 0.7 for almost all the constructs.

Table1: Multiple Linear Regression of the |Intention to Abstinence Before Marriage on Constructs of Theory of Reasoned Action for male and female, Dire Dawa, March 2009

			Male		
	Variables	Adj. R ²	R ² change	Standardized coefficient(β)	P value
1	Subjective norm	0.39	0.4	0.63	0.000**
2	Subjective norm Disadvantage	0.43	0.04	0.58 0.21	0.000** 0.000**
3	Subjective norm Disadvantage Advantage	0.44	0.01	0.56 0.91 0.11	0.000** 0.000** 0.025
			Female		
1	Subjective norm	0.25	0.26	0.51	0.000**
2	Subjective norm Advantage	0.31	0.06	0.48 0.25	0.000** 0.001**
3	Subjective norm Advantage Disadvantage	0.36	0.05	0.44 0.23 0.23	0.000** 0.002** 0.002**

** $P < 0.001$

Premarital sex is still a taboo in Ethiopian culture and in a study done in Addis Ababa females preferred sexual abstention- because it is more under their volitional control which is similar with the findings of this study.

In the qualitative finding of intention to limit sexual partners was reflected in statements like this on:

"It is not uncommon to observe female students taking off their engagement rings after some time on the campus", a male participant.

"There are girls who say the boyfriend at hometown is my 'major' and the one here is my 'minor'" a male participant

Quantitatively there was a significant correlation between most of the theoretical variables. Weak inter-correlation was observed ranging from -0.15 (subjective norm-disadvantage) among females to 0.41 (subjective norm- intention) among males. Cronbach's alpha was greater than 0.7 for almost all the constructs.

Table 2: Multiple linear regression of intention to limit sexual partner on constructs of Theory of Reasoned Action for both males and females, Dire Dawa, March 2009

	Variables	Adj. R ²	Males R ² change	Standardized Beta coefficient(β)	P value
1	Subjective norm	0.17	0.17	0.41	0.000**
2	Subjective norm Disadvantage	0.22	0.06	0.39 0.24	0.000** 0.000**
3	Subjective norm Disadvantage Advantage	0.23	0.02	0.36 0.21 0.14	0.000** 0.000** 0.017
			Females		
1	Advantage	0.07	0.07	0.27	0.002**
2	Advantage Subjective norm	0.10	0.04	0.22 0.20	0.014 0.027

**P<0.01

The intention to limit sexual partners may be taken as the second best alternative taken by females. The impact of Polygamous marriage was also mentioned by other studies in Ethiopia showing higher educational level increasing mobility which in turn contributes to change of partner which might have contributed for the observed weak inter correlation.

In the intention to use condoms quantitatively a significant inter correlation was observed among all the constructs of theory of reasoned action among both males and females. Among males intention- subjective norm (0.77, P<0.01) and intention-disadvantage (0.45, P<0.01).Among females intention- subjective norm (0.67, P<0.01).Alpha coefficient was greater than 0.7 for almost all constructs.

Table 3: Multiple linear regression of intention to use condoms on constructs of Theory of Reasoned Action for both males and females, Dire Dawa, March 2009

			Male		
	Variables	Adj. R ²	R ² change	Standardized Beta coefficient(β)	P value
1.	Subjective norm	0.60	0.60	0.77	0.000**
2.	Subjective norm Disadvantage	0.62	0.03	0.70 0.18	0.000** 0.000**
			Female		
1.	Subjective norm	0.44	0.45	0.67	0.000**
	Subjective norm Disadvantage	0.51	0.08	0.50 0.32	0.000** 0.000**

**P< 0.01

This finding is similar to the findings of Ghanaian university students showing the need for a shift of attention from the students themselves to the people who hold influence over them.

Conclusions

- Almost 30% of the study subjects reported ever having sexual intercourse in their lifetime. 59.7% of the students had sexual contact with a casual partner, 11.7% with commercial sex workers and 28.6% with a person who had multiple partners
- Trusting one's partner and falling in love were the major reasons for not using condoms
- 5.4% of the students perceived their risk of HIV/AIDS infection to be high, while 25.2% said there was no chance at all. 60.7% of them identified their risk of being infected as very unlikely with respect to their current sexual behavior.
- Subjective norm was found to be the main predictor of intention to abstinence before marriage and the intention to use condom among both males and females
- In the intention to limit sexual partners, attitudinal advantage was found to be the major predictor among females while subjective norm was the main predictor among males.

Recommendations

Anti- AIDS Club of the University

- Programs related to HIV/AIDS must address the whole student population rather than specific subgroups.
- Students must be made aware of the consequences of taking appearance and reputation to determine trustworthiness in relation to STI and HIV infection.
- Students should be made to develop a feeling of personal vulnerability to HIV infection.
- The club must reinforce its communication with local NGOs and other organizations to have a continuous training of peer educators.

Dire Dawa University

- Emphasis must be given to students who have been dismissed so that they do not by default become engaged in unsafe sexual behavior.
- Should reinforce and strengthen anti- AIDS club to function with their full potential.

The Federal Government

- AIDS educators in Ethiopia's Universities need to focus on students' perceptions of what their significant referents think about HIV/AIDS preventive behavior and their perceptions of the outcomes of such behavior particularly the negative outcomes (disadvantages).
- Interventions must be targeted at students in the newly established Universities, where there is a need for capacity building and sharing of experience with the older Universities.

Acknowledgments

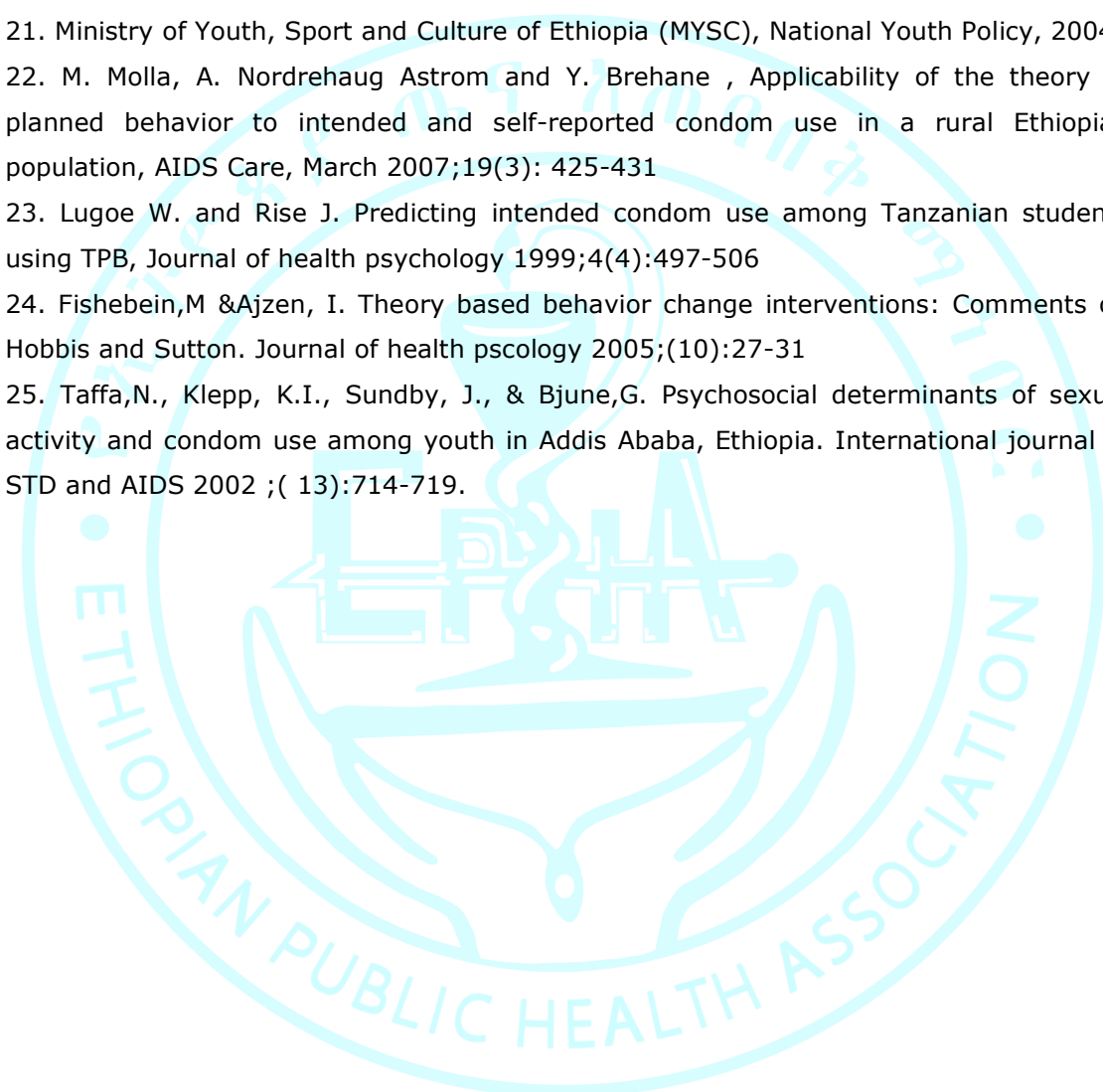
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References

1. UNAIDS, Report on the global AIDS epidemic: Executive summary; 10th Anniversary special edition, Geneva, Switzerland, 2006: 3-10.
2. Federal Ministry of Health (FMoH), HIV/AIDS Behavioral Surveillance Survey (BSS) Ethiopia, 2005
3. Federal Ministry of Health Demographic Health Survey Ethiopia, 2005.

4. Federal HIV/AIDS Prevention and Control Office, Report on progress towards implementation of the UN declaration of commitment on HIV/AIDS, Addis Ababa, Ethiopia, March 2008.
5. MacPhail C, Campbell C, "I think condoms are good but, aai, I hate those things": Condom use among adolescents and young people in a South African township, *Social Science and Medicine* 2001(52): 1613-1627.
6. Chen B, et al. Sexual and reproductive health service needs of University/college students: updates from a survey in Shanghai, China, *Asian J. Andrology* , July 2008 ;10(4):607-15.
7. Chng CL , Eke-Huber E, Eaddy S, Collins JR , Nigerian college students: HIV knowledge, Perceived Susceptibility to HIV and sexual behaviors, *College student Journal*, 2005; (39) 235-252
8. Bosompra K. Determinants of condom use intentions of University students in Ghana: an application of the theory of reasoned action, *social science and medicine* 2001; (52):1057-1059.
9. Ethiopian Public Health Association (EPHA), Young people's HIV/AIDS & Reproductive health needs and utilization of services in selected regions of Ethiopia, December 2005.
10. African AIDS Initiative (AAI), Knowledge, Attitude, Practices and behavior survey of Addis Ababa University students, 2005.
11. Yordanos B., Reproductive health needs of Addis Ababa University students, Addis Ababa, Ethiopia, 2008 MPH thesis.
12. Ethiopian Public Health Association (EPHA), Intention to use condoms and remaining faithful in students at Gonder University, June 2006.
13. US Department of Health and Human services. Theory at a glance, a guide for health promotion practice, Spring 2005.
14. Serkalem G., Assessment of sexual behavior and barriers to condom use among federal government employees in Addis Ababa, July 2006, MPH thesis.
15. Amsalu S., Response to HIV/AIDS prevention messages: based on the extended parallel process model; among Bahir Dar University students, North West Ethiopia, June 2004, MPH thesis.
16. B. Petros, S. Belayneh and Y. Mekonen AIDS and college students in Addis Ababa: A study of knowledge, attitude and behavior, *Ethiopian Journal of health development*.1997; 11(2) 115-123.
17. B.Girma, D.Assefa and K. Tushunie, Determinants of condom use among Agaro high school students using behavioral models, *Ethiopian Journal of health development*. 2004; 18(1): 1-6.

18. Y. Fitaw, A. Worku, High risk sexual behavior and pattern of condom utilization of the Gonder College of Medical Sciences (GCMS) students, North-west Ethiopia, Ethiopian Journal of health development 2002;16(3): 335-338.
19. A. Munoz-Silva, M. Sanchez-Garcia, C. Nunes and A. Martins Gender differences in condom use prediction with Theory of Reasoned Action and Planned behavior: The role of self-efficacy and control AIDS care, October 2007;19(8):1177-1181
20. <http://www.people.umass.edu/ajzen/> accessed on October, 2008
21. Ministry of Youth, Sport and Culture of Ethiopia (MYSC), National Youth Policy, 2004.
22. M. Molla, A. Nordrehaug Astrom and Y. Brehane , Applicability of the theory of planned behavior to intended and self-reported condom use in a rural Ethiopian population, AIDS Care, March 2007;19(3): 425-431
23. Lugoe W. and Rise J. Predicting intended condom use among Tanzanian students using TPB, Journal of health psychology 1999;4(4):497-506
24. Fishebein, M & Ajzen, I. Theory based behavior change interventions: Comments on Hobbis and Sutton. Journal of health psychology 2005;10(1):27-31
25. Taffa, N., Klepp, K.I., Sundby, J., & Bjune, G. Psychosocial determinants of sexual activity and condom use among youth in Addis Ababa, Ethiopia. International journal of STD and AIDS 2002 ;(13):714-719.



Thesis 2

Utilization of HIV Counseling and Testing Service and Predictors of Intention to Use it among Teachers of Harari Region

Shemshedin Omer

Abstract

Background: HIV counseling and testing (HCT) is a key entry point to prevention, care, treatment and support service where people learn their sero-status.

Objectives: To assess the utilization of HIV counseling and testing services and predictors of intention to use it among teachers of Harari Region, using the theory of planned behavior.

Methods: A cross sectional study design with an analytic component was under taken among 566 teachers drawn from 20 selected schools of Harari Region from March to April 2009. The data was collected using self administered questionnaire developed based on the theory of planned behavior (TPB).

Result: The response rate was 87.8%. About half (46.3%) of the study population were tested for HIV. The odds of having tested for HIV increased with being female and aged below 35 years. The result of multiple linear regression analysis indicate that subjective norm ($\beta=.31$, $p<0.001$), perceived behavior control ($\beta=.25$, $p<0.001$) and attitude toward using HCT service ($\beta=.19$, $p<0.001$) were found to be the predictors of intended use of HCT service.

Conclusion: A large proportion of the teachers in the region has been tested for HIV. The TPB variables were found to be significant predictors of intended use of HCT with subjective norm being the strongest followed by perceived behavioral control and attitude toward the use of HCT.

Introduction

The HIV/AIDS pandemic is a pressing problem and remains a major challenge to public health. In 2007 the total number of people living with HIV/AIDS worldwide was 33.2 million. Adults above 15 years of age constitute 92 % of infection. Sub Saharan Africa, which constitutes only 10 % of global population, remains the most seriously affected region by AIDS pandemic. More than two out of three (68%) adults and nearly 90% of children infected with HIV live in this region, and more than three in four (76%) AIDS related deaths occurred in the same region (1).

The HIV/AIDS is unique in that it affects all sectors. The basic education sector which is vital to the creation of human capital is equally affected. Education has been called the

social vaccine against HIV/AIDS, because education empowers individuals with appropriate skills to receive and act on knowledge including knowledge about HIV/AIDS. The global campaign for education estimates that some 7 million HIV infections could have been prevented by the achievements of the Education for all (EFA) goals. But in an unkind paradox, HIV/AIDS is itself weakening the capacity of education systems to play this preventive role by reducing the supply of teachers, affecting demands for education, reducing the quality of education and increasing costs significantly(2, 3).

A Study of HIV/AIDS related mortality among primary and secondary school teachers (1998-2003) in Addis Ababa showed that HIV/AIDS related illnesses were the leading cause of death accounted for nearly half of all deaths (6).

In response to the epidemic the Federal Ministry of Health (FMoH) has undertaken various activities including HIV/AIDS policy formulation in 1998(4). This created an enabling environment for HIV/AIDS prevention and control such as providing of extensive VCT service for the larger community at large (7, 8).

Although some information on HIV/AIDS and factors affecting acceptance and utilization of VCT by different target group are available, there is still a scarcity of information on teachers in this regard. The 2005 behavioral surveillance survey of Ethiopia revealed that almost all teachers had heard about HIV while more than 60% knew the three programmatic prevention areas. However, teachers were less likely to accept HCT compared to other professionals for unknown reasons (10). Therefore this study was proposed to fill this gap and contribute to the development of theory based educational program to increase the uptake of HCT services.

Methods

Study Design: A cross- sectional design with analytical component was used

Study area: The study was conducted in the capital of Harari region , which is found 525 km east of Addis Ababa, from March to April 2009. According to the 2007 population census, the region was estimated to have a population of 183,344. The total number of schools and teachers in 2008/09 were 57 (31 urban 26 rural) and 1,426 respectively.

Study population: school teachers in 20 selected schools Harari region in the year 2008/09.

Sample size: The sample size was calculated by assuming the estimated prevalence of the intention to use HCT among teachers 77% with 4% margin of error, 95% confidence level, 15% non response and 1.5 design effect. The calculated sample size was 565.

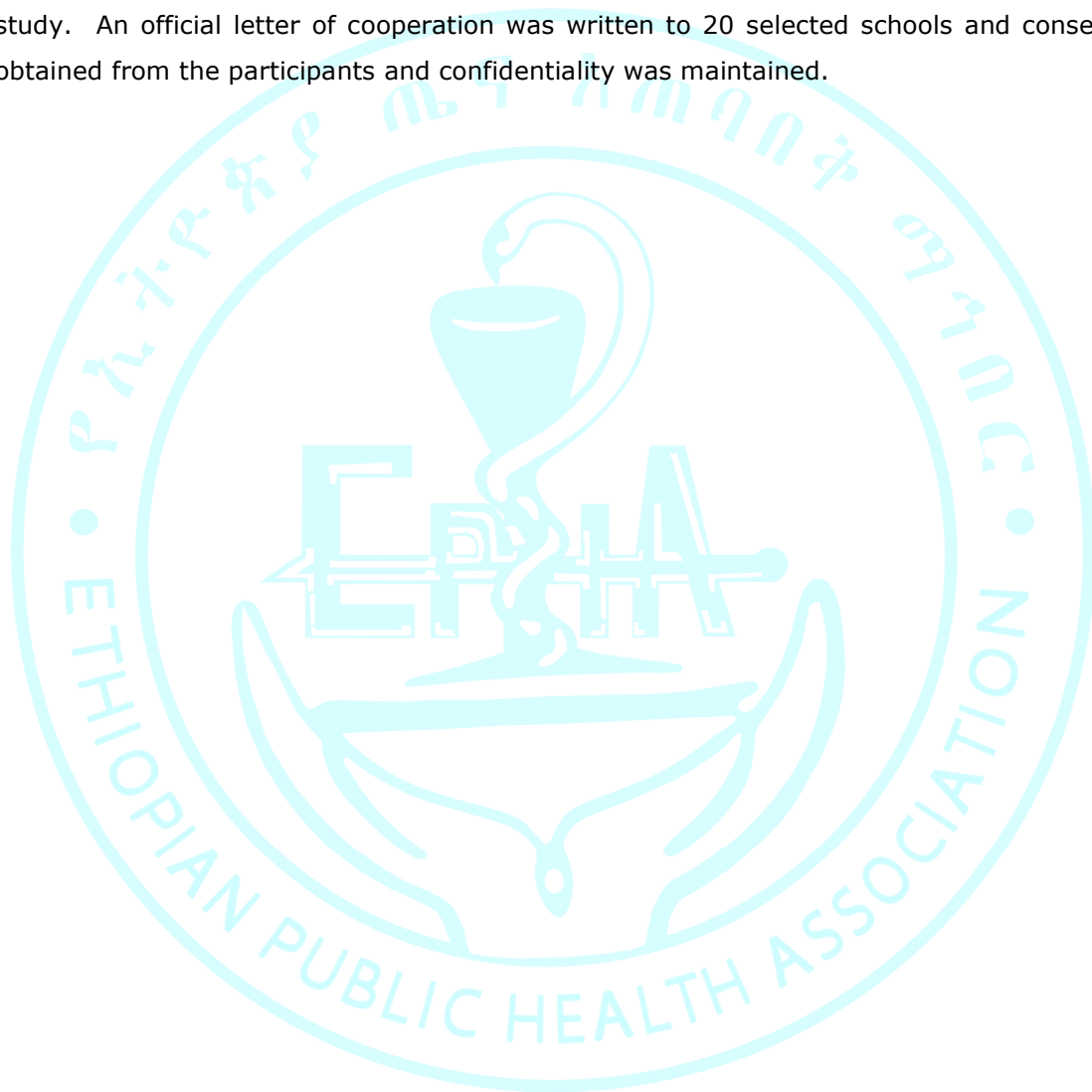
Sampling methods: The schools were stratified into urban and rural. 12 schools from urban and 8 from rural were selected randomly using a lottery method. Using cluster sampling technique, the selected schools were taken as cluster and registration of all teachers in the selected schools was done. Finally, the data were collected from 566 teachers in the selected schools who were present and agreed to participate at the time of data collection.

Data collection and Data quality: self administered structured questionnaire was used to collect data. It was adapted and modified from similar previous studies and sample of questionnaire outlined by the founder of TPB. The questionnaire contain questions related to socio-demographic characteristics, sexual experience, knowledge on HCT, utilization of HCT, behavioral belief, outcome evaluation, normative belief, motivation to comply, control belief, power of control, perceived susceptibility and perceived severity. Pre-testing of the questionnaire was conducted on twenty school teachers selected from three schools that were not enrolled in the main study. These schools were characteristically similar to the participant schools. One nurse as supervisor and 6 teachers as facilitators were recruited and trained for two days by the principle investigators.

Measurement and Data analysis: The data entry, cleaning and analysis were performed using SPSS version 16 statistical package. Frequencies, proportion and summary statistics were used to describe the study population in relation to relevant variables. χ^2 test, correlation analysis, Cronbach's α and multiple linear logistic

regression were used. Each variable for the theoretical model was measured with the help of a five point Likert scale with response options ranging from strongly agree/very likely/very good to strongly disagree/not likely at all/very bad.

Ethical Consideration: Ethical approval was obtained from the ethical review committee of the AAU, School of Public Health and FoM. Institutional consent was obtained by communicating to the Regional education Bureau before conducting the study. An official letter of cooperation was written to 20 selected schools and consent obtained from the participants and confidentiality was maintained.



Result

A total of 497 people responded to the questionnaire out of the 566 proposed study sample giving a response rate of 87.8%. The age of respondents ranged from 18 to 61 years and the overall mean was 34.68 years with SD of ± 9.9 . The majority of the respondents, 326 (66.0%), were in the age category of 25-44 years. As to their sex, 309 (62.2%) were male and 188 (37.8%) female.

The majority (59%) of the respondents were Orthodox Christians while the rest were Islam, Catholic and Protestant. Regarding ethnicity, Amhara comprised (51.3%), Oromo (31.8), Harari 34 (6.8%), Tigre 20 (4.0%), Gurage 19 (3.8) and others 11 (2.2%).

About half (51.7%) of the study participant had diploma, 132 (26.6%) had certificate while the remaining 108 (21.7%) had their 1st degree at the time of the interview. With regard to the location of the schools, most (72%) were from urban school while the rest 28% were from rural schools. The socio- demographic characteristics of the participants are summarized in Table 1.

Knowledge, source of Information and Utilization of HCT

Nearly all (98.6%) have heard about the confidential HIV counseling and testing service. Their sources of information were mass media 419 (85.3%), health professionals 276 (56.2%), close friends 118 (24%) and partners 45 (9.2%).

Likewise the vast majority (98.4%) knew where they can get HCT service in their locality. Most of them mentioned the existence of confidential HCT service in government hospital (63.2%) and family guidance associations (FGAE) clinics (60.9%). Only about one quarter (26.2%) of them mentioned the existence of service in health center.

The proportion of study participants who ever tested for HIV was 230 (46.3%). Of these the majority of them were tested within one year prior to the data collection. The remaining 89 (38.7%) were tested before 2year prior to the data collection.

Table 1: Socio-Demographic Characteristics of Respondents by Gender in schools of Harari Region, March-April, 2009.

Variables	Male	Female	Total
	Freq. (%)	Freq. (%)	Freq. (%)
Age category (n= 494)*			
15 – 24	47(15.3)	18(9.8)	65(13.2)
25 – 34	134(43.6)	70(37.4)	204(41.3)

35 - 44	66(21.5)	56(29.9)	122(24.7)
45 - 54	41(13.4)	40(21.4)	81(16.4)
55 - 64	19(6.2)	3(1.6)	22(4.5)
Religion (n = 497)			
Islam	105(34)	27(14.4)	132(26.6)
Orthodox	163(52.8)	130(69.1)	293(59)
Catholic	30(9.7)	29(15.4)	59(11.9)
Protestant	3(1)	1(.5)	4(.8)
Other	8(2.6)	1(0.5)	9(1.8)
Ethnicity (n = 497)			
Amhara	134(43.4)	121(64.4)	255(51.3)
Oromo	116(37.5)	42(22.3)	158(31.8)
Harari	22(7.1)	12(6.4)	34(6.8)
Tigre	13(4.2)	7(3.7)	20(4.0)
Gurage	15(4.9)	4(2.1)	19(3.8)
Other	9(2.9)	2(1.1)	11(2.2)
Marital status (n = 497)			
Single	141(45.6)	51(27.1)	192(38.6)
Married	153(49.5)	116(61.7)	269(54.1)
Divorced/separated	12(3.9)	13(6.9)	25(5.0)
Widowed	3(1)	8(4.3)	11(2.2)
Educational status (n = 497)			
12+1/10+1	72(23.3)	60(31.9)	132(26.6)
Diploma	150(48.5)	107(56.9)	257(51.7)
1 st degree	87(28.2)	21(11.2)	108(21.7)
Location of school (n = 497)			
Urban	217(70.2)	141(75)	358(72)
Rural	92(29.8)	47(25.0)	139(28)
Salary category (n = 488)*			
400 - 1000 Eth. Birr	130(42.6)	80(43.7)	210(43.0)
1001 - 2000 Eth. Birr	157(51.5)	101(55.2)	258(52.9)
2001 - 3000 Eth. Birr	18(5.9)	2(1.1)	20(4.1)

*sample size varies due to missing response.

Table 2: Knowledge, Source of Information and Utilization of HCT Service among Teachers of Harari Region by Gender, March-April, 2009

Variable	Male	Female	Total
	Freq. (%)	Freq. (%)	Freq. (%)
Have you heard about HCT (n = 497)			
Yes	302(97.7)	188(100)	490(98.6)
No	7(2.3)	0(0.0)	7(1.4)
Source of HCT information (n = 490)			
Health professional	174(57.4)	102(54.3)	276(56.2)
Mass media	265(87.5)	154(81.9)	419(85.3)
Close friends	79(26.1)	39(20.7)	118(24.0)
Partners	36(11.9)	9(4.8)	45(9.2)
Do you know where you can get HCT (n=497)			
Yes	302(97.7)	187(99.5)	489(98.4)
No	7(2.3)	1(0.5)	8(1.6)
From where you can get HCT service (n = 489)			
Government hospitals	200(66.2)	109(58.3)	309(63.2)
Health centers	84(27.8)	44(23.5)	128(26.2)
FGAE clinics	173(57.3)	125(66.8)	298(60.9)
Private clinics	22(7.3)	20(10.7)	42(8.6)
Have you ever tested for HIV (n = 497)			
Yes	127(41.1)	103(54.8)	230(46.3)
No	182(58.9)	85(45.2)	267(53.7)
When did you get tested (n = 230)			
In the past 3 months	37(29.1)	39(37.9)	76(33)
In the past 12 months	36(28.3)	29(28.2)	65(28.3)
Before 2 years	54(42.5)	35(34)	89(38.7)

Predictors of Using HIV Counseling and Testing Service

As shown in Table 4, bivariate and multivariate analysis were done to assess factors predicting use of HIV counseling and testing service. Among the socio demographic variables being female is shown to be significantly associated with having tested for HIV (COR = 1.74; 95%CI =1.20 to 2.50). Being in the age group above 35 years also increases the likelihood of testing for HIV (COR = 1.55; 95% CI =1.085 to 2.22). After controlling for selected variables both sex and age remained significant (AOR = 1.59; 95%CI=1.05 to 2.41), (AOR = 2.25; 95%CI= 1.41 to 3.6) respectively. Other socio demographic variable such as educational status, marital status, location of the school, religion and ethnicity were not significantly associated with utilization of HCT service.

in the bivariate analysis, having a monthly salary of less than 1,500 Birr was significantly associated with testing for HIV (COR = 1.81; 95%CI = 1.1, 2.98). After

controlling for possible confounders this association was found to be insignificant (AOR = 1.39; 95% CI= 0.73 to 2.65).

Knowledge about HCT in general and knowing the availability of HCT service in their locality did not show significant association with the utilization of HIV testing.

Table 3: Factors Predicting the Utilization of HIV Counseling and Testing Service among Teachers of Harari Region, March – April 2009

Variable	HIV testing		COR(95% C.I)	AOR(95% C.I)
	Yes	No		
Sex				
Male	127	182	1	1
Female	103	85	1.74(1.20, 2.50)*	1.59(1.05, 2.41)*
Age category				
15-34	138	131	1.55(1.09, 2.22)*	2.25(1.41, 3.6)*
35-64	91	134	1	1
Salary category				
<1,500 ETB	199	208	1.81(1.10, 2.98)*	1.39(.73, 2.65)
>= 1,500ETB	28	53	1	1
<i>*significant at p<0.05</i>				

Descriptive Statistics of Cognitive Variables

Table 4 depicts the descriptive statistics of the salient beliefs which is applied to 267 respondents who never had HCT. The study group had strongly favorable behavioral belief and outcome evaluation of using HCT services. They also perceive normative pressure positively. Their perceived susceptibility was very low because 220(82.7%) of individual perceive that they were not susceptible to HIV infection. The proportion of respondents who had intention to be tested for HIV in the coming two months was 45.9%.

Table 4: Descriptive Statistics of the Cognitive Variable (n = 266)

Components	Item	Mean	SD
Behavioral belief	6	4.31	0.80
outcome evaluation	6	4.48	0.81
Normative belief	6	3.6	1.00
Motivation to comply	6	3.54	1.11
Control belief	5	3.35	1.09
Power of control	5	2.96	1.11

Perceived susceptibility	1	2.29	1.28
Perceived severity	2	3.46	1.25
Intention	3	3.38	1.25
^a scale range = 1-5. n = 266 because this cognitive variables were computed for previously untested respondents which was 267. There was only one non response			

Partial Correlation among the Components

Partial correlation coefficient among TPB variables, perceived severity, perceived susceptibility and total monthly income were done. All TPB components correlated significantly with behavioral intention. Subjective norm ($r=0.45$, $p<0.001$) demonstrated the highest correlation followed by perceived behavioral control ($r=0.42$, $p<0.001$) and attitude ($r=0.33$, $p<0.001$). Since they correlated positively an increase in the value of one TPB component is accompanied by an increase in intention. Perceived severity ($r= -0.14$, $P<0.001$) was also negatively correlated with behavioral intention. This indicates that as the perceived severity increases the intention to be tested decreases. Perceived susceptibility($r=0.25$, $p<0.001$) was also positively correlated with intention. However total monthly salary did not correlate significantly with any of the TPB component. The internal consistency in terms of Cronbach's alpha was 0.92, 0.71, 0.89, 0.93 and 0.67 for intention, attitude, subjective norm, perceived behavioral control and perceived severity respectively.

Table 5: Partial Correlations (Pearson's r) among the Components of planned Behavior, Perceived Severity, Perceived Susceptibility, Monthly Salary and Intention

Variables	1	2	3	4	5	6	7
1. Attitude	-						
2. Subjective norm	0.30***	-					
3. Perceived behavioral control	0.09	0.31***	-				
4. Perceived severity	-0.10	-0.12	0.01	-			
5. Perceived susceptibility	0.11	0.05	-0.02	-	-		
6. Monthly salary	-0.02	-0.02	0.04	0.41***	-0.02	-	
7. Intention	0.33***	0.45***	0.42***	-0.14**	0.25***	-	-
						0.01	
Significant at * $p<0.05$, *** $p<0.001$; controlled for age, location and educational status							

Testing the empirical model

Multiple linear regression analysis was performed to predict intention to use HCT among untested respondents. Demographic variables (i.e age, sex, educational

status and location of school) were entered in the first step accounting for 3.5% of explainable variance in intention. Attitude and subjective norms were entered in the second step and accounted for 25% of variance in intention. The perceived behavioral control was entered in the third step and increased the explained variance by 6.5%. The perceived susceptibility was entered in the fourth step and increased explained variance by 6.1%. Finally perceived severity was added but no additional explained variance observed. From the statistically significant predictors that emerged in the final step, subjective norm ($\beta = 0.31$, $p < 0.001$) was found to be the strongest predictor followed by perceived behavioral control ($\beta = 0.25$, $p < 0.001$), perceived susceptibility ($\beta = 0.22$, $p < 0.001$), attitude ($\beta = 0.19$, $p < 0.001$) and age ($\beta = -0.13$, $p < 0.05$) in descending order.

Table 6: Standard Beta Coefficients when Intention to use HCT is Regressed upon the TPB Components and Perceived Susceptibility (PSU) (n = 266)

Components entered	Adj.r ²	ΔR^2	F-change	p-value	Standardized regression coefficient			
					β_A	β_{SN}	β_{PBC}	β_{PSU}
Demographic variable ^d	.032	.035	9.436	$P < .05$				
A + SN	.28	.25	82.64	$P < .001$	0.21*	0.40*	-	
A+ SN+PBC	.33	.065	22.89	$P < .001$	0.21*	0.33*	0.24*	
A+ SN+PBC+PSU	.37	.061	23.61	$P < .001$	0.19*	0.31*	0.25*	0.22*

^dSocio-demographic variable entered: sex, age, educational status, location and total monthly income. A=attitude; SN= subjective norm; PBC = perceived behavioral control; β = standardized regression coefficient. * $p < 0.001$.

Discussion

HIV counseling and testing service is a very important component of HIV/AIDS prevention. The proportion of teachers who were tested for HIV was 46.3% (54.8% for female, 41.1% for male). This figure is in conformity with the proportion of tested among the armed forces which is 46.9% (20). But it is better when compared to the finding of 2005 BSS-E It is also relatively better than proportion of HIV tested teacher of Tanzania i.e 46.3% versus 20% (9, 15). Of all tested individual the majority (61.3%) of them were tested one year prior to the present study. This shows the recent increase in the uptake of HCT.

Female were more likely to be tested for HIV than their counterpart. This is in line with the 2008 HIV/AIDS Ethiopian epidemiological synthesis and study conducted in

Butajira (8, 18)). This finding could be explained by the fact that women in the reproductive age group are offered the HCT service while they visit health facility for antenatal check-up (37).

Being less than 35 years old was positively associated with the utilization of HCT. The HIV prevalence in Ethiopia is higher among the 15-24 year age group (4). Therefore individual who falls in this category might be more eager to know their HIV sero-status than older age group. Besides this, young individuals are more likely to be tested for HIV before marriage. Different studies carried out in Ethiopia and other African countries support this finding (10, 14-16).

The major source of HCT information identified was mass media. According to this study 98.6% of respondents had heard about the availability of HCT service which is comparable to the finding from the pre-marital HIV utilization study done in Addis Ababa (22). But it is higher than the result obtained from the community-based study in northwest Ethiopia which is 73.5% (23).

In the present study the vast majority of the respondents 489(98.4%) knew about there being confidential HCT service in their locality. This is higher than the findings of the 2005 BSS-E and that of the study done on high school teachers of Addis Ababa in 2004 (9, 17). This could be explained by the accelerated expansion of the HCT service done in recent years through increased advocacy and social mobilization with respect to the availability of the service (8).

In this study knowing about HCT was not significantly associated with its use. This is in line with other studies that showed knowledge about HIV/AIDS does not necessarily guarantee behavioral change (9, 17-18 and 21-22).

Behavioral intention tells us the likelihood of the person to engage in given behavior (in this study the behavior is testing for HIV). Based on previous study done in the same study area the proportion of individuals who had intention to be tested was 85.4 and 69.9% for the general community and lactating mothers respectively (24, 26). However this was not the case in the present study the intention to engage in similar behavior was lower (45.9%) than in the previous studies. Similar results were also reported by the study conducted in northwest Ethiopia that showed high-school teachers' lower acceptance for VCT than other professionals (10).

Previous Sub-Saharan Africa studies including Ethiopia reported the explained variance in intended condom or use of contraceptives based on TRA and TPB that ranged from 29-42% (30-34). One study among Tanzanian teachers reported that the TPB variables explained 30% of variance in the intention to use HCT (25). In this

study TPB components explained 31.5% of variance in intention to use HCT is in conformity with previous studies conducted in Africa including Ethiopia.

From the standardized regression coefficient, the results of this study indicate that teachers' intention to use HCT services was primarily because of subjective norms and their perceived behavioral control while attitude carries less weight but still being significant predictor. This finding tells us that teachers' intention to use HCT mainly depend on how they perceived others will think of them for their resorting to HCT service as normative action and perceived easy or difficulty associated with the use of HCT service.

Based on the finding of this study we can conclude that almost all respondents knew the existence of confidential HCT service in their locality and large numbers of teachers were tested for HIV. Being female or of an age below 35 years was significantly more likely to have had HIV testing. TPB was applicable in predicting the intention to use HCT. This call for the importance of the normative expectation of others, perceived psychological constraint and the belief in terms of the the advantages and disadvantages perceived about the use of HCT.

In order to promote HIV counseling and testing service among teachers attention should be paid in developing teachers' ability to resist norm that oppose the use of HCT and a change community held norms against HCT and enhancing perception of control so as to strengthen behavioral intention. HCT related messages and activities concerned with raising public awareness should capitalize on the susceptibility of every citizen since the epidemic can affect anyone

Acknowledgement

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References

1. UNAIDS/WHO. AIDS update, Geneve, December 2007:pp. 1-20.
2. Bakilana A, Bundy D, Brown J and et al. Accelerating the Education Sector Response to HIV/AIDS in Africa: A review of World Bank assistance, World Bank global HIV/AIDS program discussion paper. August 2005: pp. 1-5.
3. Bennell P, Hyde K and Swainson N. Impact Of The HIV/AIDS Epidemic On The Education Sector In Sub-Saharan Africa: A synthesis of the findings and

recommendations of three Country studies, center for international education.
Feb. 2002: pp.75-97.

4. FMOH. AIDS in Ethiopia sixth Report, September, 2006 Addis Ababa, Ethiopia.
5. FMOH. Single Point Prevalence Estimate, June, 2007 Addis Ababa, Ethiopia.
6. FMOH/HAPCO. Guidelines for HIV Counseling and Testing in Ethiopia, July 2007 Addis Ababa.



Thesis 3

Assessment of the Overall Quality of Prevention of Mother-to-child Transmission of HIV Service in Adama Town, Oromia Region

By Anteneh Assefa

Abstract

Background: Sub-Saharan Africa where Ethiopia is a part of remains the most seriously AIDS affected region in the year 2007. More than 60% of all new HIV infections are occurring among women, infants, and young children in this region. In 2005 alone, an estimated 540,000 children were newly infected with HIV, with approximately 90% of these infections occurring in this region.

Objective: To assess the quality of PMTCT services and client satisfaction in private and public health facilities in Adama city, Oromia Region.

Methodology: A facility based cross-sectional study using quantitative and qualitative approaches was conducted from September 2008 to June 2009. Involving 423 pregnant women and 31 health providers.

Results: From all the pregnant women interviewed, 74.7% of them were found to be fully satisfied with the PMTCT service they received. Only 39% of the clients understood the counseling on MTCT and PMTCT. Not more than 90% of the pregnant women were counseled and accepted HIV testing; and partners of 6.34% of the pregnant women were tested for HIV. The average duration of stay of the women with their health care provider was 12.8 minutes, the standard is 15 minutes. The average clients' waiting time was 41.5 minutes and 21.5 minutes in private and governmental health facilities respectively. From women of the reproductive age group who were infected with the virus, 18% of them were counseled on family planning and started to use family planning. About 97% of the HEIs had received ARV prophylaxis. Cotrimoxazole prophylaxis was started at two months of age for 87.4% of the HEIs. More than half (60%) of the pregnant women came to the center they visited after being recommended to come by their friends or partners. Clients gave more weight to the ethical approach of providers to express their degree of satisfaction. Only two third of the health providers, who are directly involved in

PMTCT services, received training on VCT for PMTCT. From the providers' side the most eminent problems were lack of training to update themselves with current knowledge/skills, lack of feedback on job performance and lack of incentive for the additional burden of work. The national PMTCT guideline was available and in use in only two among the eight health facilities assessed.

Recommendation: Offering counseling on MTCT and PMTCT to all pregnant women, to delivering quality and comprehensive PMTCT interventions by reducing clients' waiting time as much as possible, enabling women to communicate with their partners about HIV testing, offering strong supportive supervision to health facilities and capacity building, and creating a strong link between HIV/AIDS and reproductive health care services are crucial to improve the quality of PMTCT services.

Introduction

Background: A growing demand for health care, rising costs, limited resources, and evidence of variations in clinical practice have increased interest in measuring and improving the quality of health care in many countries of the world [1].

Health care quality is defined as: "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (Institute of Medicine, 1990:21) [2]. The quality of health care services has a multidimensional concept. Avedis Donabedian (1966; 1980) described quality as including: structure, process, and outcomes [3].

As to PMTCT, developing and implementing a PMTCT program complete with strategies for ARV prophylaxis, safer childbirth, and safer infant feeding practices is a complex process and should be given attention and effort [2]. Ethiopia has adopted the first PMTCT guideline on November 2001. At the time, the PMTCT service was not integrated with maternal and child health care services. The current PMTCT guideline which was reformulated in July 2007, is based on the "opt-out" approach.

Statement of the Problem: Annually, an estimated 2.2 million HIV-infected pregnant women give birth, with only 10% having access to PMTCT interventions [7]. As to the WHO/UNAIDS AIDS epidemic report of December 2008, Sub-Saharan Africa remains the most seriously affected region, more than 60% of all new HIV infections are occurring among women, infants, and young children [5]. In 2005

alone, an estimated 540,000 children were newly infected, with approximately 90% of these infections occurring in this region [6].

In Ethiopia, the number of new HIV infection in 2007 was 125,528 of which 11.27% occurred in children and among 127,544 pregnant women tested for HIV; 6,655 (5.22 %) of them tested positive [4, 7].

In the absence of any intervention, the estimated risk of a baby acquiring the virus from an infected mother ranges from 15% to 25% in industrialized countries, and 25% to 35% in developing countries [8]. Less than 10% of pregnant women living with HIV (which is very low prevalence) receive antiretroviral prophylaxis globally [9].

A base line PMTCT survey in Ethiopia showed that, there is a major gap in the quality of antenatal and postnatal care, particularly with respect to counseling and in the provision of preventive therapies. At ANC, 33% of women received counseling on the benefits of exclusive breastfeeding, 30% received counseling on infant feeding options, 25% on HIV and breastfeeding, and 22% received infant feeding demonstration [10].

Objective of the Study: To assess overall quality of PMTCT service in private and public health institutions of Adama city, Oromia Region.

Methods and Materials

Study design: The study is a facility based cross sectional one encompassing both quantitative and qualitative methods of exploration. The quantitative methods included: cent exit interview, service providers interview, institutional capacity assessment, and review of secondary data. On the other hand, the qualitative methods used were in-depth interview with health professionals and focus group discussions with clients.

Study Area: The study was carried out in Oromia Regional State, Adama city. The study involving both private and public health facilities in Adama that provide PMTCT services. One government hospital, two private hospitals, two government health centers, one NGO health center, and two private higher clinics were included in the study.

Source Population and Study Population

The source population of the study was: all pregnant mothers, all mothers who gave birth with in the past six weeks of the onset of the study, all women living with

HIV/AIDS who are in the reproductive age group and all health professionals and PMTCT services being offered in the city during the study period. The study population included women who came for maternity care including antenatal, delivery and postnatal within the gap of six weeks after delivery in all health institutions included in the study and all PMTCT counselors and coordinators in the private and public health institutions giving the service in Adama during the study period.

Size of study subjects (sample size): The sample size for clients' exit interview was calculated using single population proportion by considering 95 % confidence level, tolerable margin of sampling error as 0.05. Including a non-response rate of 10%, the final sample size for exit the interviews was 423. All health providers (n=31) who were directly involved with the provision of PMTCT service were included.

Sample Selection Method

Sample selection of clients for the exit interview was proportional to the patient flow which was considered during the study period and included women who came for antenatal, delivery and postnatal care. The client flow of all institutions included in the study in the two weeks before the actual data collection period was taken to calculate the average number of pregnant women visiting the facility per day and the proportion is weighed based on it. The sampling method used was systematic random sampling by using clients' registration book as a sampling frame (every other client was included in the study).

Data collection

The clients' exit interview used a standardized questionnaire from UNAIDS best practice collection to assess client satisfaction. While service providers were interviewed using a standardized questionnaire from FHI/UNAIDS best practices collection after some modifications. Focus group discussions with clients and in-depth interviews with health professionals were made using a semi-structured qualitative guide. Facility achievements and capacity to offer PMTCT services by all the institutions selected were also evaluated using indicators and minimum requirements as per the national PMTCT guideline

The data collection focused on all the three quality indicators according to the Donabedian model (structure, process and outcome indicators) and it had both

qualitative and quantitative parts. And the data collection was done during March 2 - 25, 2009.

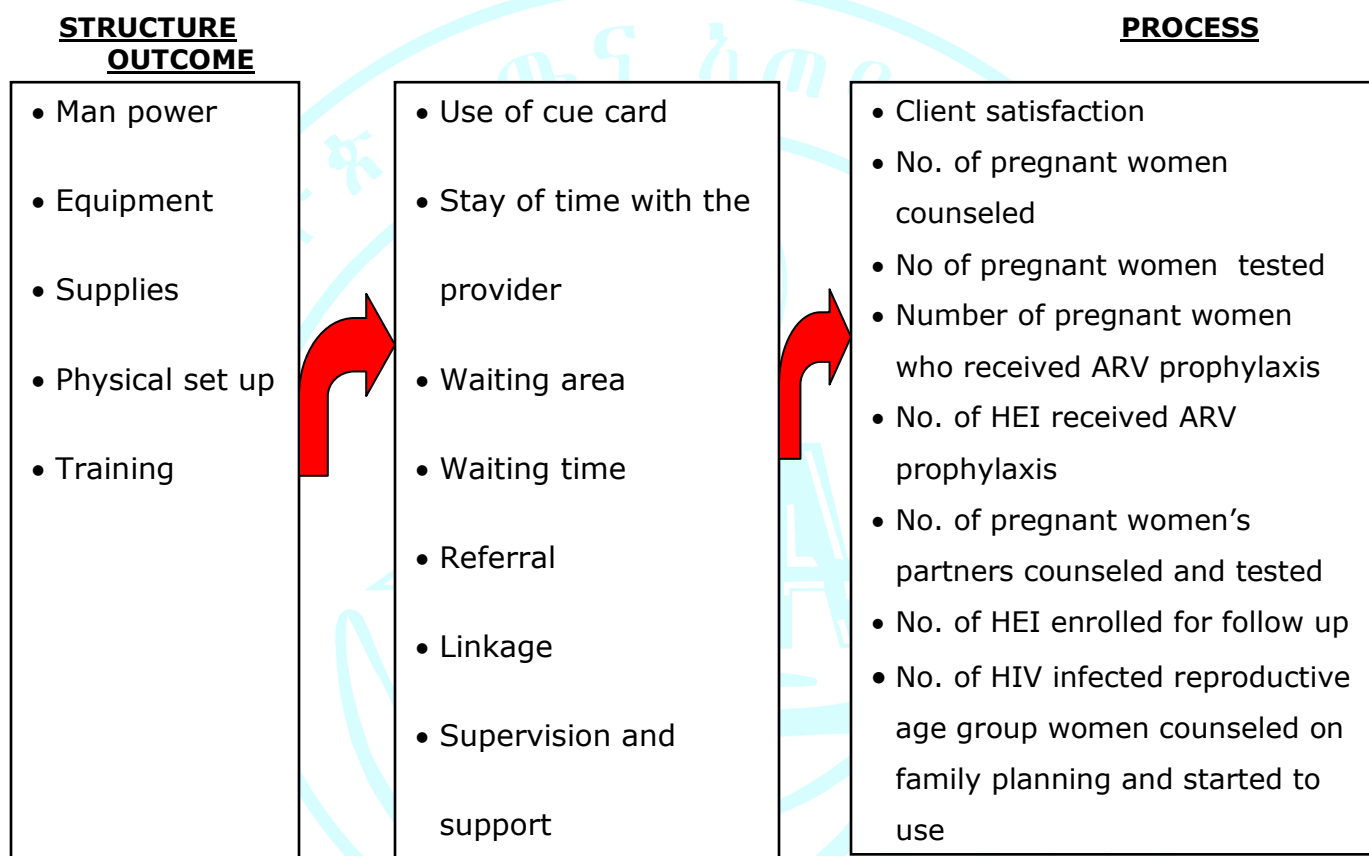


Figure 1: A systems based model as applied to PMTCT services

Data collectors: Data regarding the exit interview was collected by trained data collectors who are not health professionals but who are high school graduates to minimize the risk of professional bias; whereas service providers interview were handled by clinical nurse professionals. The FGD with clients were guided by the investigator and one BSc nurse professional at the selected health institution using a tape recorder. There was also an additional note taker. Institutions were observed for their capacity to provide PMTCT service by the investigator.

Data Quality Assurance: By using 5% of the total sample size calculated for all categories of interviewee, pretest was done in Bishoftu hospital and the questionnaire was checked for its clarity, understandability and simplicity in getting what it was aimed at. After the pretest, the questionnaires were reformatted based on the inputs and comments generated. Then duplication of the final questionnaires was done. The quality of the data collected was assured by checking all questionnaires at the evening of the date of collection by the principal investigator.

Data Processing and Analysis: Data was first coded and then cleaning and entry were carried out by the principal investigator using EPI INFO software version 3.5.1. Analysis was done using SPSS version 16 after the data is imported from the EPI INFO software.

Result

Exit Interview with Antenatal Care Attendants

The exit interviews of clients at ANC service delivery outlet were carried to assess their degree of satisfaction. For which the response rate of the study was 100%. The socio-demographic characteristics of the clients are described as follows. More than forty one percent (41.4%) were in the age group 21-25 and the mean age and standard deviation of clients were 24.8 years and 4.9 years, respectively. More than ninety percent (93.9%) of the respondents were married. Among a total of 423 pregnant mothers who were interviewed, more than half of them (59.6%) were Orthodox, 22.7% of them were Muslims and 15.8 % of them were Protestants. Regarding their educational status of clients, 45 (10.6 %) of the respondents were college level and above, and 164 (38.8%) of them were in the range of grades 9-12. From the total respondents, 63.4% of them were housewives, followed by small traders and daily laborer which accounted for 9.5%, and 7.1% respectively.

From the total 423 ANC attendant mothers interviewed, 223 (52.7%) of them were in the third trimester of pregnancy while 161 (38.1%) and 39 (9.2%) of them were in the second and first trimester of pregnancy, respectively. Primigravidas account for almost half of the ANC attendants, 208 (49.2%).

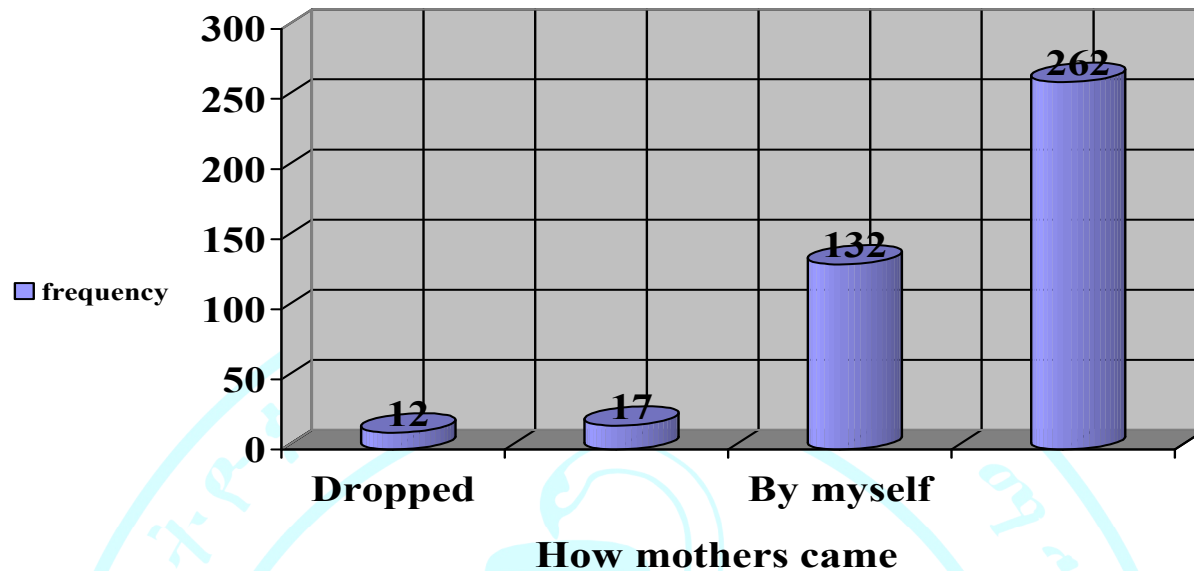
During client's session with their ANC counselor on the date of interview, the counselor discussed about: having an HIV test with 209 (49.4%) of the clients, receiving test results with 160 (37.8%) of the clients, and issues arising from an HIV test taken some time ago with 186 (44%) of the clients as shown in Table 3.

Among the total ANC attendants, more than half, 220 (52%) were counseled on MTCT and PMTCT while only 10 (2.4%) of them were counseled on infant feeding. Regarding understandability of the message conveyed during clients' counseling sessions, 165 (39%) of the clients were counseled well and understood the counseling on MTCT and PMTCT and had the knowledge on ways of MTCT of HIV and 73 (17.3%), 2 (0.5%) of the clients were counseled and understood the counseling on HIV/AIDS and infant feeding respectively. Assessment of the client's knowledge about MTCT by using client exit interview and an FGD showed that all of the pregnant women were knowledgeable about at least one way of MTCT.

Concerning the client's reason for coming to the ANC service delivery sites; it was largely only for ANC follow-up which accounts for 86.5% of the total clients. The details of reason for coming are illustrated in table 3.

Clients were asked how they first came to the health institution where they are attending their ANC and more than 60% of them were recommended to come by their friends or partners (figure 3). The tendency to recommend other pregnant mother to the service is about two times higher in those who came to their respective ANC clinic by recommendation than those who didn't come by recommendation (OR = 1.99, 95% CI: 1.31, 3.04). See figure 1.

Figure 2: How the Pregnant women came for their ANC for the first time to their respective health facilities they visited. Adama, March 2009.



The average waiting time of clients to see their health care provider was 24.5 minutes. When the waiting time was stratified by ownership of the health institution, in governmental health institutions the waiting time was 21.5 minutes whereas in private health institutions the waiting time was 41.5 minutes. In the non-governmental health centers the average waiting time was found to be 18.9 minutes.

The average duration of stay of clients with their health care provider was 12.8 minutes. When stratified by ownership of the health institution, the average duration of stay was 12.5 minutes, 13.7 minutes, and 12.8 minutes in governmental, private, and non-governmental health institutions respectively. From the FGD with clients from private health institutions, one of the discussants said, *"You pay very high to get more facilitated and high quality care by specialized personnel, but the amount of time you are asked to wait for the physician is much more to the level you can't tolerate. So, if this is the case, why I should not follow my pregnancy status at public health institutions. I came at 8:30 AM and I'm asked to wait till 11:30 AM"*.

Table 1: Statistical Analysis

		Recommended the service to others			Test for association
		Yes	No	Total	OR = 1.99 95% CI: 1.31, 3.04
Recommended to come by others	Yes	142	120	262	
	No	60	101	161	
	Total	202	221	423	
		Do you wish you had a different counselor?			OR = 0.1 95% CI: 0.03, 0.32
		Yes	No	Total	
Are you satisfied with the technical competence of the counselor?	Yes	65	341	406	
	No	11	6	17	
	Total	76	347	423	
		Is there anything you did not like during the discussion about HIV/AIDS?			OR = 4.68 95% CI: 1.32, 19.8
		Yes	No	Total	
Not able to see the same counselor before and after an HIV test	Yes	25	253	278	
	No	3	142	145	
	Total	28	395	423	
		Maintenance of privacy			OR = 0.64 95% CI: 0.38, 1.09 No association
		Yes	No	Total	
Stay for more than 15 minutes with the counselor	Yes	62	31	93	
	No	250	80	330	
	Total	312	111	423	
		Appropriateness of stay			OR = 0.86 95% CI: 0.56, 1.33 No association
		Yes	No	Total	
Stay for more than 15 minutes with the counselor	Yes	155	80	235	
	No	130	58	188	
	Total	285	138	423	

Bivariate analysis of factors influencing quality of PMTCT. Adama, March 2009.

Duration of clients in the session with their counselor stratified by more than 15 minutes and less than or equal to 15 minutes showed no statistically significant association with maintenance of privacy during counseling (OR = 0.64 and 95% CI: 0.38, 1.09). Duration of stay of clients in the session with their counselor stratified by more than 15 minutes and less than or equal to 15 minutes also showed no significant association with appropriateness of the length of stay according to clients' own view (OR = 0.86 and 95% CI: 0.56, 1.33). See table 4.

Clients' degree of satisfaction was asked using different questions as shown in detail in table 2.

Table 2: Subjective Response of Clients Towards Satisfaction Based questions. Adama, March 2009.

No.	Subjective questions	Possible answers	Frequency (percentage)
1	Are you happy with the session you had today?	Yes	406 (96.0%)
		No	17 (4.0%)
		Total	423 (100%)
2	Are you satisfied with the technical competence of the counselor?	Yes	406 (96.0%)
		No	17 (4.0%)
		Total	423 (100%)
3	Did you feel comfortable with your counselor's handling of you?	Yes	395 (93.4%)
		No	28 (6.6%)
		Total	423 (100%)
4	Was there enough privacy during your counseling?	Yes	312 (73.8%)
		No	111 (26.2%)
		Total	423 (100%)
5	Do you wish you had a different counselor (different sex, older, younger)?	Yes	76 (18.0%)
		No	347 (82.0%)
		Total	423 (100%)
6	Were you able to see the same counselor for discussion both before and after the test?	Yes	278 (65.7%)
		No	145 (34.3%)
		Total	423 (100%)
7	Is there anything you did not like during the discussion about HIV/AIDS?	Yes	28 (6.6%)
		No	395 (93.4%)
		Total	423 (100%)
8	Would you have preferred that HIV/AIDS not be discussed during your antenatal visit?	Yes	20 (4.7%)
		No	403 (95.3%)
		Total	423 (100%)

Scaling was done using the eight satisfaction's related questions shown in Table 5. The rating was determined using the "count values with in cases" in the transform menu of the SPSS software. Then, the cutoff point to say the client is "fully satisfied" was done. Thus, a client who answered "yes" for at least seven of the satisfaction related questions was fully satisfied. The total percentage of clients, who were satisfied fully in their stay at the day of their ANC visit was 74.7%.

Being satisfied with the technical competence of the counselor is strongly associated with no need for other counselor with an OR 0.1, and 95% CI (0.03, 0.32) as shown in Table 1. Pregnant mothers who were not able to see the same counselor before and after an HIV test were more subjected to dislike discussion about HIV/AIDS during their ANC visit (OR = 4.68, 95% CI 1.32, 19.8). Among the total respondents, 409 (96.7%) of the clients wanted to come again to the health institution they had visited on the date of interview for their ANC; on the other hand, 202 (47.8%) of the pregnant mothers have recommended the service to others.

The FGD with clients of public health institutions came up with the result that; *"Government health institutions are the public's properties. So that individuals can take the service they want in the sense of ownership. What is deficient in those places is the lack of ethics and respect from the providers side for us most of the time. For this reason, private health institutions are preferred. You will pay, and you receive the care you want with respect. But, you are expected to pay unfair price and the price that you can't afford. So, my choice is the government health institution".*

Health Care Providers' Interview

To assess the health care providers' satisfaction and perception towards the quality of PMTCT services, a total of 31 health care providers who are directly involved in the PMTCT service delivery program in the eight health institutions were interviewed using a structured and standardized questionnaire.

All health professionals interviewed worked in more than one department and 14 (45.2%) of them spent more of their time in the ANC sections, 2 (6.5%), 9 (29%), and 6

(19.4%) of the health workers spent more of their time in a well baby clinic, labor ward, and family planning departments respectively. All health providers were found to be knowledgeable about ways of MTCT.

Seven (22.6%), 8 (25.8%), and 16 (51.6 %) of the providers had been providing PMTCT services for less than six months, (from six months to one year), and for more than one year respectively. Among the total providers; 21 (67.7%), 28 (90.3%), 29 (93.5%) of them were involved in provision of HIV counseling, infant feeding counseling, and obstetrics care respectively.

The average hour spent per day in counseling for MTCT by the counselors was 5.2 hours whereas the average days per week spent was 5.5 days. On average about fifteen (15) mothers were counseled by each counselor per day for MTCT. From the total PMTCT providers interviewed, 22 (71%) of the providers said that their workload had increased since the introduction of the PMTCT service and all of them had received no incentives for providing the PMTCT services. Support from their respective health institutions was offered always for 18 (58.1%), sometimes for 9 (29%), and not usually or never for 4 (12.9%) of the PMTCT service providers. Among health professionals that provided obstetrical care (n=29), only 21, and 1 of the professionals were instructed on safe obstetric practices for HIV-positive women, and did not deliver HIV positive women respectively.

The top three most difficult problems services providers encountered in performing their job in providing PMTCT-related services were lack of training, lack of feedback on their performance and inadequate remuneration.

Review of Secondary Data

To triangulate and complement the other data sources, secondary data were collected from monthly reporting formats and PMTCT register books as per the indicators on the national PMTCT guideline (Table 3). Thus, conformation to the national guideline and achievements were evaluated.

Table 3: PMTCT Performance of the Governmental Health Facilities from September 2008 to January 2009 based on the PMTCT Indicators. Adama, March 2009.

No	Indicators	
1	Total number of new ANC attendees for the six months	1522
2	Total number of new ANC attendees counseled	1502
3	Total number of new ANC attendees tested	1338
4	Total number of new ANC attendees received their test result	1285
5	Total number of new ANC attendees tested positive	72
6	Total number of pregnant women received ARV prophylaxis	100
7	Total number of HIV infected women who received counseling on infant feeding	97
8	Percentage of new ANC attendees counseled	98.7%
9	Percentage of new ANC attendees counseled and tested	87.9%
10	Percentage of new ANC attendees counseled, tested and received their test result	84.4%
11	Total number of new ANC attendees partners tested	101
12	Percentage of partners of new ANC attendees tested	6.6%

The second approach employed to assess effectiveness of the three-prong way in the aforementioned institutions was assessing the HEI management and follow-up. In the six months period specified, there were 54 HIV exposed live births in the facilities. Among those the number of HEIs who received ARV prophylaxis were 48 (97.4% of the total HIV exposed live births). On the HEI follow up assessment, there were a total of 687 HEI enrolled in the follow up and cotrimoxazole prophylaxis was started at two months of age for 87.4% of the infants. HEIs charts were reviewed for infant feeding practice till the age of six months for those infants, 410 (100%) of whose card's were filled, and 219 (53.4%), 120 (29.3%), and 71(17.3%) of the HEIs were on exclusive breast feeding, exclusive replacement feeding, and mixed feeding, respectively up to the age of six months. Among HEI who were more than one year of age (216), HIV test was done for 61.3 % of the infants using either DNA/PCR or HIV antibody test at one year of age.

For assessment of activities in fulfilling the second prong of the national strategy for PMTCT (prevention of unintended pregnancies among HIV infected women), all charts of HIV infected reproductive age group women that had enrolled for HIV care were reviewed. Among a total of 3786 women of reproductive age group, only 684 (18.1%) of them were counseled about family planning and started to use it.

Assessment of Institutional Capacity to Provide PMTCT Services

A structured checklist was used to assess eight of (all of) the health facilities preparedness to provide sustainable PMTCT services and the way the facilities record and maintain all PMTCT related information or data for their coherence and completeness of in the six months time period (September 2008 – February 2009). HIV test instruments were available in all of the institutions included in the study and all of the institutions that provide HIV test for PMTCT activities. Nevirapine tablets or syrups were available in all of the government and two of the private hospitals. The national PMTCT guide line was found in two of the government health institutions only. PMTCT monthly reporting format was available in the governmental hospital. The PMTCT labor and delivery register form, ANC register form, and ARV infant log were found in all governmental health facilities and the documentation were incomplete. According to the key informant from the special zone health office, the recent institutional intervention BPR had created more commitment to job and also brought good management of time and other resources. So, clients are served fast and take the service they want within first a short period of time.

The key informant (the zonal HIV/AIDS and MCH process owner) outlined; to decrease the high turnover of health professionals, incentives and supportive supervision should be strengthened.

Discussion

This study encompassed a multifaceted approach so as to address the specific objectives. The study is one among the limited studies which tried to assess the quality of PMTCT services and clients satisfaction. But what makes this study different from others is its multidimensional aspect in trying to incorporate the four prongs of the Ethiopian national PMTCT strategies.

Assessment of the clients' knowledge about MTCT by using client exit interview and an FGD showed that all of the pregnant women were knowledgeable about at least one way of MTCT. But, by stratification only 33.4% of the pregnant women were able to depict MTCT of the virus during pregnancy. This is in line with the percentage of pregnant mothers who were counseled on MTCT and PMTCT by their counselor on the date of interview which is only 39%. This output is very low as compared to a study which was carried out in Addis Ababa which reported that MTCT and PMTCT were discussed for

74.6% of the clients [11]. But, receiving information about PMTCT does not automatically mean that the information is understood or believed. Moral, sexual or other belief systems can override factual information and inhibit processing information into knowledge and action [12].

The total amount of time for which clients are expected to wait in the health facilities was considerably high; which can affect acceptance of VCT. In a PMTCT program in Zimbabwe, adding PMTCT services required clients to spend an additional one and half hours in the ANC clinic. Finding innovative ways to minimize waiting times is important, not only for client convenience but also for improving the uptake of testing and counseling services [13].

As to VCT for PMTCT, it is recommended if the person offering pre-test counseling will also provide the post test counseling since clients are highly concerned with confidentiality issues [38]. In this study, only 34.3 of the women tested received post-test.

In many PMTCT programs where VCT is available, low community acceptance and use of VCT services is a major barrier to identifying, counseling and treating HIV+ pregnant women and their partners [14].

From the total PMTCT providers interviewed, 22 (71%) of them said that their workload has increased since the introduction of the PMTCT service and all of them had received no incentives for providing those PMTCT services. PMTCT interventions, although designed to be part of routine services, they create significant additional work for staff already discouraged by long-standing problems such as low pay and inadequate medical supplies. Motivating staff is particularly difficult in larger, urban health facilities, where specialization of services is greater and different departments and cadres of providers are often reluctant to share or relinquish authority [15].

Based on the secondary data reviewed for the six months period (September 2008 – February 2009), 87.9% of the new ANC attendees received testing after being counseled.

When this percentage of pregnant women tested is compared with that of developed countries, in United States, when offered, most women (approximately 70% in most settings) will accept HIV testing. The most common reasons for declining the test were

no perceived risk, administrative scheduling difficulties, history of previous testing, and lack of provider endorsement [13]. A study carried out in urban African obstetrical population showed that, many factors are shown to influence the “demand side” of the decision to seek and accept VCT as part of PMTCT programs, including fear of stigma, fear of more rapid death once knowing one’s HIV status, and unwillingness to participate in an intervention to prevent the baby from getting HIV if no maternal treatment is available [16].

From a total of 3786 women of reproductive age group, only 684 (18.1%) of them were counseled about family planning and started to use it. The Study for Integration of FP and VCT, PMTCT, and ART Programs in Uganda was carried out between October 2004 and February 2005 to assess the national policy environment regarding the possibility of providing FP services in VCT, PMTCT, and ART settings and to identify existing barriers to and successes of the integration of FP in these services. The study showed that family planning service can be integrated into HIV/AIDS programs [17].

Conclusion

From the ANC attendants, 74.7 % of them were fully satisfied. Little more than half (52%) of pregnant women were counseled on MTCT and PMTCT, the average client waiting time of 24.5 minute, Clients of private health institutions tend to wait longer than those of public health institutions, infant feeding counseling was found to be highly ignored in all of the health institutions. More than sixty one percent (61.9%) of the clients came to the ANC service by being recommended by others and 47% of the clients have also recommended the ANC PMTCT service to others. Male involvement in the PMTCT activities was found to be extremely low. Furthermore, there was no adequate family planning service provided together with HIV/AIDS services.

Only two third of the health providers who were directly involved in PMTCT services received training on VCT for PMTCT. From the providers’ side the most eminent problems were lack of training to update them selves with current situation, lack of feedback on job performance and lack of incentive for the additional burden added on them.

The national PMTCT guideline was found in ANC and labor wards of two of the government health facilities. Private health facilities lack conformation to the national strategy and their documentation system is not standardized.

Recommendation

Based on the findings of this study the following recommendations can be forwarded: Offering counseling on MTCT and PMTCT to all pregnant women, strengthening provider capacity to deliver quality, comprehensive PMTCT interventions, to give quality and comprehensive PMTCT interventions by reducing clients' waiting time as much as possible, enabling women to communicate with their partners about HIV testing. Furthermore, giving information on PMTCT directly to men rather than through women, creating a strong link between HIV/AIDS and reproductive health services rapidly to integrate program objectives, behavior change objectives, and delivery of integrated services, and provision of support and follow up for private health facilities to enable them give standardized PMTCT service should be focused.

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References

1. Campbell S.M., Rolland M.O., Buetow S.A.: Defining quality of care; Social Science and Medicine, 2000, Vol 51, pages 1611-1625.
2. Envisioning the National Health Care Quality Report; Committee on the National Quality Report on Health Care Delivery, Institute of medicine. Margarita P. Hurtado, Elaine K. Swift, and Janet M. Corrigan, Washington, D.C. Pages 23-24.

3. Measuring the Quality of Health Care; Molla S. Donaldson, Editor; The National Roundtable on Health Care Quality, Institute of Medicine. Washington, D.C. 1999, Pages 3-11.
4. Federal democratic republic of Ethiopia, Ministry of Health. National Reproductive Health Strategy 2006-2015. Pages 20-24
5. AIDS epidemic update: December 2007. Joint United Nations Programme on HIV/AIDS. UNAIDS and World Health Organization (WHO) 2007. Geneva Switzerland. Pages 7-11.
6. HIV and infant feeding Guidelines for decision-makers: A guide for health care managers and supervisors. UNICEF, UNAIDS, WHO, UNFPA; 2003. Pages 7-12.
7. Federal democratic Republic of Ethiopia, Ministry of Health. Planning and programming department. Health and health related indicator, 2006/2007. Pages 44-45.
8. Federal Democratic Republic of Ethiopia, Ministry of Health, HIV/AIDS Prevention and Control Office. Guidelines for Prevention of Mother-to-child transmission of HIV in Ethiopia; Addis Ababa, Ethiopia, July 2007. Pages 1-18, 24-39, and 59-62.
9. Operational guide for national programmes on the use of antiretroviral drugs for treating pregnant women and preventing HIV infection in infants in resource-limited settings, WHO, a technical report document, Nairobi. Pages 2-6.
10. Prevention of Mother to Child Transmission (PMTCT), Baseline Survey. Academy for Educational Development. Kassahun D., Jennifer R., Nadra F., Agnes G. Ethiopia, April 2004.
11. Ismail H.: Assessment of quality of antenatal-linked HIV counseling and testing for intervention of PMTCT in Addis Ababa, Ethiopia. June 2008
12. Stigma, HIV/AIDS and prevention of mother-to-child transmission: A pilot study in Zambia, India, Ukraine and Burkina Faso. PANOS Institute and UNICEF, 2001.
13. Revised Guidelines for HIV Counseling, Testing, and Referral and Revised Recommendations for HIV Screening of Pregnant Women U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES Centers for Disease Control and Prevention (CDC) Atlanta, GA 30333
14. Kankasa, C. Why do women accept VCT during antenatal care? The experience from the Prevention of Mother-to-Child Transmission of HIV program in Zambia. Horizons Project, the Population Council, Washington, D.C., 2002.
15. Integrating HIV Prevention and Care into Maternal and Child Health Care Settings: Lessons Learned from Horizons Studies July 23-27, 2001 Maasai Mara and Nairobi, Kenya Consultation Report
16. Stringer, E.M. Personal risk perception, HIV knowledge and risk avoidance behavior and their relationships to actual HIV serostatus in an urban African obstetrical population.

17. USAID, Study of the Integration of Family Planning and VCT/PMTCT/ART Programs in Uganda. Delius Asimwe, Richard Kibombo, Johnson Matsiko, Makerere Institute of Social Research Karen Hardee .Futures Group, POLICY Project, December 2005.



Thesis 4

Assessment of the Situation of Water, Sanitation and Hygiene in Home -Based Care Clients of PLWHA in Addis Ababa Manale Siyoum

Abstract

Background: - Although HIV/AIDS is not water and sanitation related disease, these issues are closely linked. Many of the opportunistic infections like diarrhea that cause high morbidity and mortality in people living with HIV/AIDS are transmitted through contaminated water and unsanitary living conditions. Access to Water and sanitation services can help home based care clients to live longer in good health, facilitate care for ill patients, improve the quality of life and increase their dignity. Unfortunately, this is poorly recognized by either organizations working on HIV/AIDS or water and sanitation sector.

Objective: - the study tried is to assess the situation of water, sanitation and hygiene in home-based care clients in Addis Ababa city.

Methods: - A cross-sectional study using a simple random sampling technique was conducted in Addis Ababa from March 31 to April 14/2009. A total of 422 home based care clients proportionally allocated to each sub city were interviewed and the response rate was over 99%. Data was collected through face to face interview and observation using checklists. Participation in this study was voluntary and based on clients' ability to give informed consent. Data was analyzed using SPSS 11.0 for windows statistical package.

Result: - The study showed that home based care clients had access to improved water sources (96.4%) taking a reasonable time taken to fetch it. The availability of improved sanitation, bathing facilities and hand washing facility near latrines were 62.5%, 6.9% and 4.3% respectively. The per capita water consumption (10l/c/d) and home based water treatment practices (11.4%) of clients were very low. There was also a gap between knowledge of hand washing during critical times with detergents (70.5%) and practice (60.5%). Similarly, clients had poor practice of water dipping (86.9%), keeping cleanliness of latrines (69.6%), proper effluent (50%) and child feces disposal (67.9%). While They had good practice of proper covering of water vessels (83.8%) and body bathing at least once a week (90.4%). Home-based care clients were less exposed to hygiene education and hygiene promoting educational materials. The two week period

prevalence of diarrhea was 15.5%. However, only 80% was related to water and sanitation which was characterized by lack of blood in the stool.

The results of the bivariate analysis showed that there was no statistically significant association between house ownership, sex of the heads of households, income availability of improved water sources, sanitation and hand washing facilities near a latrine. However, the odds of having improved sanitation in households whose monthly income was ≥ 300 were about four times higher than the odds in households whose monthly income was < 300 birr. Educational status of clients was found to be significant predictor of daily per capita water consumption. Education was also related to the availability of improved water sources and improved sanitation but the associations were not statistically significant at $P < 0.05$.

Conclusion and Recommendations- From the study it can be concluded that the water, sanitation and hygiene needs of home based care clients were not fully met. Therefore their need should be addressed by including safe water, sanitation and hygiene as essential components of basic preventive care packages of home based care clients at policy, service provision and community levels.

I. Introduction

Access to safe water is considered as a basic human need and basic human right to all people. Yet this basic right remains unrealized for large majority of people in developing countries (5). This is also true in Ethiopia with access to safe water is nationally estimated to be 76% in urban areas and as low as 20% in rural areas. Access to sanitation is nationally estimated at 50% and 4% in urban and rural areas respectively (6). In the 2005 Demographic and Health survey 92% reported that they did not treat water at home (6). The negative impact of low access to necessary quantities of water, reasonable water quality, to basic sanitation and hygiene is even more magnified on HIV-infected (immuno-compromized) individuals. The added burden affects not only the HIV infected individuals, but the entire family by increasing risk of diarrheal diseases and lost productivity (7).

There are five areas in which water and sanitation issues have an impact on people living with HIV/AIDS (PLWHA); on contracting opportunistic and other infection, on home-based care, infant feeding, labor saving and food security (8).

Lack of availability and accessibility of safe water with lowered and compromised immunity, makes PLWHA highly susceptible to opportunistic infections like diarrhea which

causes significant morbidity and mortality in 90% of PLWHA and reduces absorption of ART (9). It shortage can also exacerbate poor personal, domestic and food hygiene which increases the chance of contracting the disease by people living with HIV/AIDS and their care givers (8). For home-based care to be effective a reliable and sufficient water supply and good sanitation are indispensable for bathing, washing, cleaning and disinfecting of the home environment and latrines, taking drugs, and increase of comfort & dignity of patients(9). Safe water, sound sanitation practices and hygiene education are needed to prevent the babies of HIV positive mothers from falling ill with diarrhea (8).Improved access to water supply provides important labor- saving benefits, more time and energy for coping with the disease, obtaining education or to work outside the home(9). Within households, water is needed for income- generating activities. Nutrition can also be improved by making food softer and easier to eat for people who are suffering from mouth ulcers or thrush and cannot eat solid foods (8).

Thus particular attention has to be given to the specific needs of HIV positive people and their care givers who have a substantially greater need for water and sanitation services: more water; safe water; access to water, sanitation and proper hygiene as a means to mitigate the epidemic. To date, there has been little study examining the situation of water, sanitation and hygiene in PLWHA and home-based care clients in our country.

Therefore, this study helps to examine the current situation of water, sanitation and hygiene in home based care clients and provides the foundation for future effort to integrate water and sanitation activities with home based care programs.

III. Objective of the Study

General Objective

To assess the situation of water, sanitation and hygiene in home -based care clients of people living with HIV/AIDS in Addis Ababa.

Specific Objectives

The specific objectives of the study were

- To assess availability, accessibility and adequacy of improved water source for home-based care clients.
- To assess availability of improved sanitation and hygiene keeping facilities in home based care clients.
- To assess the basic hygiene practice of clients.

- To identify the factors contributing to the availability of improved water sources, improved sanitation and hand washing practices at critical times.

IV. Methodology

Study Design

A cross-sectional survey design technique, using quantitative method was used to approach participants and elicit information on the variables of the study.

Study Area

Addis Ababa is the capital city of Federal Democratic Republic of Ethiopia and divided into 10 sub cities and 99 kebeles. The population of Addis Ababa was estimated to be 2,848,873 in 2007(31). Its potential health service coverage was 34 %(32). The potential water sources for Addis Ababa said to be: piped water (82.1%), boreholes (12.5%), hand dug wells (4.8%) and protected springs (0.6%) (33).

Home based care was mostly provided by NGO's and Idirs in the city. The main activities were providing basic nursing care, offer psychological support, wash clothes, clean the house, prepare food and facilitate referrals to other service in the community (34).

Source and Study Population

The source population was all home- based care clients in Addis Ababa served by HAPCSO during the study period. The study subjects were randomly selected home based care clients who were ≥ 18 years of age and gave verbal informed consent.

Sample Size Determination

Sample size (n) was determined using single population proportion formula.

$$n = \frac{(Z_{\alpha/2})^2 P (1-P)}{d^2}$$

Where "n" is sample size and P is the proportion of PLWHA using improved water and sanitation. Hence

1. Since local data for the value of P was not available 50% (p=0.5) was taken to allow maximum sample size by taking others constant.
2. Standard score (z) for 95% confidence level is 1.96
3. Degree of accuracy required (sampling error) is 5% i.e. d= 0.05
4. Estimated number of home based care clients in Addis Ababa i.e. 6700 (4).
5. To get large sample size population correction was not made while 10% for non response rate was added (refusal to be enrolled and absenteeism during data collection period).

Based on the above assumptions the total sample size "n" was 422.

Sampling Procedure

Study house holds were identified using simple random sampling method from existing home-based care clients' registration proportional to the number of home based care clients in Each sub city. The exclusion criteria used was age i.e. < 18 years. For those unable to communicate immediate care giver were asked.

Methods of Data Collection

Data were collected by ten trained home-based care providers and two supervisors from March 31-April14 /2009. The two principal data collection methods used in this study were;

1. Household interview

2. Observation

Variables

Independent variables: - Socio-demographic and economic variable like house ownership, income, educational status, sex of head of house hold.

Dependent variables: - outcome variables such as availability of improved water sources, improved sanitation, hand washing facilities and hygiene practices.

Data Quality

Quality of data was assured through the following methods; Using standardized adapted questionnaire, the data collection tool was pre-tested; data collectors and supervisors were trained on objective of the study, sources of bias, observation and interview technique, each questionnaire was manually cleaned up for completeness, missed values and inconsistent of responses, frequencies and cross tabulations were used to check missed values and variables.

Data Analysis

All responses to the survey questionnaires were coded against the original English version and entered using EPI-6 software. The final data file was exported into SPSS 11.0. The data was presented using tables, percentages, graphs and mean values.

Ethical Consideration

Ethical clearance was secured from the ethical committee of Addis Ababa University, Medical faculty and Addis Ababa City Administration Health office. Participation in the study was voluntary, based on informed consent and the participants were free to leave the study at any time. Privacy and confidentiality were maintained during interview.

Dissemination of Findings

The result of this study will be disseminated to Addis Ababa HAPCO, Health office and (HAPCSO). The findings will also be provided to Ethiopian Public Health Association (E PHA), Center for Disease Control (CDC) that supports this study financially and presented in workshops, seminars and journals.

V. Result

I. General Characteristics of the Study Subjects

Out of the total 422 home based care clients sampled, 420 clients were interviewed and included in the analysis, which makes the response rate 99.5%. The large proportion of clients lived in rented houses from kebele (40.5%) followed by rented from private (35%) and female by sex (81.2%). Majority of (60.7%) of clients' household were headed by women. Two hundred eighty three (60.7%) of respondents were mothers. Above one third of the respondents (35.7%) were married. Four out of five clients were orthodox (80.2%) by religion followed by protestant (10.5%), Muslim (8.1%) and catholic (1.2%). The median (SD) age of clients and mean (SD) household size of study population was 35 years (± 8.9) and 4 (± 2) persons respectively. One third of (34.8%) clients were illiterate and 65.2% attend some elementary school and above. The majorities of clients were house-wife by occupation (35.5%) and similar proportions were married (35.7%) by marital status. About 48% of clients earn less than 150 birr monthly and 96.4% less than 500 birr.

II. Safe Water Supply

Water sources:- The principal sources for the majority of households were either piped water to yard/plot (47%) or public tap/standpipe (39.3%).

Fetching time:- The average time taken to fetch water was 20 minutes. In the majority of households water was fetched by adult women (74.3%).

Water consumption:- The average daily consumption of water by households was 40 liters (± 20.4), which became 10 liters per person per day.

Water handling:- Observation was made whether the water container was covered or not and the result showed that majority (83.8%) covered while the rest (16.2%) did not covered their water containers.

Home based water treatment:- Only 11.4% of households practiced home treatment to make their water safe. Of those who treated their water, the primary treatment method was adding Wuha Agar (62.5%) and boiling (22.9%). The reasons mentioned for lack of practice

were lack of money (34.7%), lack of knowledge (45.4%), lack of treatment technologies and other reasons (11.6%) like considering the water was safe enough.

II. Sanitation

Availability of latrines:- The majority (83.1%) of households had latrines and the predominant type was pit latrine with a cement slab (32.7%). The reasons mentioned for unavailability of facilities were lack of money (28.2%), lack of space (23.9%), lack of permission for construction (5.6%), not having a private house (36.6%) and other reason (5.6%) like living too close to streets.

From the total number of latrines, 69.1% were shared and 31.9% were private. On average one latrine was shared nearly by 6 households and used by 20 persons.

The result on observation of cleanliness of latrines showed that only 30.4% of them were clean but the other 24.4% had fecal matter, 37.5% had flies and 52.7% smelled during the assessment time.

From those who had latrines only 4.3% of households had hand washing facility near the latrines.

III. Hygiene

The majority (86.7%) of households had a bar of soap on the day of assessment and 92.9% had a use soaps to wash their hands during the preceding 24 hours. The main reasons mentioned for using of soap were to wash their hands (75.7%), washing of clothes (59.2%), washing body (40.8%), washing their children's body (24.6%), for washing their children's hand (21.9%) and 0.3% other purposes like washing utensils. Only 60.5% of respondents reported using soap for washing hands after defecating, but 70% reported knowing that it was important to wash hands after defecation.

Clients reported a variety of times when they believed hand washing was important, such as before eating (69.1%), after defecating (60.5%), before preparing food (57%) and after eating (55%). From the total respondents, only 24.3% had participated in hygiene education and an overwhelming majority (89.6%) reported not having access to pamphlets or visual aids depicting hygiene promotion. Respondents were asked the usual place for taking bath and the majority (93.1%) reported using buckets while 3.1% had their own showers.

IV. Prevalence of Diarrhea in Home -Based Care Clients

The findings of this study showed that the two weeks period prevalence of diarrhea in home-based care clients was 15.5%. Of those experiencing diarrhea, 20 % had diarrhea with blood and 80% without blood. The mean duration of diarrhea was about five days.

VI. Discussion

Safe drinking water, sanitation and good hygiene practice are fundamental to health, survival, proper growth and development since it reduces the occurrence of opportunistic infections particularly diarrhea among PLWHAs.

In this study about 96% of home based care clients obtained their water from improved sources. However, the figure was high compared to a study in Malawi (53.3%) and Zambia (54%) (9,10). The average time taken to fetch water was 20 minutes which was less than the standard 30 minutes round trip and studies in Zambia (25.33 minutes) and Malawi (40 minutes) showed (14,15). The difference might be the two studies were done both in urban and rural areas, while this study was done only in the urban area.

The average amount of water fetched by households was 37.25 liters. This result was similar to the general households' water consumption (40 liters) (17). The average per capita daily consumption of clients (10l/c/d)) was very low even compared to basic required need access (20l/c/d/). A significance increase in daily water consumption of clients' was observed in literate home-based care clients'.

Safe storage of water and proper dipping are important to avoid recontamination at home to reduce water- borne diseases. In this study the majority of households covered their container at the time of observation (83%) but the practice of getting water for those who did not have narrow neck water storage vessel was not good because about 87% of households used dipping or mixed as means of getting water.

Low cost strategies for treating, storing water and a proper way of getting water from the storage at house hold level is recommended for PLWHAs (10). In this study only 11.4% of households treated their water at home using scientific methods which was lower compared to study in Zambia (35%) and Malawi (16.7%) (14, 15) but higher than the practice in the general population of Ethiopia (8%) (6). The primary method used to treat water at home was water guard (Wuha Agar) (62.5%).

From the socio-demographic and economic variables tested house ownership, sex of the head of the house-hold and income had no significant association with availability of improved water sources. This might be due to the low sample size and homogeneity of the

study subjects. Significant association was observed between educational status of clients and daily per capita water consumption. Those clients who were literate used two times higher quantity of water than illiterate.

The result of this study showed that about 83% of house holds had latrine facilities. However, 20.2% had fecal matter in external areas of the latrine, 37.5% had flies and 52.7% smells indicating that those latrines were not well maintained and that spread of diarrheal disease could be more common. In other words two-third of (69.6%) the latrines were not clean and the reason might be most of the latrines were shared (69.1%) and simple pit latrines with out slab (30.7%). The availability of latrine was lower than the general population in Addis Ababa (90.7%) (17) and findings in Malawi (96.7%) (15), but higher than study done in Zambia's (75%) (14). Reasons mentioned by the clients for unavailability of latrines were lack of money, space, construction license and private house to construct. Moreover, the coverage was further low (62.5%) when compared with improved sanitation definition.

From the socio-demographic and economic variables tested; house ownership and sex of head of household had no association with availability of improved sanitation facilities. However, income had statically significant association with availability of latrines.

The finding of this study revealed that only 4.3% of the households had hand washing facilities located near the latrine which make hand washing after defecation impractical. This figure is very low compared to findings in Malawi (11.8%) (15).

Hand washing is an effective means of preventing diarrhea when done properly at critical times (10). In this study, soap was available in large number (86.7%). However, only 60.5% of them reported using soap for washing hands after defecation despite 70.5% reported knowledge of importance to wash hands after defecation. This figure is higher than studies in Zambia (49%) and Malawi (55%) (14,15). The reason might be due to the fact that, this study was done only in urban areas which make soap more available in the house.

Hygiene education was the first step to raise awareness of home-based care clients. However, the result of this study showed only 24.3% of clients exposed to hygiene education and 10.6% had resources materials that promote hygiene. So, this might be the cause for most of the lower hygiene practices.

Despite low percentage of home based care clients (3.1%) having bathing places, majority (90.5%) had good practice of washing body less than a week.

The two weeks period prevalence of diarrhea among home based care clients in this study was 15.5%, but only 80% of them were related to water and sanitation that characterized by loose stool without blood.

None of the socio-demographic and economic variables tested in multivariate analysis showed significant association with availability of improved water sources, sanitation and hand washing facilities near latrines.

VII. Conclusion

Based the findings of this study the following conclusions were made;

- The daily per capita water consumption was less than the minimum requirements of basic consumption
- Availability of hand washing facilities near a latrine was very low.
- Home-based care clients were less exposed to hygiene education and materials depicting hygiene promotion.
- Hand-washing practice at critical times of home based care clients was not good.
- Home-based care clients were accessible to improved water sources with reasonable time taken to fetch.
- Water treatment at point of use of home-based care clients' was low.
- Home based care clients had poor practice of keeping latrines clean.
- Availability of sanitation facilities among home based care clients' was low.
- Practice of proper water vessels covering of home based care clients' was good.
- Educational status of clients was significantly associated with per capita water consumption of home based care clients' ($P < 0.05$).
- Monthly income of households had association with availability of improved sanitation and hand washing facilities near latrine yet the association was not statically significant.
- Multivariate analysis of socio-demographic and economic variables showing P-values < 0.3 do not showed statically significant association with availability of water and sanitation facilities.

VIII. Recommendations

Based on the findings of the study the investigator recommends;

1. Including safe water supply, sanitation and hygiene as essential components of basic preventive care package for home based care clients.
2. Promoting and demonstrating simple and low cost effective water treatment methods at the point of use like boiling, water guard (Wuha Agar), solar disinfection.
3. Promoting use of narrow necked water container and spigot to avoid re-contaminations and facilitate proper dipping by households.

4. Promoting hand washing stations located outside the latrine and optimal hand washing at critical times.
5. Developing correct and comprehensive behavior changing communication material for people living with HIV/AIDS on water, sanitation and hygiene, building on existing materials.
6. Further nationwide study with a large sample size to examine the status of water, sanitation and hygiene in PLWHA and prevalence of water and sanitation related diseases that lead to national policy, legal and program interventions.

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References

1. UNAIDS. Report on global HIV/AIDS epidemic; executive summary. Geneva. [Updated 2008 July; Cited 2009 March 21]. Available from: <http://www.unaids.org>
2. Federal Republic of Ethiopia Ministry of Health. Health and health related indicators reports 2006/07. Addis Ababa .MOH. 2007.
3. Addis Ababa HIV/AIDS prevention and control office. HIV/AIDS situation in Addis Ababa. Addis Ababa. Addis Ababa HAPCO. 2007. (Calibrated).

4. Hiwot HIV/AIDS prevention, care support organization. Report in 2008. Addis Ababa. HAPCSO. 2008.
5. Kamminga E. and Wagelin Scuringa M. Royal Tropical Institute-KIT. HIV/AIDS and water, sanitation and hygiene; Thematic overview. Netherlands. [Updated 2005 August; Cited 2008 August 14]. Available from:
<http://www.irc.nl/download.php?file=/top/hiv aids.pdf>
6. Central Statistic Agency of Ethiopia. Ethiopia Demographic and health survey 2005. Addis Ababa. CSA. 2006.
7. USAID. HIV/AIDS and water/sanitation/ hygiene. Environmental Health. [Updated 2008 March; Cited 2008 August 18]. Available from: [www.ehproject.org/eh/ topics.html](http://www.ehproject.org/eh/topics.html) .
8. Wageline-Schuringa M, Kamminga E. HIV/AIDS and water, sanitation and hygiene. IRC International Thematic overview paper. 2003. [Updated 2003 July; Cited 2008 August 14]. Available from:
<http://www.irc.nl/content/download/4199/48511/hiv aids.pdf> .
9. WELL Project. WELL briefing note 5: The HIV/AIDS Millennium Development Goal, What water, sanitation and hygiene can do. London: WELL Project. [Updated 2004 July; Cited 2009 April 8]. Available from:
<http://www.iboro.ac.uk/well/resources/Publication/Briefing%20Notes/BN%20HIV%20AIDS.htm>.
10. WHO. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings. [Updated 2007 July; Cited 2008 August 14]. Available from: <http://www.cdc.gov/safewater>.

Thesis 5

Assessment of Acceptability of Provider Initiated HIV Counseling and Testing among Tuberculosis Patients on DOTS in Selected Areas in Gamo Gofa Zone, SNNPR

By Samson Tesfaye

1 Abstract

Background: HIV counseling and testing is fundamental to both HIV/AIDS prevention and treatment. Patients need to know their sero-status to benefit from available care and treatment options. Hence, multi-focused counseling and testing strategies need to be instituted in order to reach risk groups. Provider Initiated HIV Counseling and Testing (PIHCT) is getting implemented in most facilities utilizing Directly Observed Treatment Short course (DOTS) to increase uptake of HCT as most the important opportunity. Different factors might affect PIHCT service uptake which demand timely assessment.

Objective: To assess acceptability of PIHCT and factors influencing its uptake among tuberculosis patients in selected areas of Gamo Gofa zone.

Methods: Institution-based, cross-sectional study was conducted from January to April 2009, on 440 patients attending Tuberculosis clinics from four weredas in Gamo Gofa zone. Study site were selected based on their annual TB case load and evidence of HCT service presence. A regression model was used to assess factors associated with acceptability of PIHCT.

Results: 373 (84.8%) patients were recruited for HIV counseling and testing by their TB treatment supervisor ; and of these 336 (89.8%) had under gone HIV testing and the overall acceptability was found to be 76.4%. knowledge and attitude variables like willingness to disclose status of TB to others (AOR= 3.9; 95% CI= 1.9-8.2), believing healthy looking person could be infected with HIV (AOR 8.8, 95%CI=2.5-31.7), agreed that everyone should be tested (AOR=7.1; 95% CI=2.3-22.1), and disagreeing PIHCT has negative influence (AOR=4.9, 95%CI=1.4-16.5) were each associated with higher odds of having tested for HIV following their supervisor initiation.

Conclusion and Recommendation: The relatively high acceptability of PIHCT found by this study showed a fertile ground for the control, prevention and treatment of both HIV/AIDS and TB. The program needs to be strengthened and TB supervisors should keep up their efforts to promote PIHCT.

The HIV pandemic presents a massive challenge to the control of tuberculosis (TB) at all levels [1]. Developments have been seen in recent years in the global effort to address the AIDS epidemic, including increased access to effective treatment and prevention programs. However, the number of people living with HIV (PLWHA) continues to grow, as does the number of deaths due to AIDS in the past. A total of 33.2 million people were living with HIV in 2007 (6.3 million less than in 2006). This figure includes the estimated 2.5 million adults and children, who were newly infected with HIV in 2007. There were a total of 2.1 million deaths due to HIV/AIDS in 2007. In many regions of the world, new HIV infections are heavily concentrated among young people (15–24 years of age) [2].

Sub-Saharan Africa continues to bear the highest share of the global HIV epidemic. Two thirds (68%) of all adults and children with HIV globally are found in sub-Saharan Africa. Almost three quarters (76%) of all adult and child deaths due to AIDS in 2007 occurred in this region; that is about 1.6 million out of the global total of 2.1 million deaths. Among those who are newly infected with HIV 1.43 million (68%) reside in sub-Saharan Africa [2]. According to the adjusted single point HIV prevalence estimate published by federal HIV/AIDS control office (FHAPCO), about 2.1% of Ethiopia's adult population were living with HIV in 2005. It was projected that this rate of prevalence would remain the same until 2007. It is then expected to rise to 2.2%, 2.3% and 2.4% in 2008, 2009 and 2010, respectively. In 2007, nearly a million people were living with HIV of which 59.1% were females, with infection levels more than eight times higher in urban than in rural areas (7.7% versus 0.9%) [3]. HIV counseling is a voluntary dialogue between a counselor and client, a couple or a group of clients. It is a process of enabling clients to understand and make informed decisions on whether to be tested for HIV, to understand the results and facilitate future planning. The common components are pre-test, post-test and ongoing counseling. HCT services in Ethiopia have been uneven and even when available uptake has been relatively low. There are three types of HIV testing in the country; Client initiated, or voluntary counseling and testing, Provider initiated HIV counseling and testing (PIHCT) and Mandatory HIV screening [4]. Provider initiated testing and counseling refers to HIV counseling and testing recommended during treatment by health care providers to enable specific clinical decisions to be made and/or specific medical services to be offered that would not be possible without the knowledge of the person's HIV status [4]. As part of the response to the low uptake of client initiated HIV counseling and testing, WHO and UNAIDS have introduced opt-out testing and are advocating for an increase in provider initiated HIV counseling and testing in addition to voluntary counseling and testing. The recommendation

for universal systematic offer of HIV testing and counseling is seen as an important step in achieving the goal of universal access for all persons with HIV/AIDS. This intervention coupled with effective counseling for behavior change provides a seminal opportunity for HIV prevention [5].

HIV infection is a major risk factor for the development of tuberculosis (TB) and tuberculosis seems to make HIV infection worse. The increase in reported cases of TB since the mid-1980 is attributed, in part, to TB occurring in persons infected with HIV, the virus that causes AIDS. HIV robs the body off its natural ability to fight infection, making people with AIDS more likely to develop TB. HIV-infected person have weakened immune systems, and therefore have a much greater chance of developing active TB disease either by activation of latent infection or by being newly infected [6].

In 2003, TB incidence rate was falling or stable in five out of the six WHO regions, but growing at 1% per year annually, the glaring exception is Africa, where TB incidence rates are still rising across the continent at a rate of 3-4% annually. Even it had tripled or quadrupled since 1990 in countries with high HIV prevalence due to the deadly synergy between HIV and TB [7, 8]. TB is the leading cause of death among people who are HIV positive, accounting for 13% of AIDS deaths worldwide. TB continues to claim more lives in Africa where the TB epidemic is still driven by the spread of HIV, which increases the likelihood of dying from the disease [9]. HIV infection is now the most important single predictor of TB incidence in sub-Saharan Africa. The region accounts 70% of the world's 14 million people who are co-infected [8]. In some countries of sub-Saharan Africa, up to 70% of patients with smear positive pulmonary TB are HIV-positive [10]. The prevalence of HIV co-infection among adult TB cases is estimated to be 40% in urban areas in Ethiopia [11]. HIV accounted for an estimated 38% of all TB case incidences in 2003. Recent report shows HIV/AIDS accounts for 32% of the estimated 141,000 total TB cases in 2006 [12]. Due to under utilization of client-initiated HIV testing, the revised UNAIDS/WHO policy statement on HIV testing recommended that provider-initiated HIV testing should be implemented in clinical setting [13, 5, 9,]. For instance, only 10% of patients know their sero-status in the world [14, 10].

Objective: To assess acceptability of PIHCT and factors influencing its uptake among tuberculosis patients in selected areas in Gamo Gofa zone

Study area and Study period: The study was conducted in six health facilities from four weredas (three weredas and one town administration) in Gamo Gofa zone, namely Arbaminch Hospital, Arbaminch Health Centre, Chenchu Hospital, Lante Health Center, Shele Helath Center and Gerese Health center. The zone has 15 weredas, 2 town

administrative, 35 urban kebele associations and 444 rural kebele associations. Regarding the available health facilities in the zone; there are three hospitals, 18 health centers, 44 upgrading health centers, 437 health posts, 5 medium private clinics, 53 lower private clinics, 4 diagnostic laboratories, 8 pharmacies and 25 drug vendors. In the zone more than five ethnic groups reside with the topography being 30.13% high land, 41.44% middle land and 28.43% lowland. Total population of the zone is 1,689,957 of which 841,662 (49.8%) are males and 848,295 (50.2%) are females [43]. The study was conducted in the selected six sites from January to April 2009.

Study Design: Institution based cross sectional study was conducted among TB patients who were getting their treatment for TB to assess uptake of provider initiated HIV counseling and testing in selected areas of Gamo Gofa zone. This study also took into account an analytic approach of internal comparison between accepters and non-accepters of PIHCT.

Source Population: The source population was all TB patients (both old and new patients) who were registered and put on DOTS attending TB clinics in selected health facilities in Gamo Gofa zone and the study population was all TB patients on DOTS in the period from January to April 2009.

Sample size Determination: Sample size determination formula for single population proportion was used. The proportion of PIHCT acceptance among TB patients was assumed to be 35%, 95% confidence level and the margin of error is 4.5%. Using the above formula the initial sample size will be 432, taking the non-response rate to be 10% the final sample size will become **475**.

Sampling Procedure: The total sample was allocated to six selected health facilities based on the number of TB clients flow. The selection of health facilities was done using the following criteria; Annual case load of TB (ranging 126 to 591), evidence of pre-existing HIV counselling and testing specifically PIHCT and proximity to capital of the zone (Arbaminch), a 60 KM radius was considered manageable by the principal investigator (PI). Exit interview using structured questionnaire was entertained to total of 440 registered TB patients over a period of three months (January to April 2009).

Data Collection: The study used both open and closed ended structured questionnaire. The variables in the questionnaire were adopted from previous studies and through consultation with advisors, individuals and finalized after pre-testing on sample of the interviewee. The questionnaire was prepared in English and translated in to Amharic then back to English to check for the consistency. The questionnaire included socio demographic characteristics, knowledge about HIV, personal HIV risk perception, knowledge about PIHCT

and acceptability of PIHCT. Six nurses were selected from all health facilities to conduct the interview. An exit interview was carried out on appointment days in which patients come to treatment centers to collect their drugs.

Data Collection Procedure: Six data collectors and two supervisors, who have at least diploma level training and who can speak Amharic and English language, were recruited. The principal investigator trained the data collectors and supervisors for two days and the training was done in the respective health facilities during working hours in the afternoon. The training focused on selection of cases, confidentiality and informed consent. The questionnaire was used after pre-test was done on 10 TB patients by all study members together with the principal investigator at one of health institution which was not part of the main study and the pre-tested questionnaire was used for the actual data collection.

Data Quality Control: Adjustments were made on the appropriateness of the data collection instrument based on the feedback of pre-tested questionnaire. Supervision was carried out on daily base both by the two supervisors and by principal investigator to keep the quality of data. Completed questionnaires were collected from data collectors by supervisors and submitted to principal investigators. This process helped in maintaining the quality of the data before it was entered and analyzed.

Data Processing and Analysis: The collected data was entered and analyzed using EPI Info 3.3 and SPSS 15 for windows software respectively. To describe the characteristics of the study population, means, medians, and percentages were calculated. In the analyses process, individuals who accepted PIHCT were compared against non-acceptors of PIHCT for significant differences. Chi-square statistics and odds ratios were generated with 95% confidence intervals to guide interpretation. Variables that were found to be a statistically significant at $p < 0.05$ during the univariate analysis were entered and analyzed by multivariate logistic regression analysis to adjust for confounding.

Ethical Consideration: Ethical clearance was obtained from the Institute of Review Board (IRB) of Faculty of Medicine, Addis Ababa University. Official permission was secured from regional health bureau, Zonal/District health office and respective wereda/town administration health offices. The respondents were informed about the objective and purpose of the study and verbal consent was taken from each respondent. They were also informed about their right of not participating in the study or withdrawing at any time. Personal privacy and dignity was respected. Finally, a specific safe place was arranged to put the questionnaires after completion of the interview.

Dissemination of Result: The final report of the study will be presented and discussed in School of Public Health, Faculty of medicine, Addis Ababa University. The result of study will

be disseminated to Ethiopian public health association, Gamo Gofa zonal health department, the three weredas' health offices, Arba-minch town administrative health office and the six health facilities included in the study. And it is expected to be published in scientific journals.

Results

All 440 TB patients participated in the study, making the response rate 100%. Two hundred fifty two (57.3%) of the study participants were males with 1.34 to 1 sex ratio. The mean and median ages of the patients were 31.8 ± 11.7 and 29.5 years old respectively. 220 (50.0%) of the study populations were between 15-29 years old followed by a 30-44 age group that accounted for 34.1% of the study participants (Table 1). Of those interviewed 226 (51.4%) were Protestants followed by Orthodox Christians 182 (41.4%). The predominant ethnic groups of study participants were from Gamo ethnic group 326 (74.1%), followed by Amhara 54 (12.3%). The rest were Welayta, Oromo, Konso and a few other groups.

Table 1: Socio-Demographic Characteristics of Tuberculosis Patients in Gamo Gofa Zone, May 2009

Variables	Frequency	%
Gender		
Male	252	57.3
Female	188	42.7
Age in completed years		
15-19	54	12.3
20-24	84	19.1
25-29	82	18.6
30-34	63	14.3
35-39	44	10.0
40-44	43	9.8
≥ 45	70	15.9
Religion		
Protestant	226	51.4
Orthodox	182	41.4
Muslim	23	5.2
Catholic	4	0.9
Jehovah	5	1.1
Ethnic group		
Gamo	326	74.1
Amhara	54	12.3
Welayta	24	5.4
Konso	4	0.9
Others*	32	7.3
Marital status		
Married	256	58.2
Single	151	34.3
Divorced	20	4.5
Widowed	13	3.0

Educational status		
Illiterate	120	27.3
Read and write	69	15.7
Grade 1-6	81	18.4
Grade 7-12	135	30.7
Above grade 12	35	8.0
Occupation		
Farmer	108	24.5
Student	88	20.0
Housewife	73	16.6
Merchant	38	8.6
Civil servant	32	7.3
Daily laborer	31	7.1
No job	25	5.7
Other**	45	10.2
Family size (mean family size)		
≤ 5	227	51.6
>5	197	44.8
No response	16	3.6
Monthly family income (in Birr)		
≥ 350***	93	21.1
< 350	80	18.2
No income	89	20.2
No response	178	40.5

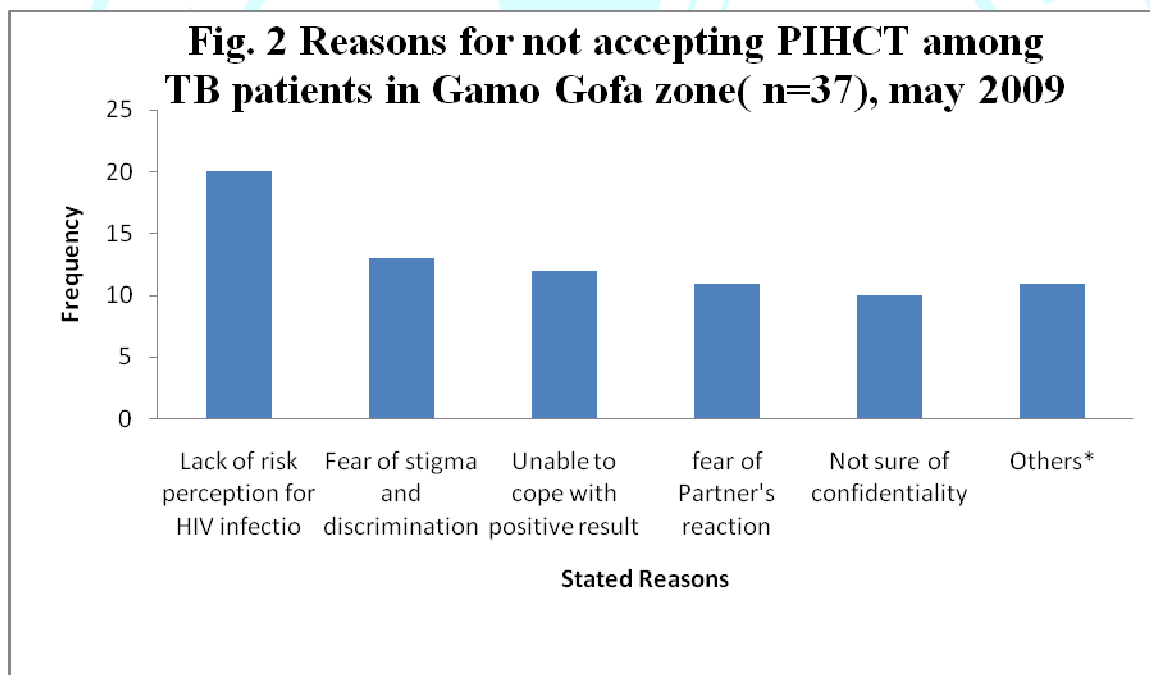
* Oromo, Gurage, Tigre, Gofa, Koyra **Domestic servant, weaver, soldier, sex workers,
 *** Poverty line- Income less than one dollar per day and the exchange with regard to the
 purchasing power in Ethiopian currency for one dollar was 11.5 birr which is 350 birr
 monthly. (Human development report 2007/8)

Almost all study subjects 434 (98.6%) reported that they have heard of HIV/AIDS, and 379 (86.1%) believed that HIV is definitely not a curable disease. Four hundred and two (91.4%), and 280(63.6%) of the study subjects knew that sexual intercourse and the sharing of sharp materials respectively were the most common ways of HIV transmission in Ethiopia . Only 130 (29.5%) participants were able to identify mother to child transmission, and blood transfusion as modes of HIV transmission. Overall, 27 (6.14%) of the participants had misconceptions about the transmission of HIV/AIDS including mosquito bite, shaking hands with and sharing a meal with PLWHA. Out of those who reported that they have heard of HIV /AIDS, 336 (77.4%) and 178 (41.0%) of the participants indicated that abstinence and staying with only one uninfected partner as means of HIV prevention method respectively.

Of the 440 patients interviewed, 379 (86.1%) reported that they were aware of the availability of PIHCT prior to this survey. The most common source of information for PIHCT mentioned by participants was health workers/institutions 242 (63.8%), followed by

combination of two or more sources 99 (26.1%), mass media 19 (5.0%) and friends 10 (2.3%) as shown in Table 3. The majority of the patients had positive views toward PIHCT after it was explained. Three hundred eighty six (87.7%) were “extremely” or “very much” in favor of PIHCT. And 380 (86.4%) of the respondents agreed that every one should get tested for HIV.

Most of the patients 373 (84.8%) were recruited for HIV counseling and testing by their TB treatment supervisor and 336 accepted the test to make the overall acceptance rate to be 76.4%. Among those who were initiated by their treatment supervisor for HIV testing 336 (89.8%) who had under gone HIV testing, 325 (96.7%) of the HIV tested patients had collected their HIV test result and 304 (90.5%) and 294 (87.5%) of tested patients received counseling before and after testing respectively. The reasons for not accepting PIHCT as described by the non-accepters was shown in Fig.2 below.



**tested before, partner's trust, others advised against testing, believing being tested is not useful*

Patients who were willing to disclose their TB status to others had a higher odd of acceptability of PIHCT (AOR= 3.9; 95% CI= 1.9-8.2) than those who wanted to keep it secret. Patients who believed that healthy looking person could be infected with HIV were close to nine times more likely to get tested for HIV following their supervisor's initiation than those who don't (AOR 8.8, 95% CI=2.5-31.7). In addition, patients who reported that they agreed any one can check his/her sero-status had higher odds of acceptability of that

PIHCT (AOR=7.1; 95% CI=2.3-22.1). Those who did not think PIHCT has a negative influence were found to have a higher odd of accepting PIHCT (AOR=4.9, 95% CI=1.4-16.5) as shown in Table 7

Table 7: Multivariate Logistic Regression Analysis of Factors Associated With Acceptability of PIHCT, Gamo Gofa, May 2009

Variables*	Acceptors (n=336)	Non-accept. (n=37)	OR (95% CI)	AOR (95% CI)
Willing to disclose status of TB				
No ^R	102	22	1.0	1.0
Yes	230	15	3.3(1.6-6.6)	3.9(1.9-8.2)
Can a healthy looking person be infected with HIV				
No ^R	33	8	1.0	1.0
Yes	275	24	2.8(1.2-6.7)	8.8(2.5-31.7)
Everyone should be tested for HIV				
No ^R	15	8	1.0	1.0
Yes	301	29	5.5(2.2-14.2)	7.1(2.3-22.1)
PIHCT has a negative influence				
Yes ^R	13	6	1.0	1.0
No	289	30	4.4(1.6-12.6)	4.9(1.4-16.5)
Previously tested for HIV				
No ^R	55	28	1.0	1.0
Yes	281	8	17.9(7.7-41.3)	517.2(65.0-4113.1)

R= Reference category, logistic analysis

*= Variables with statistical significant in Univariable

NB: - those who did not respond to particular questions stated above, in both acceptors and non-acceptors, were excluded from analysis.

Discussions: Most of the patients interviewed were initiated for HIV counseling and testing by their TB treatment supervisor 373 (84.8%). Among those who were initiated by their treatment supervisor for HIV testing, 336 (89.8%) had under-gone HIV testing. And 96.7% of the patients tested had collected their results. Our own self-reported finding of the acceptability rate of 89.8% showed more than a threefold increased when compared to what was reported (26.4%) from Addis Ababa when the service was initiated. And significant forward leap when compared to a study in Arba-mich study which demonstrated low prevalence of practical acceptability (35%). The high prevalence of PIHCT acceptability

in this study could be due to the availability of comprehensive HIV/AIDS care (availability of many free standing VCT centers, increased access to ART, OI and care and support services). It can be noted that there is a high theoretical acceptability which usually don't complement with similar high practical acceptability.

Almost all (98.6%) TB patients reported that they have heard of HIV/AIDS. This result is comparable with the results observed among the community (100%) in north Gondar [15] and Addis Ababa [40]. This finding is also comparable with a recent finding from BSS round two that revealed that 98% of study populations were aware of HIV /AIDS [9]. Evaluating findings of the participants' knowledge about the mode of HIV transmission, the majority (91.4%) mentioned sexual contact and sharing of sharp objects while PLWHA was mentioned by 63.6%. But mother-to-child transmission was reported by only 29.5% of respondents which is much lower when compared to studies done in Gondar [15] and Adama [42]. On the other hand, still few (6.1%) of the participants had misconception on transmission of HIV/AIDS like mosquito bite and sharing meals with PLWHA as reported as mode of transmission. Similar findings were observed among TB patients in north Gondar [15], Addis Ababa [40, 41]. Such misconceptions about HIV transmission and poor knowledge about the disease would affect protective behaviors and may cause stigma associated with the disease that have impacts on the control of the epidemic [13]. Regarding the means of against HIV infection; abstinence, faithfulness and correct use of condom was mentioned by 76.4%, 40.5% and 34.3% of respondents. This is relatively lower when compare to other studies [40-42]. This could be due to poor delivery of the health education in the study area which calls for due attention.

Only 100 (22.7%) of the participants reported that they might be infected with HIV. This finding is lower when compared to the studies done in Addis Ababa [39] and Adama [42] and lack of risk perception was mentioned as the main reason for not accepting PIHCT by 54.0% of the non-acceptors. Such behavior would be a threat to the scaling up of HIV counseling and testing.

Patients who were willing to disclose their TB status to others had a higher odd of acceptability of PIHCT (AOR= 3.9; 95% CI= 1.9-8.2) than those who would like to keep it secret. Patients who believed that healthy looking person could be infected with HIV were close to nine times more likely to get tested for HIV following their supervisor initiation than those who don't (AOR 8.8, 95%CI=2.5-31.7) and those who did not think PIHCT has negative influence were found to be at five times higher odd of accepting PIHCT. In addition, patients who reported that they agreed any one can check his/her sero-status had higher odds of acceptability of PIHCT (AOR=7.1; 95% CI=2.3-22.1) and the same

association was observed in similar studies done in Addis Ababa [40] and Adama [42]. This can be explained by the fact that those who know the benefit of HIV testing are more likely to accept the test and knowledge about HIV/AIDS would help to bring about desired behavioral changes if applied accordingly.

The association between having prior HIV test and HIV test acceptance may be because those who had prior HIV test, most likely, bring about behavioural change towards practicing safe sex after knowing their HIV status. The same association was seen in a study conducted in the Army hospital prior HIV test was found to be a significant predictor of acceptance of HIV test among pregnant women after adjusted for possible confounding factors [45]. This could be taken as those individuals who took the test in the past, would decrease practicing risky sexual behaviour. Hence, TB patients, who tested for HIV previously, were more likely to accept taking the test again into consideration their earlier encouraging HIV test result and thinking they will be negative also.

The most commonly cited perceived barriers for PIHCT among respondents, who had not been tested, were lack of risk perception, fear of partner's reaction and fear of testing positive result. These findings are similar to those from studies done on HIV testing in Ethiopia and elsewhere in Africa [16, 17, 20, 33, and 40].

Conclusions: based on the study's findings the following conclusions were made

- ❖ There is evidence of a relatively high acceptability of PIHCT. This holds a significant promise for the control, prevention and treatment of TB and HIV/AIDS.
- ❖ Patients' recognition that everyone should get tested for HIV, be willing to disclose TB status to others, believing healthy looking persons could be HIV infected and ever had tested were found more likely to be tested again following their supervisor's initiation.
- ❖ There are still misconceptions about the transmission of TB and HIV.
- ❖ Lack of perceiving risk of HIV infection, unable to cope with the positive HIV test results, fear of stigma and discrimination, fear of partner's reaction and tested before were found to be the main barriers for PIHCT

Recommendations

- The high number of people acceptance of HIV testing following provider initiation observed in this study is encouraging result that needs further strengthening of the service

- Strengthening of IEC/BCC through different channels on TB/ HIV to address barrier to testing is required.
- Current information, education and communication (IEC) activities need to address misconceptions regarding TB/HIV transmission means
- The study takes into consideration only clients' aspect (acceptability) for PIHCT implementation thus other studies should be done to assess other aspects like professionals' attitude, infrastructure condition and the like

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References

1. FMOH Tuberculosis and Leprosy Prevention and TB/HIV Prevention and Control Program Manual 4th edition. Addis Ababa; 2008
2. World Health Organization AIDS epidemic update, Geneva, Dec 2007.
3. FMOH Single point HIV prevalence estimate, Addis Ababa, June 2007.
4. FMOH Guideline for HIV counseling and testing in Ethiopia, Addis Ababa, July 2007
5. WHO Guidance on provider-initiated HIV testing and counseling in health facilities, Geneva, 2007
6. WHO Interim Policy on Collaborative TB/HIV Activities (WHO/HTM/TB/2004.330). Geneva; WHO, 2005.

7. WHO Tuberculosis and Sustainable Development, The Stop TB Initiative 2000 Report (WHO/CDS/STB/2000.4). Geneva; WHO, 2000
8. Maher D. Harries A. and Getahun H. Tuberculosis and HIV Intervention in Sub-Saharan Africa: Impact on Patients and Programs; Implication for Policies. Tropical Medicine and International Health 2005;10(8):734-742
9. FMOH Technical Document for 6th Report on AIDS in Ethiopia. Addis Ababa; MOH, June 2006
10. Abouya L., Malick CI., Stefan Z. et al .The Côte d'Ivoire National HIV Counseling and Testing Program for Tuberculosis Patients: Implementation and Analysis of Epidemiologic Data. AIDS 1998;12:505-512
11. The international community of women living with HIV/AIDS (2005): Point of view. Health Human Rights 8: 25-26.
12. FMOH 6th AIDS Report In Ethiopia .Addis Ababa; MOH, 2006
13. World Health Organization/Joint United Nations Program On HIV/AIDS: UNAIDS/WHO policy statement on HIV testing. 2004.
14. World Health Organization. HIV /TB Manual. Geneva; WHO, 2004.
15. Aklilu Ayenew Assessment of Willingness of TB Patients towards VCT in Selected Health Centers, North Gondar Administrative Zone. MPH Thesis; AAU-FM, 2004
16. Alemayehu Amberbir, Kebede Deribe, Wassie Lingerh et al. Uptake of VCT and Correlates among Women Attending ANC: Implication to PMTCT of HIV, South West Ethiopia. Proceeding of Annual EPHA S.Conv. Page 1,2005

Thesis 6

Reasons for Defaulting from Antiretroviral Treatment Programs in Public Art sites in Addis Ababa

Dr. Addis Akalu

Background

Globally over 60 million men, women and children have been infected with the human immune deficiency virus (HIV) since it was first recognized over two decades ago. It remains the leading cause of mortality worldwide and the primary cause of death in sub-Saharan Africa (1).

Someone who is infected with HIV is likely to become sick with AIDS within a few years but if treated with antiretroviral (ARV) medication his or her life can be prolonged often for a long time. ARV treatment has already dramatically cut the rate of AIDS diagnoses and deaths in Western countries where it has been, provided since the mid 1990s.

Many resource poor countries with HIV epidemic have been scaling up antiretroviral therapy since 2005. As of December 2007, an estimated 9.7 million of the people living with HIV in low- and middle-income countries urgently needed these life-saving ARV drugs. Ethiopia is one of the sub Saharan countries and worst affected by the HIV/AIDS pandemic. According to the calibrated single point estimate (2007) there are 977,394 People living with the virus that makes the national prevalence rate 2.1%. In addition, it is estimated 258,264 PLWHA require ART that same year (5). ART has been, officially started since July 2003 in the country as fee- based service..

The outcome of patients on ART is, usually categorized, as patients "alive on treatment" "transferred out" to other health facility, "dead" or "lost to follow up".

Lost to Follow Up: A patient is considered lost to follow up if she/he has missed more than three scheduled clinic visits or has not been seen for at least 3 months to pick up her/his medications after the initiation of HAART. The definition for loss to follow up might be different in different countries. As ART programs scales up, attrition of patients from the program creates great challenge for developing countries like Ethiopia. The status of patients lost to follow up had not been established at most HIV and AIDS chronic care facilities patients had simply been marked as "lost" in the ART register and clinics have

limited capacity to track the Patients out come. For evaluation and management of antiretroviral treatment programs, especially to avert the development of drug resistance virus it is important to effectively track loss to follow ups and address the pressing question of why patients drop out and what will be needed to retain them. .

The aim of the present study was to assess the rate of loss to follow ups and to identify their reasons of defaulting from anti-retroviral treatment in hospital- based public ART sites in Addis Ababa and to come back with operational recommendations as to how to overcome this challenging problem in the Ethiopian context.

Research Methodology

Study Area

2.1 This study was conducted in the three hospital-based ART sites in Addis Ababa i.e. in Zewditu Memorial Hospital, Tikur Anbessa Hospital and Yekatit 12 Hospital. These three hospitals were selected by non-randomized purposive sampling with the assumption that it is convenient for the intended study with limited time and cost.

2.2 Study Design

The study design was case-control design, which was conducted between Februarys to June 2009.

The records of all patients who registered for ART between March1, 2005 and March 31, 2008 at 3 ART sites in Addis Ababa were reviewed. When patients start ART, their details are entered on their clinical charts and also on an ART register. Patients attended the ART clinic each month on the first 6 months of therapy and at which time their outcome status is entered on their follow up cards and in the ART register then they are given another months supply of ART drugs.

If the patient is not seen in the clinic for three or more consecutive months, the patient is registered as lost to follow up (defaulter) on the follow up charts and ART register. Based on the findings obtained from the records study, subjects were identified as defaulter (cases) and non-defaulter (controls).

Non-Defaulter is someone who is alive and on ART (for at least for 6 months) at the time of data collection and was rated as good adherer by the providers. Each case is matched by sex and age categories to two controls to increase the power of the study. Both cases and

controls were interviewed on the same study variables. Both cases and controls were, selected from a cohort of patients who started ART between March 1, 2005 to March 31, 2008. Those patients who were transferred out to other health facilities and confirmed as dead were designated as non –defaulters.

Socio-demographic and clinical variables were extracted from the patient charts. With the contact details that are obtained from the records, ART facility staff first made a telephone call, when patient or his relative is successfully contacted, they were asked whether they are still taking ART if not, why he/she stopped. If the patient had died, relatives were asked when and how they died (while they was on ART or after they defaulted) by using a structured questionnaire.

For those who could not be contacted through telephone, a home visit was made by home based care providers working in each kebeles under the local NGOs “Hiwot”. Those patients who, were met at home during home visit and stopped their treatment were interviewed by using the structured questionnaire for their reasons of default. If the patient was not met at home during the home visit or had moved away, relatives or neighbors were asked about the true outcome status of the patient.

Controls were selected from the list of active ART users who came to the hospital to collect their medication at the day of their appointment. Each control was identified from the same hospitals as the cases. In situations where the number of controls that could be, matched to cases turned out to be more than two, two were selected and matched by lottery methods.

2.3 Study Population

For this study, the **source population** was ever-started on ART patients at the three-selected hospital-based ART clinics in Addis Ababa. The **study population** consisted of patients who were initiated on ART in between the periods of March 2005 to March 2008.

six thousand nine hundred ninety two adult, newly ART initiated patients were eligible to the study. Of that one thousand four hundred ninety nine were categorized as defaulters and the remaining five thousand four hundred ninety three as non-defaulters or active ART users.

2.4 Sample Size

The study included all cases of “lost-to-follow-up” from the three ART treatment sites (in Tikur Anbessa, Zewditu and Yekatit 12 Hospitals) during the period of March 2005 to March 2008.

Results

Lost to Follow Up

According to the chart review, the overall rate of lost to follow up among 6992, patients initiated on ART between March 2005 and March 2008, was found to be 21.4 %. Of those 1499, lost to follow ups 819 (55%) were females and 618 (45%) males. The majority of 1324(88%) them were within the economically productive age group i.e. is 18-47 yrs and their median age was 35 years.

Clinical and Laboratory Markers at the Start of ART

For all lost to follow-ups the median time between start of ART and date of default was three months. For 212 (14%) of them only one or single clinical visit was recorded that means these patients did not return to the clinic after the first ART initiation visit.

At the initiation of ART 34.4% lost to follow up were ambulatory and 22.6% bed ridden; the remaining 36% were working and the baseline functional status for the few (7.1%) was missing. Among those categorized as lost to follow ups the vast majority of them (86.6%) were in the WHO stage 3 or 4 at the initiation of the ART.

The median initial CD4 count for all discontinuing the follow-up was 80 cells/ml. This is much lower than the recommended 200 cells/ml for eligibility for ART. All registered lost to follow ups were on either of two first lines NRTI/NNRTI at the time of default. 436 (29%) registered lost to follow ups had TB co infection and were on anti TB at the start of ART.

True Outcome Status during Defaulter Tracing Visit

Of the 1499, patients who were reported as discontinuing the follow-ups, 193 (12.8%) of them had no properly registered contact address on their clinical charts and were completely untraceable. The rest 1306 (87%) had either their telephone number or complete home address were recorded. Moreover, active tracing was tried for all of them and 709 cases successfully traced. Among them 504 of them traced through home visit and 205 through telephone calls.

From the contacted participants, 136 (19%) were actually contacted. For the five hundred seventy three LTFUS who were not met at home during home visit, relatives 467 (66%) and

neighbors 106 (15%) were contacted respectively and asked about the patients true outcome status.

Of the total 669 successful contacts 198 (29.5%) of them were found to be alive 471 (70 %) were found to be dead. Out of those who died 337 (72%) of them died while on treatment and the rest 134 (28%) after defaulting on their treatment.

The group traced to be living (n=198) was compared with the group traced to be deceased (n=471). Characteristics associated with death were lower baseline CD4 cell count, advanced HIV disease (WHO stage3/4), baseline poor functional status and TB/HIV co infection in 1/3 of them at the start of treatment.

Among those who were traced and found alive (n=198), one hundred three (n=103) had stopped their medication voluntarily due to various reasons. Among the untraceable lost to follow ups 193 (23%) of them have no properly registered contact address in their charts (130 (35%) of them from ZMH, 53 (14%) from TAH and 10 (12.5%) from Yekatit 12).

Five hundred ninety seven (72%) LTFUS among the untraceable could not be contacted because, either their contact telephone number or home address was wrong or they were unknown by the given addresses. Out of them, 322 (54%) were females and 275(46%) males. These groups had similarly a low median CD4-cell count and advanced HIV disease at the start of the ART. 21% of them had active TB and were on anti TB at the start of ART. Among them, 221 (37%) were followed in ZMH, 312 (52.3%) in TAH and 64 (10.5%) in Yekatit 12 Hospital

Reasons for Defaulting

Overall, the commonest reason for patients remaining being lost to follow up is death, this being the case for 471 (70%) of the (n= 669) successfully traced. The remaining 103(52%) had stopped therapy due to various reasons.

By using an open-ended question, cases (true defaulters) were asked for their reasons for defaulting from antiretroviral treatment and the most frequently mentioned reasons were:

1. Religious beliefs/spirituality/alternative healing (35%)
2. Lack of food/shelter or money (7%)
3. Fear of treatment side effects (4%)

Matched Case-Control and Multivariate Analyses

Matched case –control analysis was done on 103 cases and 206 controls.

Factors significantly associated with defaulting in the bivariate analysis were:

1. Employment status (OR=4.22 with 95%CI of 2.45 to 7.11);
2. Average monthly household income 351-500 birr/month (OR=0.34 with 95%CI 0.153 to 0.75), 500-1000 birr/month (OR=0.34 with 95%CI 0.17 to 0.72) and >1000 birr/month OR=0.36 with 95%CI 0.005 to 0.27).
3. Attitude towards the treatment center (OR=0.52 with 95% CI of 0.3 to 0.9);
4. Family support (OR= 0.55 with 95%CI of 0.33 to 0.91);
5. Marital status (being widowed) (OR= 2.97 with 95%CI 1.48 to 5.96); and
6. Educational status (education level secondary and above (OR=0.33 with 95% CI 0.14, 0.88 and 0.24 with 95% CI 0.07 to 0.55 respectively).

In addition, in order to know the independent effect of each specific variable in the prediction of defaulting, logistic regression was done. In the analysis the factors that remained independently associated with defaulting were employment status (AOR=2.16 with CI of 1.09 to 4.22) and household income above 1000 birr (AOR=0.09 with CI of 0.011 to 0.73)

Discussion

This study shows that the over all loss to follow up rates from ART from the selected three public ART sites in Addis Ababa for the period of 36 months is 21.4%. Even though there is a wide range of variation in retention in different ART cohorts, a recent study revealed that 25% of people starting HIV treatment programs in Ethiopia are no longer receiving treatment after two years due to lost to follow up (36).

This study tried to trace 1499 lost to follow up patients in the congested urban situation and found out among those successfully traced large proportions of them (70%) had died, which is inconsistent with the study of many SSA.

Conclusions

The key findings from this study reveal that the over-all recorded lost to follow up rate for the study hospitals was 21% within a period of 36 months.

The majority of the patients categorized as lost to follow-ups within three months after the start of ART and this indicates that the first three months are the most crucial moments for better treatment outcome.

The majority of lost to follow ups that were traced in retrospect were reported dead and the main reason for being lost to follow-ups was found to be death. Death is associated with base line very low CD4 count, poor functional status and TB/HIV co infection. This indicates

LTFU and early mortality are the major challenges of ART program in Ethiopia as else where in SSA.

Unemployment and absence or low household income or economical constraints in general are the main determinant factors for treatment default.

The information obtained from portions of defaulters traced and interviewed revealed that many factors can contribute for treatment discontinuations, opting for religious and alternative healing, as the most frequently mentioned motives.

The majority of loss to follow ups could not be traced due to wrong addresses included in the ART register.

Addressing the major concerns of patients on treatment as well as effective patient tracing mechanisms to track those LTFU constitute among the major intervention needs.

3 Reference

1. UN General Assembly Meeting, on HIV/AIDS. June 15, 2006.
2. WHO/UNAIDS .AIDS epidemic update: August 2008.
3. World Health Organization. Progress Report, Towards Universal Access: Scaling up Priority HIV/AIDS interventions in the health sector. WHO Geneva, 2008.
4. AIDS Map, UNAIDS: Progress seen in most global regions, but much more needs to be done .November 20, 2007. <http://www.aidsmap.com>.
5. The Federal HIV/AIDS prevention and control office. National consensus meeting single point HIV prevalence estimate in Ethiopia, June 2007.
6. MOH-HAPCO: Monthly HIV care and ART update in Ethiopia, January 2009.
7. The Federal HIV/AIDS prevention and control office, Federal Ministry of Health. Guidelines for Management of opportunistic infections and the antiretroviral treatment in adolescents and adults in Ethiopia, July 2007. Addis Ababa, Ethiopia.
8. Bartlett, J.A., Lippincot, W. and Willinkins, Philadelphia. Addressing the challenges of Adherence JAIDS: 2002; s2-S10.
9. AIDS and HIV information. August 2008. <http://www.AVERT.org>.
10. WHO Priority interventions HIV/AIDS prevention treatment and care in the health sector: September 2008.
11. AIDS treatment, targets and results <http://www.AVERT.org>.
12. FMOH. Diseases prevention and control department, AIDS in Ethiopia 6th report September 2006.

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- 13. Masters Theses Extracts on HIV/AIDS- (Extract No.4 -May. 2008);**
- 14. Masters Theses Extracts on HIV/AIDS- (Extract No.5 -Sept. 2008);**
- 15. Masters Theses Extracts on HIV/AIDS- (Extract No.6 -May 2009);**
- 16. Masters Theses Extracts on HIV/AIDS- (Extract No.7 -Aug. 2009);**
- 17. Research Methodology and Ethics Training Proceedings-Sep 2009);**
- 18. Masters Theses Extracts on HIV/AIDS- (Extract No.8 -Dec. 2009);**
- 19. Masters Theses Extracts on HIV/AIDS- (Extract No.9 -Jan. 2010)**
- 20. Masters Theses Extracts on HIV/AIDS- (Extract No.10-May, 2010);**
- 21. Masters Theses Extracts on HIV/AIDS- (Extract No.11-July, 2010);**
- 22. Masters Theses Extracts on HIV/AIDS- (Extract No.12-Sep, 2010);**

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