HOW DO PEOPLE PROTECT THEMSELVES FROM DUAL RISK OF UNINTENDED PREGNANCY AND HIV/AIDS?

A COMMUNITY BASED STUDY AMONG MARRIED OR COHABITING IN ADWA TOWN, TIGRAY REGION ETHIOPIA

A THESIS SUBMITTED TO FACULTY OF MEDICINE

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Dedication

This thesis work is dedicated to the memory of my beloved dad Teklu and my beloved brother Solomon.

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LIST OF ACRONYMS

AIDS	Acquired immunodeficiency syndrome
AOR	Adjusted odds ratio
BCC	Behavioral change communication
BSS	Behavioral survey surveillance
CBD	Community based distribution
CHA	Community health agent
COR	Crude odds ratio
E.C	Ethiopian calendar
EDHS	Ethiopian demographic and health survey
F/P	Family planning
FGD	Focus group discussion
FMOH	Federal ministry of health
HIV	Human immunodeficiency virus
HRP	Progress in reproductive health
IDI	In-depth interview
IEC	Information, education, communication
IUSSP	International union for the scientific study of population
JHBSPH/CCP	John Hopkins Bloombring School of public health/ centers for communication program
KAP	Knowledge, attitude and practice
MTCT	Mother-to-child-transmission

NOP	National office of population
OR	Odds ratio
SPSS	Statistical package for social science
SRS	Simple random sampling
SSRS	Stratified simple random sampling
STI/STD	Sexually transmitted infection/ Sexually transmitted disease
TTBA	Trained traditional birth attendant
UNAIDS	Joint United Nation program on HIV/AIDS
UNDP	United nation development program
UNFPA	United nation fund for population
UNPD	United nation population division
USAID	United states agency for international development
WHO	World health organization

ABSTRACT

Background---In Ethiopia 17% of births are not wanted, while 20% of births are mistimed. Over 90% of adult cases of HIV in Ethiopia are attributable to heterosexual activity. Dual protection is concurrent protection from unintended pregnancy and HIV/AIDS representing an important public health intervention in this context.

Objective—to assess the extent of & barriers to dual protection among married or cohabiting people in Adwa town

Methodology— a community based stratified cross-sectional survey of 868 married or cohabiting aged 15-49 years women and 15-59 years men and 4 FGDs composed of two men & women groups were conducted in Adwa town, in the northern part of the country, from February 8 to March 3, 2006. Seven ketenas were selected by simple random sampling. A census was conducted and respondents were selected by computer generated random number. Data analysis for the quantitative part was using EPI info v6 and SPSS 11.0 for windows and the qualitative part was manually summarized & analyzed.

Result- the practice of dual protection was found to be 13.8%. The leading barriers against dual method use were not having the knowledge on how to prevent dual risks (accounting for 70.2%) followed by need for more children. Sex, education, employment, knowledge, communication with spouse/partner & contraceptive provider & approval of condom use with in marriage were found to be important predictors.

Conclusion - dual protection use is low in the presence of high morbidity & mortality due to reproductive complications including from HIV. Condom use is low among current contraceptive users. Lack of knowledge is the predominant barrier for dual protection method use. Communication is important for promotion of dual protection.

I. INTRODUCTION

Ethiopia is the 3rd most populated country in Africa, with 73 million people (NOP, 2005) a number that invents by almost 2 million people a year (UNPD, 2003). Ethiopia's population growth rate increased from 1.5% in the 1940s to 3.1 in the 1980s, the growth rate according to Ethiopian national office of population 2005 estimates 2.62%. Even if drastic measures slow the rate of growth, the population will continue to increase as the country's 47 million youth under the age of 24 raise their own families, therefore the country will reach 100 million starting from 2000 to the next 15yrs (UNPD, 2003).

Ethiopia is an example of countries at the beginning of the demographic transition characterized by high fertility and decreasing mortality (Anthony Webb, 2005). In a transitional society women complete their desired child bearing at early age, if effective birth control is not practical women can have several unwanted births in their lifetime (J.Bon Gaarts, 1997). According to EDHS 2000, 17% of births are not wanted, while 20% of births are mistimed. Avoiding unintended pregnancy could prevent about ¼ of all maternal deaths in developing countries (population report, 1999).

Ethiopia is currently among the countries most seriously affected by HIV/AIDS, with the 6th highest number of infections in the world (USAID, 2005). HIV prevalence (%) at ANC sites in Tigray ranges from 2-6% in rural and 7.4-11.3% in urban areas (FMOH, 2004). In Ethiopia, the major determinants for the rapid spread of HIV/AIDS epidemic include behavioral factors such as unprotected sexual intercourse and multiple sexual partners. Knowledge of sexual transmission is wide spread (98%), use of safe practice is low (BSS, 2001). Over 90% of adult cases and child cases of HIV in Ethiopia are

attributable to heterosexual activity and mother to child transmission respectively (Ethiopian Public health association, 2005).

Family planning falls with in the realm of traditional reproductive health services and is an important strategy for preventing HIV infection. For HIV positive women, the prevention of unwanted pregnancies is critical for preventing mother to child transmission of HIV (Kim Best, 2004). Despite the potential contribution of family planning to the prevention of HIV infections and transmission, contraception use in Sub-Saharan Africa, including condoms remain low (Pierre N., Rose W., Maoreen K et al 2005).

According to preliminary report of EDHS 2005, the modern contraceptive use in Tigray remains 16.2% among currently married women, of all this condom use was 0.1%. Even in areas where there is highest modern contraceptive use like Addis Ababa that accounts 56.9% condom use remains 2.1% only.

The nature of linkage between sexual and reproductive health and HIV/AIDS are conceptually, behaviorally and biologically linked (Gillespie, 2004). Reproductive complications are the source of extensive morbidity and mortality, including unplanned and unwanted pregnancies----; illness and death due to STI above all HIV/AIDS. It is important to consider whether and to what extent special efforts should be made to reach specific groups in the population in order to develop strategies for prevention of HIV. F/P & HIV/AIDS control programs need to find better ways to effectively address people's needs for F/P and disease prevention/ HIV (Carina Van Viet, Elisabeth, Me ester et al, 2001).

Dual protection is the prevention of two unplanned and undesirable out-comes –

unintended pregnancy and HIV infection (USAID, 2003).

The purpose of this study is to assess how people are protecting themselves from the dual risks of unintended pregnancy & HIV infection/transmission in marital or cohabiting relationships; because in this country the dual risk of unintended pregnancy and HIV are very high and result in extensive morbidity and mortality.

In countries with generalized heterosexual epidemics, exclusive emphasis on high-risk groups is no longer adequate. In such settings, marriage or cohabitation cannot be regarded as a safe haven. Many individuals acquire HIV because of prior infection or infidelity. (Malaned M. Ali, J. Cleland & I. H. Shah, 2004) Married or cohabiting people are also at risk of unintended pregnancy. Therefore, there have been many studies on unintended pregnancy and HIV/AIDS prevention separately but a few studies have looked at both despite of their potential in the prevention of the twin risks of HIV and unintended pregnancy. This study can add an insight for public health programmers and policy makers' especial areas of intervention. In addition, it helps not to miss good opportunities to prevent the twin risk of HIV and unintended pregnancy.

II. LITERATURE REVIEW

In many countries, women's ability to control their fertility is limited, even when family planning methods are available, a women may not use them because of financial constraints, personal belief's, opposition from family members or concerns about perceived adverse effects on health or future fertility.

World wide, between 120 and 150 million married women who want to limit or space future pregnancies are not using a contraceptive method. Use of male methods of contraceptive remains low. In Brazil, condoms and vasectomy account for less than 4% of total contraceptive use, in the Islamic republic of Iran; condoms comprise 6% and vasectomy 1% of total contraceptive use.

In sub-Saharan Africa, trends in fertility regulation have favored methods that are controlled by women and can be used without the partners knowledge, however, these do not protect from STD/HIV (WHO, 1998).

Individuals and couples have the right to enjoy healthy sexual lives free of unplanned pregnancy and STIs including HIV. Dual protection is one means through which this goal can be achieved (USAID, 2006).

Dual protection is the prevention of two unplanned and undesirable out comes – unintended pregnancy and HIV infection. Dual protection can be achieved through-

1 Use of contraception in a long term mutual monogamous relationship or

2 The use of a condom plus another non-barrier contraceptive method or

3 The use of a condom alone (including during pregnancy) or

4 Abstinence or

5 Avoidance of all types of penetrative sex (USAID, 2003)

Interventions to prevent HIV infection in pregnant women, as for non-pregnant women focus on counseling about potentially risky behaviors of the woman or her partner & strategy to reduce HIV risk. Because pregnant women also focus on condom use--, this approach is supported by international guidelines. Regardless of their HIV status, "Safer sex counseling must be provided to women in the antenatal setting, Stated the WHO (1999a). If they are unaware of their partner's HIV status or feel that they may be at risk from HIV infection, they should encourage their partner to use condoms." In fact, to reflect the men's role in this chain of transmission, some organizations have replaced the biologically precise terminology of 'MTCT' with the behaviorally sensitive term 'parent-to –child transmission'. (Kim Best, 2004)

II.1. THE EXTENT OF DUAL PROTECTION OF HIV AND UNINTENDED PREGNANCY

A telephone random sample survey of 371 women in the Pacific Northwest, found 24% use condom only and 18% dual use and 59% use effective contraceptive; while across-sectional survey of 929 sexually active women aged 15-49 years conducted in South Africa in primary health care clinics found the prevalence of dual protection to be 12% of these 7.5% used double method, 4.5% condom alone and one third no method (Chelsea, Jennifer, et al, 2003). Another South African study, carried out in 1998-1999, interviewed 554 men and women procuring condoms from 12 public health facilities found 16% had used both a condom and another method during their last sexual act. (L. Myer, C. Morrini, C. Mathew et al, 2002)

All the studies focus on dual method use but dual protection is broader than dual method

use. It is also done either on women only, or on clinic population or on condom procurers.

A study on promoting dual protection in six family planning clinics in Ibadan, Nigeria efforts to introduce dual protection counseling and female-condom provision in six family planning clinics showed a promising result on dual protection. About one year after initiating the project, investigators observed that providers' discussions of clients' sexual behavior and their partners' sexual behavior had increased from 19 percent and 16 percent of visits to 34 percent and 36 percent, respectively. Discussions of how to broach the topic of HIV/STI prevention with clients' partners increased from three percent to 24 percent of visits. The use of counseling adapted to a client's personal situation increased from 28 percent to 67 percent, and discussions of how various family planning methods can protect against HIV/STIs increased from 7 percent of visits to 42 percent of visits. Clients reporting awareness of the concept of dual protection increased from 8 percent prior to project implementation to 50 percent following the project, while 37 percent of clients reported accepting dual-protection or condom brochures from providers at the end of the project, compared to 2 percent before project implementation. (Lawrence Adeokun, Joanne E. Mantell, et al, 2002).

II.2. Condom use for dual risk prevention and barriers to wards its use

A study in South Africa also reported a low proportion of respondents who reported that they consistently or occasionally used condoms with their spouse or partner (15% of men and 18% of women) of these only 5% men &12% women said that they always used condoms, with the rest of the respondents indicating occasional use. In 77% of couples, both partners said they were not using condoms, while in 10%, both said they were

using condoms always or occasionally. Because most of the women reporting condom use were also using another method of contraception (94%) typically injectable, there is little doubt that condom were being used by women primarily for disease prevention (P Mahara, 2005).

A study on threats of AIDS and condom use in a Nigeria urban community showed that 27.7% of respondents cited that three uses of condom usage i.e. protect against AIDS, STI, unwanted pregnancy as well as a combination of all these uses. 32.4% recommended the contraceptive for family planning only, 32% & 32.5% of males & females respectively are currently using the condom for family planning. The condom is perceived in various ways that discourage its usage some of such ways in which it is perceived is that "it can kill", increased sexual urge in girls and thus increases promiscuity. A significant relationship exists between the perception of the condom as protective device against HIV/AIDS and willingness to use the condom in casual sex (Okeibunior, 1999).

A qualitative and quantitative study in Kenya showed that 696 people married or cohabiting with a partner were using family planning method. Out of this number, 14% were using condoms; 74% of non-users of condoms were married. The level of condom use for the unmarried was more than double that of the married respondents. Of the respondents currently using condoms, 38% and 10% were unmarried male & female respectively. Although 39% of the respondents agreed that it is acceptable for a married couple to use condoms, only 8% of them were currently using condoms and 26% had ever used it with non-regular partners. Three quarters of the focus groups said that condoms rupture in the process of sexual intercourse, condoms reduce sexual pleasure

for both men and women others stigmatization. The person using condom is also considered as promiscuous (Evasius K. Bauni & Ben Oboyo Jarabi, 2003).

However, there were many real and perceived barriers to condom use especially in stable sexual relationships. In stable long-term relationships, resistance to condom use was found to be strongly related to its association with STIs (including HIV/AIDS). Men and women did not see the need for condoms in stable, ongoing sexual relationships if a more effective method was used for pregnancy prevention. Condom use in such relationships may be seen as a clear sign of infidelity. These attitudes represent a major obstacle to the use of condoms as a dual method of protection. (Maharaja P., 2001) A telephone random sample survey of 371 women in the Pacific Northwest, found women who were confident about using condoms only or without feeling embarrassed or breaking the sexual mood were more likely to use dual methods rather than single effective method. Finally, women with confidence in their ability to use condoms correctly are more likely to rely solely on condoms. (S Marie, Jillian, Meredith, 2004).

II.3 DETERMINANTS OF DUAL PROTECTION METHOD USE

Knowledge

Across-sectional survey of 929 sexually active women aged 15-49 years conducted in South Africa in primary health care clinics found 70% of respondents were aware of condoms for dual risk prevention and 43% were aware that condoms with a non-barrier contraceptive can be used for dual risk prevention and 32% never protected. The study populations were clinic clients, which might have better awareness than the general population. A qualitative study on the perspectives of sexually active men and women about the risks of unwanted pregnancy and HIV/AIDS in Durban South Africa found

that there was a high level of awareness of the risk of unwanted pregnancy and HIV/AIDS. Knowledge of condoms as a method of preventing pregnancy and HIV/AIDS was also relatively good.

Education

The South Africa study of dual protection against STI and pregnancy found that higher education, were important predictors (Chelsea, Jennifer, et al, 2003) and the other South Africa study done on condom procurers found increasing level of schooling were positively associated with use of dual methods (L. Myer, C. Morroni, C. Mathew et al. 2002)

Need to have more children

A qualitative study in South Africa, respondents believed that the desire to have children because of the availability of child- support grants might be overriding any concerns about contracting HIV/AIDS. One key informant said, "Married couples desire to have children regardless of their HIV status---they do it because they want the child grant". Other respondents stated that fear of HIV infection and leaving a trail of orphans might be diminish the desire to have children (P. Ngom, R.Wlcher et al. 2005).

Risk perceptions

A study in Nigeria, Awka shows a high perception of HIV/AIDS as a dreadful health condition which most of the respondents will want to avoid and protect themselves against HIV/AIDS. A few however do not want to be bothered about protection against AIDS for different reasons (Okeibunor, 1999).

A study on condom use among married couples in Kwazulu- Natal, South Africa showed

that a higher proportion of women than men felt at risk of HIV infection from their partner (57% vs. 22%). Not surprisingly, perceived risk of HIV infection was strongly associated with women's belief that her partner was unfaithful. Perceived risk of HIV infection was significantly associated with condom use in both sexes (P. Maharaja &J Cleland, 2005). A cross-sectional survey of 929 sexually active women aged 15-49 years conducted in South Africa in primary health care clinics found being unmarried and having multiple sexual partners were important predictors. (Chelsea, Jennifer, et al, 2003)

AGE

A telephone random sample survey of 371 women in the Pacific Northwest, found women who were younger, reported more than one sexual partner one year prior from the study and those who were highly motivated to avoid HIV/STDS were more likely to use dual methods rather than condoms only or an effective contraceptive method. Women confident about using condoms only or without feeling embarrassed or breaking the sexual mood were more likely to use dual methods rather than single effective method. Finally, women with confidence in their ability to use condoms correctly are more likely to rely solely on condoms. (S Marie, Jillian, Meredith, 2004).

COMMUNICATION

I) Spousal/ Partner communication

Focus groups discussion in the five countries (Kenya, South Africa, Tanzania Zambia and Uganda) discussed many aspects of partner communication. All agreed that discussing sex, F/P and STDs (esp. AIDS) was difficult between couples. Most agreed that women were particularly restricted in what they could say to their partners without suffering the

risk of suspicion, arguments, violence, and loss of financial support or dissolution of the relation ship (marriage) (HRP, annual tech. Report, 1999)

Participants from Uganda mentioned that men usually do not tell their partners when they contract an STD. In Tanzania and Zambia, participants suggested that while couples may discuss STDs and AIDS in general terms or in terms of other people, they can not discuss these issues with regard to themselves or their own protection. One notable exception to the theme of silence occurred in Uganda (WHO, 1998).

I) Provider communication

The South African study, carried out in 1998-1999, interviewed 554 men and women procuring condoms from 12 public health facilities found that prior instruction on condom were positively associated with use of dual methods (L. Myer, C. Morroni, C.Mathew et al. 2002)

III. OBJECTIVES

GENERAL

1 To assess the extent, predictors of and barriers to dual protection among married or cohabiting people in Adwa town.

SPECIFIC

- To assess the magnitude of dual protection among those married or cohabiting.
- To identify predictors of dual protection among those married or cohabiting.
- To identify individual factors that influences the practice of dual method use among those married or cohabiting.

IV. SUBJECTS AND METHOD

Two important approaches were implemented i.e. quantitative and qualitative methods of data collection were used for this study. A combination of both methods has been found to be very useful as they compliment each other's strengths and weakness. The purpose of the FGD was to complement the data that was generated by the quantitative survey and elaborate issues that may not have been clearly reflected in the survey findings.

Study design

The study utilized a community based cross-sectional design and FGD on a sample of married or cohabiting men and women.

Study area

The study was conducted in Adwa town, a town that is located some 1006 kilometers away from Addis Ababa in the northern part of the country, in Tigray region, central zone. There was four kebeles and fifteen ketenas (sub-kebele) in the town. It has one hospital, one health center, four clinics and three health posts. All the health facilities were providing family planning services; there are also TTBA's that distribute pills and condoms. Distribution of TTBA is two people for each ketena but these people are not only assigned for contraceptive distribution but also they were attending labor. According to the town administration, the total population of the town was 54, 700 with 49% males and 51% females. According to Tigray regional health bureau the modern contraceptive prevalence of the town is 35%. (Tigray health bureau, 1996 E.C) Data on married or cohabiting women and men aged 15-49 years and 15-59 years respectively was not available. In addition, data of the town's contraceptive prevalence was not available.

Source and study population

All men and women who were married or cohabiting union within the reproductive age group 15-49 yrs for women and 15-59 yrs for men and residing in Adwa town during the study time served as a source population. Study subjects were included from seven ketenas that were selected randomly.

Inclusion criteria

All women aged 15-49 years old who are married or cohabiting, living with spouse or partner.

All men aged 15-59 years old who are married or cohabiting; whose spouse/wife is 15-49 years old, living with spouse/ partner.

Pregnant women were included in the study.

Exclusion criteria

Married or cohabiting union men or women, not living together, or whose spouse/partner was not there and not available for the study period.

Sample size determination

To determine the sample size for the quantitative study using a single population proportion formula, the following assumptions were made. Significance level of 95% ($\alpha = 0.05$) and a 5% margin of error was taken. Since the previous practice of dual protection and individual barriers in marital or cohabiting relationship is not known, a 50% dual protection practice is taken to obtain sufficient large sample size, and taking non-response rate of 15% the sample size was 442. Primary study unit were ketenas (sub kebeles) and simple random sampling technique was used. Secondary study units were house holds and it was stratified by sex and stratified simple random sampling was used.

Hence, the calculated sample size was doubled for design effect to obtain a total sample of 884, which consists of 451 women and 433 men. The men to women allocation was using the information from the town administration that the male account for 49% and women 51% of the total population and this is also supported by EDHS i.e. urban male to female ratio.

$$n = \frac{Z^2\ \alpha/2\ P\ (1-P)}{d^2} + 15\%\ \text{contingency}$$

where:

n = sample size **Z = 1.96**

α = 0.05 **d = 0.05 (5%)**

p = 0.5 (50%)

The sample size for the focus group discussion was four groups of participants which consisted of two men and women groups. The FGD numbers were stopped there because the needed information was obtained from the four groups. Each focus group was composed of 6-8 participants. A total of 29 people (14 men and 15 women) participated in the study.

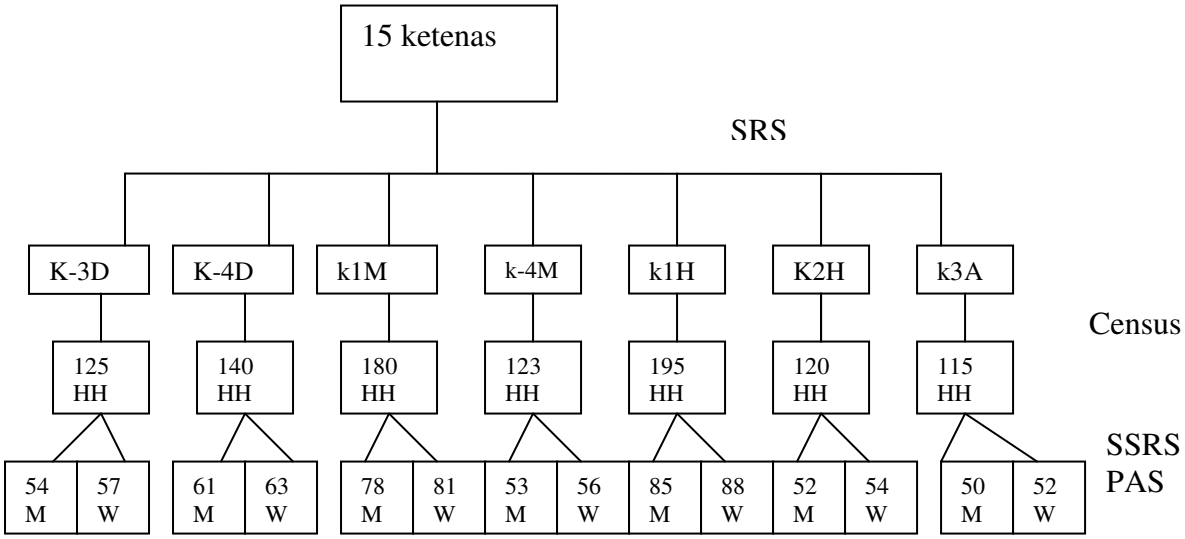
Sampling Technique

There were four kebeles and fifteen sub kebeles (ketenas) in the town. From the 15 ketenas found in the town seven ketenas were selected randomly using lottery method, fortunately two ketenas were included from each kebeles except one. Thus, 7 ketena were included in the study. A census was conducted in the selected ketenas, an eligible respondent was registered and a code number was given to eligible households. The total eligible house holds from the census numbered 998 (the sampling frame used) i.e. 998 men & 998 women. The sample size 884 was stratified by sex (451 of female and 433 of male) and was allocated to each ketena according to proportional size of the population.

Households were selected by computer generated random number and one candidate from each household was interviewed. The inclusion of seven kebeles was intended to increase the representative ness of the sample population.

Purposive sampling method was used for the FGD. Married or cohabiting men and women of different age from different ketenas (sub kebeles) of the town were used. They were gathered together to make men FGDs and women FGDs together with the ketena leaders.

Selection of study subjects



-The first level is ketenas with their respective kebeles first alphabet; selected by simple random sampling using lottery method.

-Total eligible house holds having eligible population after the census was conducted was 998 households.

-Proportionate allocation to size (PAS) was used to select eligible men and women using the formula

$\mathbf{n_{m\ or\ w}}$ **= n/ N times** $\mathbf{N_{m\ or\ w}}$

Where- $\mathbf{n_{m\ or\ w}}$ is sample of men or women allocated for each ketenas proportionately

$N_{m\ or\ w}$ -final sample size needed from each population which was 433 men and 451 women.

n-is total eligible house holds of each ketena after census was conducted

N-is total house holds having eligible population of all ketenas involved after census was conducted

-Household were designated in to men or women respondent by computer generated random number for each ketena

-Selection from each generated random number were by assigning the 1st number for either men or women by lottery and every other household were belong to the first sex and the rest unselected household belongs to the other group.

Where- HH- house hold SRS- simple random sampling

M- Men SSRS-stratified simple random sampling

W- Women

At last 884 house-holds involved, and one person a man or woman was selected from each house randomly to get 433 men and 451 women samples.

Data collection

A structured questionnaire was developed for the purpose of data collection. The questionnaire consists of basic socio- demographic characteristics, reproductive history, contraceptive use, sexual history, KAP on dual protection and barriers to dual protection method use. Both closed ended and open ended questions were included in the

questionnaire. The questionnaire was translated into the local language, Tigrigna.

Data collectors were six females and seven males who had completed 10th grade recruited from the town. Two nurses were also recruited to check the work of the data collectors. One supervisor was assigned for six and the other supervisor for seven data collectors and each supervisor assessed the performance of the data collectors and corrected any problems encountered together with the principal investigator.

Two days training was given to data collectors and supervisors. In the training session, the data collectors were oriented on the objectives of the study, how to collect data and confidentiality of information obtained. A census was conducted after training was completed for three days from February 8-11, 2006 to obtain eligible persons. Data collection was conducted from February 12-24, 2006.

For the focus group discussions a semi structured guideline was used. The guideline was composed of the variables as an entry (presence and seriousness of HIV and unintended pregnancy); preventive measures used for HIV and/or unintended pregnancy, condom use for risk prevention, and knowledge on dual protection methods. The discussion was recorded on a tape recorder. FGD data collection was conducted on February 27, 28 and March 3, 2006. Male and female moderators and rapporters were used for men and women FGD respectively.

Data Quality

Pre-testing was done in one ketena, which was not included in the randomly selected ketenas. During the pre-testing, the questionnaire was assessed for its clarity, understandability and completeness. In addition, the sensitivity of the subject matter and pattern of response was assessed and corrections done accordingly.

On each day until the end of the study period, the trained data collectors collected data by interviewing the study subjects and filling out the questionnaire. The data collectors submitted the filled questionnaire to their respective supervisor on a daily basis, and then all the collected data was checked for completeness, accuracy and consistency by the supervisor and principal investigator, and then corrected accordingly. Strict supervision and on the spot checking and reviewing of completed forms by the principal investigator was also maintained the data quality.

Since the nature of the questions was sensitive, each data collector was required to take adequate time for interviewing and be capable enough to get the honest response of the respondent. Respondents were also interviewed independently and by an interviewer of the same sex to handle sensitive issues. Data quality was also maintained by minimizing the duration of data collection and increasing the number of the data collectors. Therefore, by doing so, data contamination is assumed to be minimized.

The focus group discussions were recorded and note was taken by the rapporter. At the end of each discussion the note was cross checked with the recorded cassette together with the moderator, rapporters and principal investigator for data completeness and missed data was recorded in a note book.

Variables

Independent variable- socio-demographic characteristics (age, sex, marital status, education status, employment), age 1st at sexual intercourse, risk perception, discussion about dual risks with spouse/partner, discussion about HIV with provider, approval of condom use with in marriage, knowledge of dual protection, knowledge of

purpose of contraceptives and partner attitude

Dependent variable------ Dual protection

Operational definition

Barrier contraceptive- contraceptives which are effective for pregnancy prevention and HIV prevention i.e. condoms

Condom use- consistent use of condoms during sexual intercourse

Double method- use of any modern non-barrier contraceptive plus condom

Dual method use- use of condom alone or together along with other non-barrier modern contraceptive

Dual protection- use of any method of modern non-barrier contraception in long term (life long) monogamous relationship, or condom & non barrier contraceptive or consistent use of condom alone

Ketena- geographically designated areas for administrative purpose

Non-barrier contraceptive- contraceptives which are effective for pregnancy prevention but not for HIV infection such as surgical sterilization, injectables, IUCD, Implants pills

Perceived risk—the possibility of an individual being exposed to HIV according to their understanding and awareness

Unintended pregnancy- pregnancy i.e. either mistimed or unwanted

Unplanned birth- births those are mistimed or unwanted at all

Data processing and analysis

Data was entered, cleaned and analyzed using EPI info version 6 and SPSS 11 software

statistical package. Frequencies and proportions of all variables were determined. Cross tabulations were done to observe associations between the dependent and independent factors. The Chi-square test and, ORs with 95% confidence interval were calculated to describe associations association of between variables. Logistic regression was applied to control for the possible effect of confounders on each explanatory variable on the outcome variable using SPSS 11 soft ware. Qualitative data was transcribed & summarized in to themes and analyzed manually (thematic analysis)

Ethical consideration

Ethical approval and clearance were obtained from Addis Ababa University, faculty of medicine through the department of community health. Permission was also obtained from the concerned bodies of Adwa town administration. Study subjects were included in the study voluntarily after being informed about the objective and the confidentiality of the study. To ensure privacy and confidentiality, the interview was in a convenient place chosen by respondents and the information was collected anonymously.

Maximum efforts were done to keep confidentiality of the information during data collection by limiting access to the study team only. Even data collectors didn't know who the respondent was, they only knew the code number of the respondent but not their name and the male data collector interviewed men and the female data collectors interviewed the women and data collectors who were assigned for the census were not again assigned to the same ketena. The same procedure was done for the qualitative study. The objective and confidentiality of the study was explained, and permission was asked for the participant to participate and the talk to be recorded. Access to the recorded data was limited to the study team during data collection time.

DISSEMINATION OF FINDINGS

The findings of this study will be disseminated to ministry of health, to Tigray regional health bureau and regional HIV/AIDS prevention and control office Tigray. It will be also published in scientific Journals.

V. RESULTS

Socio-demographic characteristic of married or cohabiting men and women

Of the total calculated 884 sample size the responses of 868 (98.2 %) respondents were analyzed. A total of 1.8 % respondents were not interviewed during the data collection period, of them four (0.45%) respondents refused to participate in the study and twelve (1.35 %) respondents were not available at the time of visits despite repeated visits.

Four hundred thirty (49.5 %) and 438 (50.5 %) percent of the respondents were men and women respectively. The majority, 709 (81.7%), of these 406 (94.4%) men and 245 (55.9%) women were in the age group greater than or equal to 25 years and the rest 159 (18.3%), of these 24 (5.6%) men and 193 (44.1%) women were less than 25 years. The mean and median age of the men respondents was 39 $\pm$ 8.9 years and 39 years respectively. While the mean and median age of the women respondents was 28.2 $\pm$ 6.8 years and 27 years respectively. Categorization of age of respondents was based on youth and non-youth or other adults; this is because the youth age group (15-24 years) was the first age to start sexual relationship and have unprotected sexual intercourse that may predispose people to unintended pregnancy and HIV infection. Tigrawai/ti was the dominating ethnic group accounting for 96.7% and Amhara, Gurage & Oromo ethnic group made up of the rest (3.3%).

Christianity was the dominant religion accounting for 90.4% and the rest (9.6 %) were Islamic religious followers. 84.3% of the respondents were married and the rest (15.7%) were cohabiting union. 43.9% (45.9% men & 42% women) of the respondents had attended primary school and able to read and write followed by secondary school attendants, illiterates and above secondary school accounting for 28% (28.1% men &

29% women), 15% (6.5% men & 23.3% women) and 12.6% (19.5%men & 5.7% women) respectively.

Almost 40.8% (14.7% men & 66.4% women) of the respondents were unemployed and 18.9% (24.2% men & 13.7% women) were daily laborers, merchants and farmers. Only 15.3% (23.3% men & 7.5% women) of the respondents were government employee and 25% (37.9% men & 12.3% women) were non governmental institution employee. With regard to the monthly income of the respondents, the majority (53.6%) had $\leq$ 250 birr followed by 19.7%, 19.6%, 6.1% earning a monthly income of 251-499 birr, 500-999, and $\geq$ 1000 birr respectively. The rest (1%) do not knew their monthly income. (Table 1)

TABLE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF MARRIED OR COHABITING RESPONDENTS IN ADWA TOWN, FEBRUARY 2006.

	Men		Women		Total	
Variables	**Number**	**%**	**Number**	**%**	**Number**	**%**
Sex (n=868)	430	49.5	438	50.5	868	100
Age group (n=868)						
<25	24	5.6	193	44.1	159	18.3
≥ 25	406	94.4	245	55.9	709	81.7
Religion (n=868)						
Christians	386	89.8	399	91.1	785	90.4
Muslims	44	10.2	39	8.9	83	9.6
Marital status (n=868)						
Married	375	87.2	357	81.5	732	84.3
Cohabiting	55	12.8	81	18.5	136	15.7
Ethnicity (n=868)						
Tigrawai/ti	414	96.3	425	97	839	96.7
Amhara, Gurage & Oromo	16	3.7	13	3	29	3.3
Educational status (n=868)						
Illiterates	28	6.5	102	23.3	130	14.9
Primary & able to read & write	197	45.9	184	42	381	43.9
Secondary	121	28.1	127	29	248	28.6
Above secondary	84	19.5	25	5.7	109	12.6
Employment (n=868)						
Gov't institution employee	100	23.3	33	7.5	133	15.3
non Gov't institution employee	163	37.9	54	12.3	217	25
Unemployed	63	14.7	291	66.4	354	40.8
Others*	104	24.2	60	13.7	164	18.9
Monthly Income (n=868)						
≤ 250 birr	216	50.2	249	56.8	465	53.6
251-499 birr	83	19.3	88	20.1	171	19.7
500-999 birr	97	22.6	73	16.7	170	19.6
≥ 1000	34	7.9	19	4.3	53	6.1
Do not know	0	0	9	2.1	9	1

NB: * were Daily laborers, merchants and farmers.

REPRODUCTIVE CHARACTERISTICS

The 1st age at marriage categorization is based on the knowledge that under 18 year pregnancy is risky. Five hundred seven (63.6%), of these 400 (93%) men and 110 (25.1%) women, of the respondents were married at age greater than or equal to 18 years where as the rest (36.4% (6.7% men & 74% women)) were married at age less than 18 years. The rest 9(1%) of them respond do not know 1st age at marriage. The mean age at marriage for men and women were 26.2 $\pm$ 5.1 years and 17.5 $\pm$ 2.9 years respectively.

92.5 % of the respondents had history of child birth/ child born to. 34.2% men & 46.6% women had 1-2 children, 35.3 men and 17.3% men had 3-4 children, while the rest (22.6% men & 7.3% women had five and above children.. 64.1 % of the respondents have earlier plan of their wanted number of births. Of this 64.1 %, the number of children planned before were 12.4% men & 18.1% women to have 1-2 children, 52.3% men and 75.1% women planned 3-4 children while the rest (35.3% men & 24.8% women) planned to have five and above children in their life. The rest 312 respondents had no plan & do not know how many children to have in their lifetime & they were not included in the table. Categorization of number of children was based on the knowledge that the 1st child replacement for individuals & couples i.e. 1-2 children, 2nd & 3rd classification above replacement (3-4), 3rd high-risk pregnancy.

Seventy-four (8.5%) of the respondents or their wives were pregnant and of all the pregnancies 2.7% was unintended. Regarding to their childbirth history 12.2% of the respondents had given birth to a child with in the last six months. Of all the births, 3.7 % were unplanned (2.8% were mistimed and 0.9% unwanted). (Table 2) In examining the association of number of live children, and planned number of children before, with dual protection it was found insignificant.

TABLE 2: REPRODUCTIVE CHARACTERISTICS OF MARRIED OR COHABITING RESPONDENTS IN ADWA TOWN, FEBRUARY 2006

Variables	*Men* Number	(%)	*Women* Number	(%)	*Total* Number	(%)
First age at marriage(n=797)						
<18	29	6.7	324	74	290	36.4
≥18	400	93	110	25.1	507	63.6
Pregnancy history (n=438)						
Yes	-	-	412	94.1	412	94.1
No	-	-	26	5.9	26	5.9
Giving birth/child born to (n=868)						
Yes	396	92.1	407	92.9	803	92.5
No	34	7.9	31	7.1	65	7.5
Children alive (n=796)						
1-2	147	34.2	204	46.6	351	44.1
3-4	152	35.3	138	17.3	290	36.4
≥ 5	97	22.6	58	7.3	155	19.5
Number of children wanted before (n=556)						
1-2	43	12.4	32	18.1	75	13.5
3-4	181	52.3	133	75.1	314	56.5
≥ 5	122	35.3	44	24.8	166	30
Pregnant/ wife pregnant (n=868)						
Yes	31	7.2	43	9.8	74	8.5
No	399	92.8	395	90.2	794	91.5
Wanted ness of present pregnancy (n=73)						
Wanted	30	96.8	41	97.6	71	97.3
Unintended	1	3.2	1	2.4	2	2.7
Child birth with in the last six months(n=868)						
Yes	64	14.9	42	9.6	106	12.2
No	366	85.1	396	90.4	87.8	87.8
Wanted ness of child birth (n=106)						
Wanted	63	98.4	39	92.9	102	96.2
Unplanned	1	1.6	3	7.1	4	3.8

N.B 71 of them reported don't know their age at marriage,

312 do't have earlier plan on number of children wanted

MODERN CONTRACEPTIVE USE HISTORY

The majority (82.6%), of these 79.1% men and 86.1% women respondents, knew that modern contraceptives could be used for the purpose of limiting birth followed by could be used to prevent unwanted pregnancy 38.1% (31.9% men and 44.3% women). Others 12.6% (7.9% men & 17.1% women) knew that it could be used to prevent mistimed pregnancy and 11.2 % (6.3% men & 16% women) knew it could be used for the purpose of regulating periods (menses). Only 8.6% (9.8% men & 7.5% women) of the respondents knew that modern contraceptives could be used for the purpose of HIV prevention. Almost 51% of the respondents were never or past users of contraceptive and the rest (49%) were current users of modern contraceptive. Almost all (99.5 %) of the current users of modern contraceptives were non-barrier contraceptive users and the rest (0.5%) were barrier contraceptive users.

Eighty-nine point two (89.2%) of the respondents got their contraceptives from governmental health facility and the rest got their contraceptives from CBD and private pharmacy; this were asked only for the women respondents in order to know facilities good provider-client discussion about HIV/AIDS; because men may not knew. The majority (92.8%) of current modern contraceptive user's women had never discussed risk factors of HIV/AIDS with their contraceptive provider. (Table 3)

The knowledge that contraceptives could be used to prevent HIV infection had a significant association at COR and but not significant when adjusted. There was a significant association between dual protection method use and discussion with contraceptive provider about HIV at COR 0.2 (0.07-0.7) and AOR were 0.2 (0.06-0.9) (Table 8)

TABLE 3: MODERN CONTRACEPTIVE HISTORY OF MARRIED OR COHABITING RESPONDENTS IN ADWA TOWN, FEBRUARY 2006

Variables	Men		Women		Total	
	Number	(%)	number	(%)	number	(%)
Knowledge modern contraceptive use (n=868)						
Prevent unwanted pregnancy						
Yes	137	31.9	194	44.3	331	38.1
No	293	68.1	244	55.7	537	61.9
Prevent mistimed pregnancy						
Yes	34	7.9	75	17.1	109	12.6
No	396	92.1	363	82.9	759	87.4
Regulate period						
Yes	27	6.3	70	16	97	11.2
No	403	93.7	368	84	771	88.8
Limit family size						
Yes	340	79.1	377	86.1	717	82.6
No	90	20.9	61	13.9	151	17.4
Prevent HIV infection						
Yes	42	9.8	33	7.5	75	8.6
No	380	90.2	405	92.5	793	91.4
Use of modern contraceptive(n=868)						
Never & past users	200	46.5	243	55.5	443	51
Current users	230	53.5	195	44.5	425	49
Current contraceptive use by type(n=425)						
Non barrier contraceptive	228	90.1	195	100	423	99.5
Barrier contraceptive	2	0.9	0	0	2	0.5
Source of contraceptive (n=195)						
Gov't health facility	-	-	174	89.2	174	89.2
CBD & private pharmacy	-	-	21	10.8	21	10.8
Discussion with provider (n=195)						
Yes	-	-	14	7.2	14	7.2
No	-	-	181	92.8	181	92.8
Topics discussed (n=14)						
Number of partner/faithfulness of partner	-	-	4	28.6	4	28.6
How to prevent HIV infection	-	-	10	71.4	10	71.4

NB-source of contraceptive, discussion about HIV/AIDS with contraceptive provider & topics discussed were asked for women current users only

SEXUAL CHARACTERISTICS AND RISK PERCEPTION OF HIV INFECTION

The 1st age ate sexual categorization is based on the knowledge that early sexual initiation might also predispose a person to have multiple sexual partners which is the main determinant factor for HIV transmission in Ethiopia.

Almost 59.1% (6.8% men & 74.7% women) of the respondents had first sexual intercourse after or at the age of 18 years. The rest 5(0.6%) of them respond do not know 1st age at sexual intercourse. The mean age at 1st sexual intercourse for men and women were 24.2 $\pm$ 4.3 years and 17.2 $\pm$ 3.04 years respectively. The majority, 625 (72%), of these 61.2% men and 82.6 women, respondents had one sexual partner in life. 243 (28%), of these 38.8% men and 17.4% women, had two and above sexual partners in their life time and 3% of the respondents respond they had two and above sexual partners with in the last 12 months. Unexpectedly the number of sexual partners was not significantly associated with dual method use.

For the knowledge of their partner having another sex partner, 4.5% (2.3% men & 6.6% women) of the respondents responded their spouse or partner had another sexual partner and some of them did not know whether spouse or partner had another partner. Regarding respondents' subjective risk level 88.4% of them put themselves at lower risk and risk free of HIV infection.

Only 101 (11.6%) of the respondents put themselves at middle and high risk of HIV infection. The dominating reasons given for low risk were because they trusted their partner was faithful. (Table 4)

First age at sexual intercourse had highly significant association with dual protection method use at COR of 2.5 (1.7-3.6) but the AOR were insignificant. (Table 8)

TABLE 4: SEXUAL HISTORY & PERCEIVED RISK LEVEL TO HIV/AIDS OF MARRIED/ COHABITING RESPONDENTS IN ADWA TOWN, FEBRUARY 2006

Variables	Men Number	(%)	Women number	(%)	Total number	(%)
Age at 1st sexual intercourse (n=863)						
<18	29	6.8	324	74.7	353	40.9
≥18	400	93.2	110	25.3	510	59.1
Number of sexual partner in life (n=868)						
One	263	61.2	362	82.6	625	72
Two & above	167	38.8	76	17.4	243	28
Number of sexual partner within 12 months (n=868)						
One	411	95.6	431	98.4	842	97
Two & above	19	4.4	7	1.6	26	3
Knew spouse/partner having another sexual partner(n=868)						
No	420	97.7	409	93.2	829	95.5
Yes & don't know	10	2.3	29	6.6	39	4.5
Perceived risk level of respondents (868)						
Low and risk free	250	58.1	383	87.4	767	88.4
Middle and high	46	41.9	55	12.6	101	11.6
Low risk because (n=629)						
Trust each other/partner	179	71.6	336	88.7	515	81.9
Have negative blood test	12	4.8	7	1.8	19	3
Other reasons*	59	23.6	36	9.5	95	15.1
Middle risk, due to (n=89)						
Had unsafe sex, partner unfaithfulness	16	40	47	95.9	63	70.8
Other reasons**	24	60	2	4.1	26	29.2
High level, due to (n=12)						
Risky sexual behaviors	5	62.5	3	75	8	66.7
Other reasons***	3	37.5	1	25	4	33.3

N.B: given answers for others

** Low risk given reasons were because 'I trust my self', 'I know what I am doing', 'I might be at risk because of other methods of transmission', etc.*

*** Middle risk given reasons were because 'my spouse/partner might brought infection because of high movement from place to place', because of 'my profession might made me at risk', etc*

**** High risk given reasons were because 'I knew my self', because of my profession might made me at risk', etc*

COMMUNICATION WITH SPOUSE OR PARTNER ON DUAL RISK OF HIV INFECTION AND UNINTENDED PREGNANCY

The majority 601 (69.2%), of these 323 (75.1% men & 278 (63.5%) women, respondents had discussed the dual risk of HIV infection and unintended pregnancy with their spouse or partner. Only 267 (30.8%), of these 107 (24.9%) men and 160 (36.5%) women, the respondents had never discussed about the dual risk of HIV infection and unintended pregnancy.

When asked the reasons for not discussing with spouse/partner about dual risk of unintended pregnancy and HIV infection; the majority gave their reason for their not discussing 'I did not knew', accounting for 36.7% (25.2% men & 44.4% women), respondents. Twenty-nine point six percent (47.7% men & 17.5% women), gave their reason for not discussing because they trust each other; 4.9% for religious reasons; 2.2% reported fear for suspension of infidelity; and the rest 35% of respondents gave different reasons for not discussing such as not remember such topics; not in mind; not think about such things; married don't need to discuss. (Table 5)

The association between the main outcome variable dual protection with discussion and spouse or partner was found to be highly significant with COR and AOR 0.14 (0.1-0.3) and 0.09 (0.04, 0.9) respectively. When adjusted for 1st age at sexual intercourse, partner attitude to wards dual protection, knowledge that contraceptives could be used to prevent HIV/AIDS, discussion about dual risks with partner/spouse, discussion about prevention HIV/AIDS with contraceptive provider. (Table 8)

TABLE 5: COMMUNICATION WITH SPOUSE/PARTNER ON DUAL RISK OF HIV AND UNINTENDED PREGNANCY, AMONG MARRIED OR COHABITING RESPONDENTS IN ADWA TOWN, FEBRUARY 2006.

	Men		**Women**		**Percentage**	
Variables	No	**(%)**	No	**(%)**	No	**(%)**
Discussion with spouse about dual risk of HIV infection & unintended pregnancy (n=868)*						
Yes	323	75.1	278	63.5	601	69.2
No	107	24.9	160	36.5	267	30.8
Not discuss because trust each other (n=267)						
Yes	51	47.7	28	17.5	79	29.6
No	56	52.3	132	82.5	188	70.4
Fear partner may suspect infidelity (n=267)						
Yes	2	1.9	4	2.5	6	2.2
No	105	98.1	156	97.5	261	97.8
'I did not knew'(n=267)						
Yes	27	25.2	71	44.4	98	36.7
No	80	74.8	89	55.6	169	63.3
Because of religiousness(n=267)						
Yes	11	10.3	2	1.3	13	4.9
No	96	89.7	158	98.7	254	95.1
Other different reasons(n=267)						
Yes	26	24.3	68	42.5	94	35.2
No	81	75.7	92	57.5	173	64.8

NB: other different reasons were not remember such topics, not in mind, not think about such things, because married don't need to discuss.

No - number

KNOWLEDGE, ATTITUDE AND PRACTICE OF DUAL PROTECTION METHOD

The majority 58.3% (38.8% men & 77.4% women) of the respondents did not know how to prevent dual risk of HIV infection and unintended pregnancy. Only 41.7% (61.2% men & 22.6% women) of the respondent responded they knew preventive methods of dual protection. Of these, respondents 43.3% (43% men & 44.4% women) reported they knew dual protection method non- barrier contraceptive plus condom followed by non-barrier barrier contraceptive in long-term mutual monogamy relationship accounting for 41.4% (31.6% men & 67.7% women) and 35.4% (40.7% men & 21.2% women) of them reported abstinence as dual protection method use. Seventeen-point seven percent (22.8% men & 4% women) knew dual protection method avoiding all penetrative sex. Only 30 (8.3% (3% men & 22.2% women)) of the respondents knew condom only including during pregnancy could be used for dual protection.

The majority (95.7%) of the respondents had positive attitudes towards dual protection method use. Seven hundred-eighty one (90%), of this 93.7% men and 86.3% women, of the respondents reported their partner had a positive attitude towards dual protection method use. Only 10% (6.3% men & 13.7% women) of the respondents had negative or equivocal attitudes towards dual protection method uses. Of those respondents who reported dual protection method use 13.6% (17.5% men & 9.6% women) of them were users of non-barrier contraceptives in long-term mutual monogamous relationship followed by non-barrier contraceptives plus condoms accounting for 5.9%, all these respondents were men.

Only 0.6% (4 in number men and 1 in number women) of respondents reported they were

using condoms for dual risk prevention. However, when those reporting that they were using dual protection method contraceptive with mutual monogamous relationship were cross checked with number of sexual partners in life, 3 (2.5%) of them had two and above partners in life and all these respondents were men. Of those who reported they were using dual protection methods, condoms alone or along with other non-barrier contraceptive, only 5 (8.9 %) of them were using condoms always.

Because of this reason, those who reported dual protection methods in the presence of multiple sexual partners, or inconsistent condom use were excluded for calculating the prevalence. Therefore, the prevalence of dual protection method use in this study was 13.8%. Of this, the prevalence of dual method use with consistently use of condoms were 0.6%. (Table 6, 9)

In examining the association of some purposively, selected socio-demographic variables with dual protection method use, sex, age group, educational status, marital status and employment were found to be significantly associated with the crude OR. (Table 7)

On the other hand when adjusted for sex, age group, educational status, employment and marital status: employment, educational status and sex were found to have significant association at adjusted OR 1.9 (1.3-2.8), 2.4(1.1-5.0) and 2.9 (1.8-4.7) respectively by binary logistic regression. (Table 7)

In examining the association of some purposively selected reproductive variables, such as number of children, and planned number of children were not found to be significant. Knowledge of contraceptives that could be used for the purpose of HIV/AIDS prevention were found to be highly significant at crude OR and but when adjusted for 1st age at sexual intercourse, partner attitude, discussion with spouse/partner about dual risks,

discussion with contraceptive provider about HIV/AIDS prevention, approval of condom use within marriage was not significant. Variables that put a person at risk of HIV such as number of sexual partners, knowledge that spouse or partner had another sexual partner and perception of risk were found to be not significant.

Knowledge of how to prevent dual risk of HIV infection and unintended pregnancy were found to be significantly associated with dual protection method use at crude OR of 3.7 (3.2-4.1). Since all of the users were those who had knowledge, AOR was not done in the absence of comparative group. Attitude of respondents to dual method use was not found to be significant on the other hand, attitude of spouse or partner was found to be significant (COR 4.4 (1.8-11.1)) but when adjust it was found insignificant. (Table 8)

TABLE 6: KAP TOWARDS DUAL PROTECTION OF MARRIED OR COHABITING RESPONDENTS IN ADWA TOWN, FEBRUARY 2006

Variables	Men		Women		Total	
	No	(%)	No	(%)	No	(%)
Knowledge of how to prevent dual risks (n=868)						
Yes	263	61.2	99	22.6	362	41.7
No & others	167	38.8	339	77.4	506	58.3
Know non barrier contraceptive in long term mutual monogamy (n=362)						
Yes	83	31.6	67	67.7	150	41.4
No	180	68.4	32	32.3	212	58.6
Know non-barrier contraceptive plus condom (n=362)						
Yes	113	43	44	44.4	157	43.3
No	15	57	55	55.6	205	56.6
Know condom alone including during pregnancy (n=362)						
Yes	8	3	22	22.2	30	8.3
No	255	97	77	77.8	332	91.7
Know abstinence as a dual protection method (n=362)						
Yes	107	40.7	21	21.2	128	35.4
No	156	59.3	78	78.8	234	64.6
Know avoiding all penetrative sex (n=362)						
Yes	60	22.8	4	4	65	17.7
No	203	77.2	95	96	298	82.3
Attitude towards dual protection (n=868)						
Positive	416	96.7	415	94.7	831	95.7
Middle & negative	14	3.3	23	5.3	37	4.3
Partner attitude to dual protection (n=868)						
Positive	403	93.7	378	86.3	781	90
Middle & negative	27	6.3	60	13.7	87	10
Use dual protection method by type (n=868)						
Non-barrier contraceptive in long mutual Monogamy*	73	17.1	42	9.6	115	13.2
Non-barrier contraceptive plus condom	51	11.9	0	0	51	5.9
Condom alone	4	0.95	1	0.2	5	0.6
Non users of dual protection method	299	70	395	90.2	694	79.9

NB: * 3(0.4%) of those respondents reported non-barrier contraceptive in mutual monogamy not included because of their prior exposure to multiple sexual partners; all these respondents were also men.

TABLE 7: PREDICTORS OF DUAL PROTECTION METHOD USE OF MARRIED OR COHABITING ON SIGNIFICANT SOCIO-DEMOGRAPHIC VARIABLES, OF RESPONDENTS, IN ADWA TOWN, FEBRUARY 2006

Variables	Dual protection method use		COR	95% CI	AOR	95% CI
	Yes	No				
Sex						
Men	128	302	1.00*		1.00*	
Women	43	395	3.9	(2.7-5.7)	2.9**	(1.8-4.7)
Age group						
<25	30	141	1.7	(1.1-2.6)	1.20	(0.7-2.0)
≥ 25	141	556	1.00*		1.00*	
Educational status						
Illiterate	8	122	4.3	(2.1-9.0)	2.4**	(1.1-5.00)
Literate	163	575	1.00*		1.00*	
Employment status						
Gov't & non gov't institution employee	107	243	1.00*		1.00*	
Unemployed & others	64	454	3.1	(2.2-4.4)	1.9**	(1.3-2.8)
Marital status						
Married	153	579	0.6	(0.3-0.98)	0.6	(0.4-1.1)
Cohabiting	18	118	1.00*		1.00*	

NB: * reference used

** Those significantly associated variables when adjusted

Gov't/gov't - government

TABLE 8: PREDICTORS OF DUAL PROTECTION METHOD USE OF MARRIED OR COHABITING RESPONDENTS ON SOME SIGNIFICANT VARIABLES ON COR IN ADWA TOWN, FEBRUARY 2006

Variables	Dual protection method use		COR	95% CI	AOR	95% CI
	Yes	No				
First age at sexual intercourse						
< 18	42	311	2.5	(1.7-3.6)	2.3	(0.8-6.8)
≥18	128	382	1.00*		1.00*	
Know contraceptives can be used to prevent HIV infection						
Yes	30	45	0.3	(0.2-0.5)	0.5	(0.1-1.6)
No	141	652	1.00*		1.00*	
Partner attitude to wards dual protection						
Positive	166	615	1.00*		1.00*	
Middle &negative	5	82	4.4	(1.8-11.1)	7.8	(0.9-58.4)
Approval of condom use with in marriage/cohabiting						
Approve	143	467	1.00*		1.00*	
Disapprove & mixed	28	230	2.5	(1.6-3.9)	3.98**	(1.1-14.9)
Discussion about dual risk of HIV and unintended pregnancy with spouse						
Yes	158	443	0.14	(0.1-0.3)	0.09	(0.04-0.9)
No	13	254	1.00*		1.00*	
Discussion about HIV/AIDS with provider						
Yes	6	8	0.2	(0.07-0.7)	0.2**	(0.06-0.9)
No	26	155	1.00*		1.00*	

NB: * reference used;

** Significantly associated variables when adjusted

CONDOM USE FOR DUAL RISK PREVENTION & STIGMA TOWARDS USE

The majority (91.1 %) of the respondents who reported they were using condoms alone or along with other contraceptives for dual risk protection were using condoms sometime within the last 12 months. Only 5 (4 men &1 women) of them were using condoms alone or along with other contraceptives always. 37 (66.1%) of the respondents were using within their marriage or cohabiting partner and the rest 19 (33.9%) were using outside their marital/cohabiting relationship. Only 5.1% (10% men & 0.2% women) of the respondents had used a condom in the last time they had sex, the rest (94.9%) had not used and were not protected at the last time they had sex.

Regarding approval for condom use within marriage, the majority approved their use within marriage or cohabiting union. Only 29.7% (29.5% men & 29.9% women) of the respondents disapproved for their use in such relationship by justifying people in such relation had to trust each other should be faithful for their partner or spouse.

Fifty-four point three (54.3% (52.1% men & 56.4% women)) of the respondents agreed that condom use was a sign of mistrust, while the rest (42.6% (43% men & 41.6% women) disagreed that it was a sign of mistrust. In relation to condom use with persons, 46% of the respondents believe a person who uses condom was promiscuous followed by not promiscuous 52% and 2% had mixed response. (Table 9)

In examining the association with approval of condom use with dual protection method use it was found to be significantly associated with COR 2.5 (1.6-3.9) and AOR 3.98 (1.1-14.9). When adjusted for 1st age at sexual intercourse, partner attitude, discussion with spouse/partner, discussion with contraceptive provider about HIV/AIDS, knowledge that contraceptive could be used to prevent HIV infection was not significant. (Table 8)

TABLE 9: CONDOM USE FOR DUAL RISK PREVENTION AND STIGMA VARIABLES TOWARDS USE OF RESPONDENTS, IN ADWA TOWN, FEBRUARY 2006

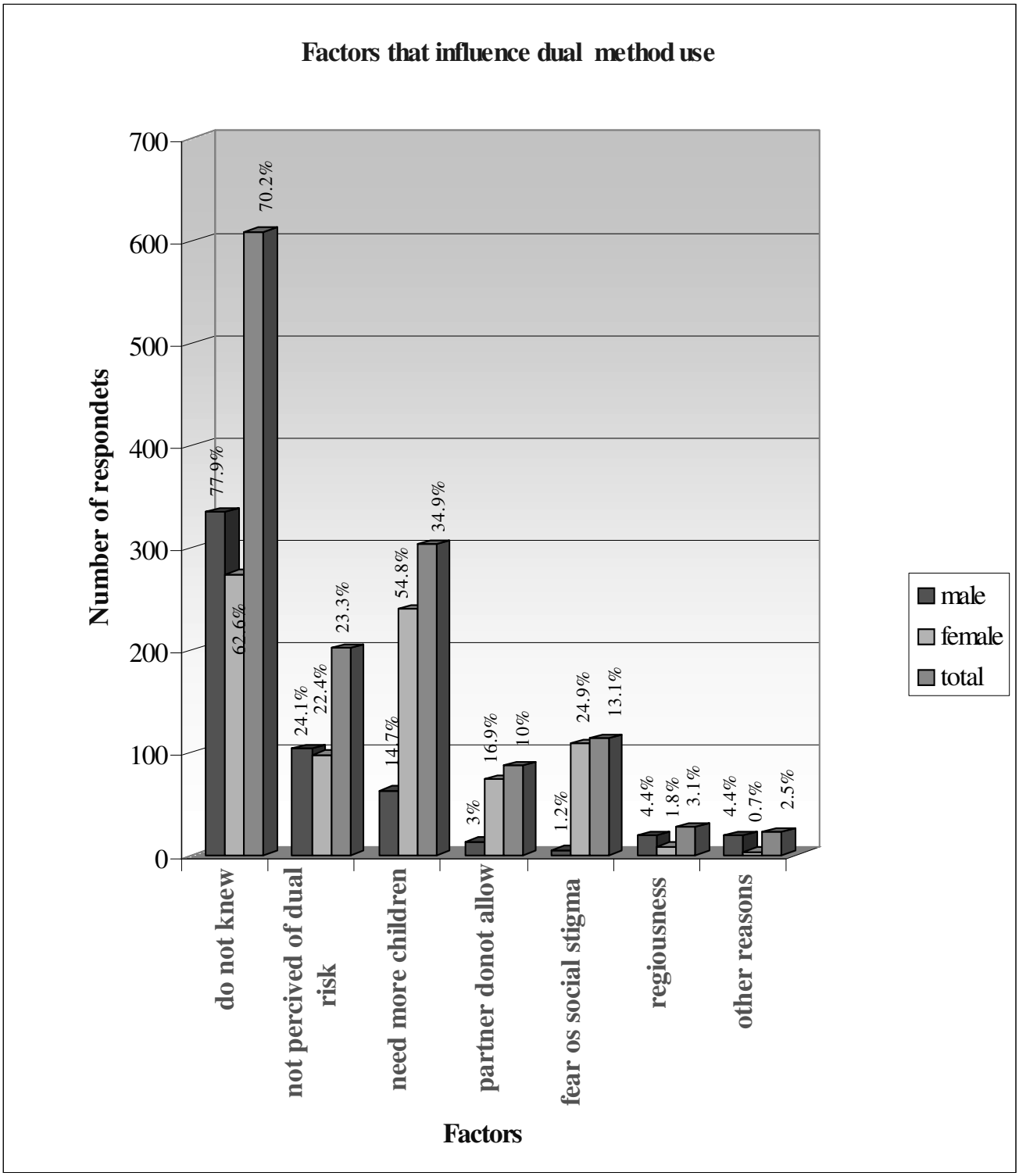
	Men		Women		Total	
Variables	**NO**	**(%)**	**NO**	**(%)**	**NO**	**(%)**
Frequency of condom use alone or along with other contraceptive with in the last 12 months (n=56)						
Always	5	8.8	0	0	5	8.9
Sometimes	50	91.2	1	100	51	91.1
Used condom for risk prevention (n=56)						
With in marriage/cohabiting	37	67.3	0	0	37	66.1
Out side marriage/cohabiting	18	32.7	1	100	19	33.9
Condom use with in the last sexual intercourse (n=868)						
Yes	43	10	1	0.2	44	5.1
No	387	90	437	99.8	824	94.9
Approval of condom use with in marriage (n=868)						
Approve	303	70.5	307	70.1	610	70.3
Disapprove and mixed	127	29.5	131	29.9	258	29.7
Condom use is a sign of mistrust (n=868)						
Agree	224	52.1	247	56.4	471	54.3
Disagree	188	43.7	182	41.6	370	42.6
Mixed	18	4.2	9	2.1	27	3.1
Person who uses condom is promiscuous (n=868)						
Yes	198	46	201	45.9	399	46
No	224	52.1	228	52.1	452	52
Mixed	8	1.9	9	2.1	17	2

BARRIERS TO DUAL PROTECTION METHOD USE

The dominant barrier to dual protection method use was lack of knowledge about dual protection methods. Six-hundred nine (70.2%) of respondent, of these 335 (77.9) men and 274 (62.2) women, gave reasons for non use of dual protection method that they did not know the methods of dual protection followed by they wanted to have more children accounting 303 (34.9%), of these 63 (14.7%) & 240 (54.8%) were men and women respectively. Two- hundred two (23.3%), of these 104 (24.1%) men and 98 (22.4%) women, of the respondents said it was because of they had no perceived risk of HIV infection and unintended pregnancy.

One-hundred fourteen (13.1%), of these 5 (1.2%) men and 109 (24.9%) women, of the respondents had fear of social stigma for dual risk prevention methods use and only 87 (10%) of the respondents, of these 13 (3%) men and 74 (16.9%) women, were not using because their spouse or partner did not allow them to use. Twenty-seven (3.1%), of these 19 (4.4%) men and 8 (1.8%) women, of the respondents were not using because their religion would not allow them. Twenty-two (2.5%) of them gave different reasons such as don't believe on method use, dislike, do not want to use, trust myself for their non use. (Figure, 1)

FIGURE 1: FACTORS THAT INFLUENCE DUAL METHOD USE OF RESPONDENTS, IN ADWA TOWN, FEBRUARY 2006



FINDINGS OF FOCUS GROUP DISCUSSIONS

Socio-demographic characteristics of FGD participants

All FGD participants were married or cohabiting with a partner, of which 19 were married and 10 cohabiting. Age groups of the participants were 18-40 years for women and 30-55 years men. Fifteen of the participants were women and 14 men. The majority of the women participants were house-wives and 3-government employee and one student. The majority of the men participants were daily laborers, 2 farmers, 4 government employee and 2 merchants.

TABLE 10: CHARACTERISTICS OF FOCUS GROUP DISCUSSIONS CONDUCTED IN ADWA TOWN, FEBRUARY- MARCH 2006.

Ser.No	Date/2006	No of participants	Age group	Duration	Type of FGD	Place
1	February 27	6	30-55	1:45	men	K.Debrichi
2	February 28	8	33-40	1:30	women	K.Debrichi
3	March 03	8	36-55	1:30	men	K.Hayelom
4	March 03	7	18-39	1:00	women	K.Hayelom

1. Protection from the risk of HIV

The majority of the FGD participants suggested that people are trying to protect themselves from the risk of HIV/AIDS by choosing a faithful partner, having a blood test before legal marriage and by using condoms. A man from the first FGD said ‘’people are using modern preventive methods to prevent themselves from the risk of HIV/AIDS.”

A man from the second FGD said that “we observe people at the day time talking good things about the prevention of HIV/AIDS but in the evening you see them they are

another person drink a lot, changed and they do not know what they are doing at that time."

The majority of the participants agreed it is better from the previous times that people know "how to prevent HIV/AIDS' but the problem is because they were drinking alcohol no one is sure they were protecting themselves. The majority agreed young and educated people were protecting themselves from HIV by using condoms. A man from the first FGD participants said that "educated people are not protecting themselves we are observing them at bad places in the evening, drinking, dancing, and dating many young girls."

2. Protection from unintended pregnancy

The majority of the participants agreed that most married people were using modern contraceptives like pills and injections to prevent unwanted and mistimed pregnancy. The problem was in young unmarried people; because they were afraid of their family and neighbors, they did not use preventive measures. A woman in the second FGD said that "Most married and even unmarried young girls are using pill but the problem is they do not know how to use it."

"Unmarried girls are not aware they are at risk of pregnancy" said a woman from the first FGD participants. The majority agreed that there is access for contraceptive use in the community.

3. Knowledge of dual protection method

Except one FGD group participant, three-forth of the FGD participants mentioned they knew how to prevent dual risk of unintended pregnancy and HIV/AIDS. All the three FGD participants mentioned that condoms could be used for dual risk prevention. Two

women of the 1st and one woman from the 2nd FGD participants mentioned condom plus another non-barrier contraceptive. A woman from the 2nd FGD said contraceptives with faithful partner can provide dual risk prevention.

4. Spousal/partner communication on protection of HIV and unintended pregnancy

A woman from the second FGD said that "the majority of married couples have discussion on deciding how many children to have and how to space between birth and the majority are using modern contraceptives, but I am not sure for those who are living together.''

"People who are living together in union, not legally married do not discuss about how to prevent unintended births because the man leaves all the burden to the woman and she was using contraceptive without the knowledge of her partner this also true even for some married women" a woman from the second FGD participants.

The majority of participants agreed that educated people talk about the number of children they want to have, they plan and discuss about the number of births but this is not true for illiterate people who have more children till they stop by nature. A woman from the second FGD said that "I am a government employee, I never discussed about family planning with my husband, and it is not common practice to discuss about the number of children to have and so on."

All the women and men FGD participants suggest that there is no discussion about HIV/AIDS among married or cohabiting partners. No one dates say the name HIV within marriage or in cohabiting. "Married or cohabiting partners were talking about HIV indirectly by mentioning a person who is infected with HIV, not in terms of themselves" said a man from the first FGD participant. The majority of participants agreed that people

were taking about HIV/AIDS not in terms of themselves. The majority of the participants mentioned that the reason for not talking directly is that, if there is direct talk about HIV within marriage or people living together in a stable relationship they mistrust each other, people are shy to talk about sexual matters, some think as they had extramarital sexual affaires, being unfaithful.

5. Condom use for dual risk prevention

The suggestion of using condoms for prevention of unintended pregnancy was not common practice. A man from the first FGD participants said that "we are married people and living in a stable sexual relationship we never use condoms to prevent unintended pregnancy we can prevent unintended pregnancy by periodic abstinence, using pills and injections." All of the FGD participants mentioned that condoms are related with prostitution and commercial sex workers but not to prevent unintended pregnancy.

A woman from the second FGD participants said "Because men leave the burden of childbirth to women they never use condoms for family planning in areas where women use contraceptive without the knowledge of her spouse or partner."

All the FGD participants suggest that condoms are neither accepted nor used for prevention of unintended pregnancy and people do not believe they can be used for prevention of unintended pregnancy.

"I never use condoms for pregnancy prevention my wife can use modern contraceptive for prevention of unintended pregnancy but I can use condoms for HIV prevention because I do not have other alternative." a man from the first FGD participant.

The suggestion of using condoms at the same time with other methods of modern

contraceptive as a response to the twin risk of unintended pregnancy and HIV infection was rejected by FGD participants because they believed the use of condoms within marriage or cohabiting to be a sign of mistrust. “I never use condoms with in marriage I prefer to go to the monastery” a man from the first FGD participant.

“I know my husband has extramarital sexual relationships, every day he drinks, I am using injections to limit births but I can’t ask him to use condom if I talk the word condom I should have to go out of home therefore I prefer to live with him because I don’t have any income I am dependent on him if the worst comes we will die together even if I asked for dissolution of our marriage it works if he wishes only” a woman from the first FGD participants.

“Even though I knew he has another sex partner if the woman is looking well, if I did not have any evidence she is HIV infected, I never ask him to use condom but if she looks unhealthy I will ask him for blood test and I prefer divorce” a woman from the first FGD participants.

The majority of the participants suggest being faithful with one partner. Otherwise condom use within marriage or cohabiting partner or stable relationship is unreliable. A man from the first FGD participants expresses his feeling “How many times do I use condoms, I am to use outside marriage and also within marriage it is impossible and never use with in marriage.” The majority of the participants mentioned about the present situation even though people know their partner is unfaithful no one ask to use a condom with his partner and the problem of unfaithfulness is common among men and is uncommon among women. Because women are dependent on their husbands income the only solution they do is to praying to God.

6. Barriers for dual method use

All of the FGD participants mentioned that there was lack of knowledge on methods of dual protection; condom use within marriage or stable sexual relationship is seen as a sign of mistrust; married or cohabiting usually think about pregnancy prevention but not think about HIV infection; the person who uses condoms is seen as promiscuous; condom use is related with prostitution, unfaithfulness; religion do not allow condom use and religious institutions do not teach persons to use condom; need to have more children; condoms decrease sexual pleasure; do not like it.

"Because we are hearing now to use condoms for family planning purpose; before we learn and heard to use pill and injections to prevent unintended pregnancy" a man from the first FGD participants.

"Condom use is seen in this community as you are killing human being" a man from the second FGD participants.

"Many contraceptive users use contraceptives without the knowledge of their spouse or partner and preventive method for HIV is used by men this makes difficult for use of both preventive methods" a women from the second FGD participants.

"To use condom within marriage or cohabitation they should have to trust each other" a woman from the first FGD.

VI. DISCUSSION

The major difference with other dual protection method studies is that this study considers those who reported using non-barrier contraceptive with long-term (life long) mutual monogamous relationship as dual protection method use, which is an important method and highly recommended in areas where the major HIV epidemic is due to heterosexual transmission.

While most previous dual protection research studies have focused exclusively on dual method use & family planning clients or condom procurers or clinic populations with awareness of health and disease prevention or on women only, this is one of the few studies focusing on general population on both sexes.

This study revealed that 13.8% of the study population (married or cohabiting men and women) were protected from dual risk of HIV and unintended pregnancy in the last 12 months. When compared double method use and condom use (dual method use) in this study which is accounting for 0.6% in the absence of any intervention of dual protection method, it is much lower than the South Africa and North Pacific studies which accounts for 12% dual method use, and 18% for double method use and 24% for condom use respectively. This lower prevalence could be due to lacking of dual protection strategy in the country. Community based dual protection survey is lacking, in studies conducted in other countries dual protection is recorded dual method use only, which is very low in this study.

Ninety-five dual protection projects (about a third implemented by population services international) were reported in a 2001 survey of 25 USAID's population, health and nutrition center cooperating agencies. The majority of these projects are being

implemented in Africa, and most (85%) work with maternal and child health and family planning clients. All promote the use of condoms for both infection prevention and pregnancy prevention, although only two-thirds actually distribute condoms.

Markedly fewer promote other dual protection strategies such as condoms plus another contraceptive, mutual monogamy, or abstinence (pruyn & Cuca, 2002) Kim Best, 2004); despite its usefulness to prevent the dual risks of unintended pregnancy and HIV infection. In this study the knowledge on how to prevent dual risk of HIV and unintended pregnancy accounts for only 41.7%. This could be also the reason for the lower prevalence.

Sex is a significant predictor for dual protection method use in marital or cohabiting relationship. Men are more likely to use dual protection method than women. This could be due to the availability of only male condom in the country. Gender related power differentials may be especially influential, on which men decide on sexuality matters. In addition, women are biologically, epidemiologically and soc-economically more vulnerable than their male partners to HIV and unintended pregnancy. Epidemiologically, in a single, random unprotected sex act, the probability of pregnancy is higher than the probability of HIV infection. The probably of pregnancy is 3.5 percent (Bongaarts and Potter, 1983) while the probability of HIV infection is 0.2 % for male-to-female transmission and 0.1% for female-to-male transmission (Futures Group International, 2003).

A woman from the first women FGD participants said that "----------I am dependent on his income even if I asked for dissolution of our marriage can be done if he wishes only".

There are educational differentials in use of dual protection method. Respondents who

are literate are more likely to use dual protection method than illiterates. There is also a significant difference between literates among their level of education; those who had above secondary level of education are more likely to use a method than secondary education and secondary level of education are more likely to use a method than primary education level.

The focus group discussion results indicate that the majority of the participants agreed that method use is more likely in educated people than non-educated. This was also in agreement with other studies. The South Africa study was also found that higher education to be an important predictor of dual protection method use. (Chelsea, Jennifer, 2003). Raising educational level is a key tool in avoiding the dual risk of HIV and unintended pregnancy.

Employment is also an important predictor of dual protection method use in marital or cohabiting relationships. Those employed in governmental institutions or non-governmental institutions were more likely to use a dual protection method than those unemployed and others such as daily laborers, farmers, and merchants. There was also a significant difference among employed respondents; non-governmental institution employees were more likely to use a method than governmental institution employees. Reducing unemployment and increasing access to health education at work place is a key tool in avoiding these twin risks.

Therefore, it is necessary to expand the range of strategies and tools available to married and cohabiting people for protecting themselves. Education, employment and social empowerment and the transformation of gender roles and norms are critical. However, these strategies are long term. In the mean time, it is possible to add existing and

emerging strategies for married and cohabiting people to protect themselves, their children and their partners from the dual risk of HIV and unintended pregnancy.

There are Knowledge differentials for dual protection method use. Those who have knowledge of dual protection are the only people that use dual protection methods. This is because knowledge comes before practice.

Forty-one point seven (41.7%) of the respondents knew about dual risk prevention methods in general. Of these, 41.4% knew of non-barrier contraceptives in mutual long-term monogamous relationship, 43.3% knew of non-barrier contraceptive plus condom use and only 8.3% knew of condom use for dual protection.

This result is lower than the South African study where 70% of the respondents knew of condoms for dual risk prevention. Nevertheless, the knowledge of condoms plus non-barrier contraceptive use was in agreement with the South African study that account for 43%. (Chelsea, Jennifer, Lynn et al. 2003)

The lower knowledge of condoms only could be due to the association of condoms with illicit sex and with HIV infection prevention. This could be due to the reason that condoms were previously less advocated for pregnancy prevention. Indeed, some condom promotion campaigns now advertise condoms for “protection” with out specifying protection from STIs or pregnancy. In general, knowledge about dual protection method was very low compared to other studies.

Communication on dual risk of unintended pregnancy and HIV/AIDS between spouse/partner was an important predictor of dual method use. Those who communicated on dual risk of HIV and unintended pregnancies were more likely to use a dual protection method than those not communicating.

The majority of FGD participants agreed that educated people were talking about planning pregnancies but on HIV no one discuss directly because of fear of suspicion and marital or cohabiting relationship conflict and dissolution. This was in agreement with the focus group discussions in the five countries (Kenya, South Africa, Tanzania, Zambia, & Uganda) that agreed discussing sex, family planning, STD especially AIDS was difficult between couples. In addition, it is in agreement with the Tanzania and Zambia participants' suggestion that while couples discuss AIDS in general terms or in terms of other people, they can't discuss these issues with regard to themselves or in terms of their own protection. (WHO, 1998)

Discussion on matters of HIV transmission and prevention with family planning method providers was found here to be predictor of dual protection method use. Those who reported they had discussed the matter of HIV/AIDS with their family planning provider were more likely to use a dual protection method than those reporting not discussing. Of those reported they had discussed with their contraceptive provider; the majority said they were discussed on the topic of how to prevent HIV/AIDS transmission. This is also in agreement with dual protection study of condom procurers in South Africa on which those who had prior instructions from health care providers were found positively associated with dual method use (L. Myer, C. Morroni, C. Mathews et al. 2002)

In Ibadan Nigeria awareness of dual protection after an intervention with a dual protection strategy increased from 8% before provider training to 50% after provider training. (L. Adeokum, J. E. Mantell, E.Weiss et al. 2002)

Approval of condom use within marital or cohabiting relationships was an important predictor of dual protection method use. Those who approved of condom use within

marriage were more likely to use dual method use than those disapproved its use within marriage. 70.3% of the respondents were approved of condom use within marriage or cohabitation but in the focus group discussions, the majority disagreed over its use within marriage. This was higher than the Kenyan study where that only 39% approved its use within married couples. But practical use is lower in this study than the Kenyan study that is 1.2% current and ever users and 8% current users and 26% of ever users of condom with non-regular partner respectively. (E.Bauni & Jarabi, 2003)

In this paper perceived risk or risk level was not associated with dual protection. There was low risk perception of respondents in the presence of multiple sex partners. Even those who think or perceived themselves to be at risk of infection did not use a method. A woman from the first FGD said that "--------has good appearance, physically well looking, not emaciated, and said not have AIDS, I didn't ask him to use condom". A woman from the first FGD participants said that "I know that my husband has another sexual partner & had had fears for HIV and I am using injections for pregnancy prevention but I couldn't ask him to use condom because if I ask him, he will suspect me,----------". This is due to the obstacles in use of barrier method. Furthermore the respondents had little knowledge or awareness of asymptomatic healthy carriers. These factors may result in a big challenge in an effort to fight the epidemic in the region.

Ignorance of dual protection was the prevalent barrier for dual method use in this study. 70.2% of the respondents reported the reason that hinders them from use of dual method was that they did not know; followed by the need for having more children. The later is in agreement with the study in South Africa in which the desire to have children overrides any concern about contracting HIV/AIDS. (P. Ngom, R Wilcher, Maureen et al. 2005).

No dual risk perception accounts for 23.3% of barriers for dual method use and is in agreement with the FGD saying if physically well with good appearance people do have un-protected sex. Almost 88.4% perceive themselves at low risk of HIV/AIDS &risk free of HIV infection.

The other barrier is fear of social stigma when using dual method protection. In this study 54.3% of the respondents agreed that condom use was a sign of mistrust and 46% of the respondents said a person who uses condom is promiscuous. FGD participants also said "Condoms are for sex workers, promiscuous persons; not for married"

For ten percent (10%) of the respondents, the obstacle to not using dual method of protection in their marital or cohabitation relationship was because their spouse/partner did not allow them to use. As said by FGD participants, "woman are using contraceptive with out the knowledge of their husband, adding condom for risk prevention is very difficult". Moreover, the reason that condom use is considered as a sign of mistrust results in disagreement, suspicion and mistrust. This is in agreement with the South African study on the obstacles of dual protection. Condom use in such relationships may be seen as a clear sign of infidelity. These attitudes represent a major obstacle to the use of condoms as a dual method of protection. (Maharaja P., 2001) However, dual protection has a range of options, methods to use for those who do not want to use condom.

According to the WHO, Global sector strategy for HIV/AIDS, existing family planning program, provide a clear entry point for the delivery of HIV/AIDS interventions. WHO, the World Bank, the European Union, and USAID, all strongly support integrated prevention strategies. The best approach according to the WHO is to invest heavily in

integrated HIV and family planning programs that offer a range of services including efforts to increase access to and use of male and female condoms and other contraceptive methods, training in partner communication.

The international conference on population and development (ICPD), and the recent review of progress made since that conference (ICPD + 5) clearly identified family planning and the prevention of HIV/AIDS as major objective. Putting dual protection in to practice to fulfill both of these objectives simultaneously requires governments, international agencies and reproductive health programs, among others, to ensure maximum integration of family planning and STI/HIV health programs (Progress in Human reproductive research, 2005).

HIV prevention strategies also need to target people in marital or cohabiting relationship rather than focusing only on high-risk population in areas where the generalized epidemic is due to heterosexual transmission. Family planning services also need to target men rather than focusing only on-married women in the presence of HIV epidemic affecting sexually active men and women. In the mean time, joint agreement of both partners is necessary for dual risk prevention.

In addition to this, it is also important, to share other countries experiences, if information could be gained through research about the formative base for the development of dual risk reduction interventions for married or cohabiting people.

STRENGTH AND LIMITATION OF THE STUDY

STRENGTH OF THE STUDY

-Use of married or cohabiting study subjects in relation to dual risk of HIV and unintended pregnancy and dual protection was the first type in the country.

-Using non-health professional data collectors in the cross-sectional survey.

-Complementing the cross-sectional survey with qualitative study.

-Using male and female moderator and rapporter in conducting men and women FGDs respectively. Being, of the same sex helps participants to discuss freely.

LIMITATION OF THE STUDY

-Possibility of over or under reporting of responses for some questions.

-Lack of similar studies to compare results.

VII. CONCLUSION

1. In the context of high morbidity and mortality due reproductive complications and HIV epidemic, knowledge and practice of dual protection from unintended pregnancy and HIV/AIDS is very low.

2. The predominant barrier to dual protection method use is a lack of knowledge on how to prevent dual risks.

3. Despite, the high level of current contraceptive use (49%), condom use for family planning remains very low (0.2%).

4. Education, sex, employment, knowledge, communication about dual risk of unintended pregnancy and HIV with spouse or partner and approval for condom use within marriage are predictors of dual protection method use.

5. Discussion on HIV/AIDS prevention with contraceptive provider was found an important predictor of dual protection use.

VIII. RECOMMENDATIONS

1. To scale up HIV prevention, promotion of dual protection intervention in family planning services and strengthening of family planning service is necessary

2. Encouraging family planning providers to discuses in key aspects of HIV prevention with family planning clients such as conducting sexual risk assessment, promoting barrier method of contraception for prevention of unintended pregnancy, and counseling on safe sex.

3. Promoting condoms for prevention of unintended pregnancy

4. IEC on dual protection method use increases people's awareness and method use

5. Family planning services have to promote the involvement of men, this is to change the existing social norms and increase barrier contraceptive use

6. Further research is needed to evaluate the levels of, determinants of and family planning providers' perspective on dual protection method use

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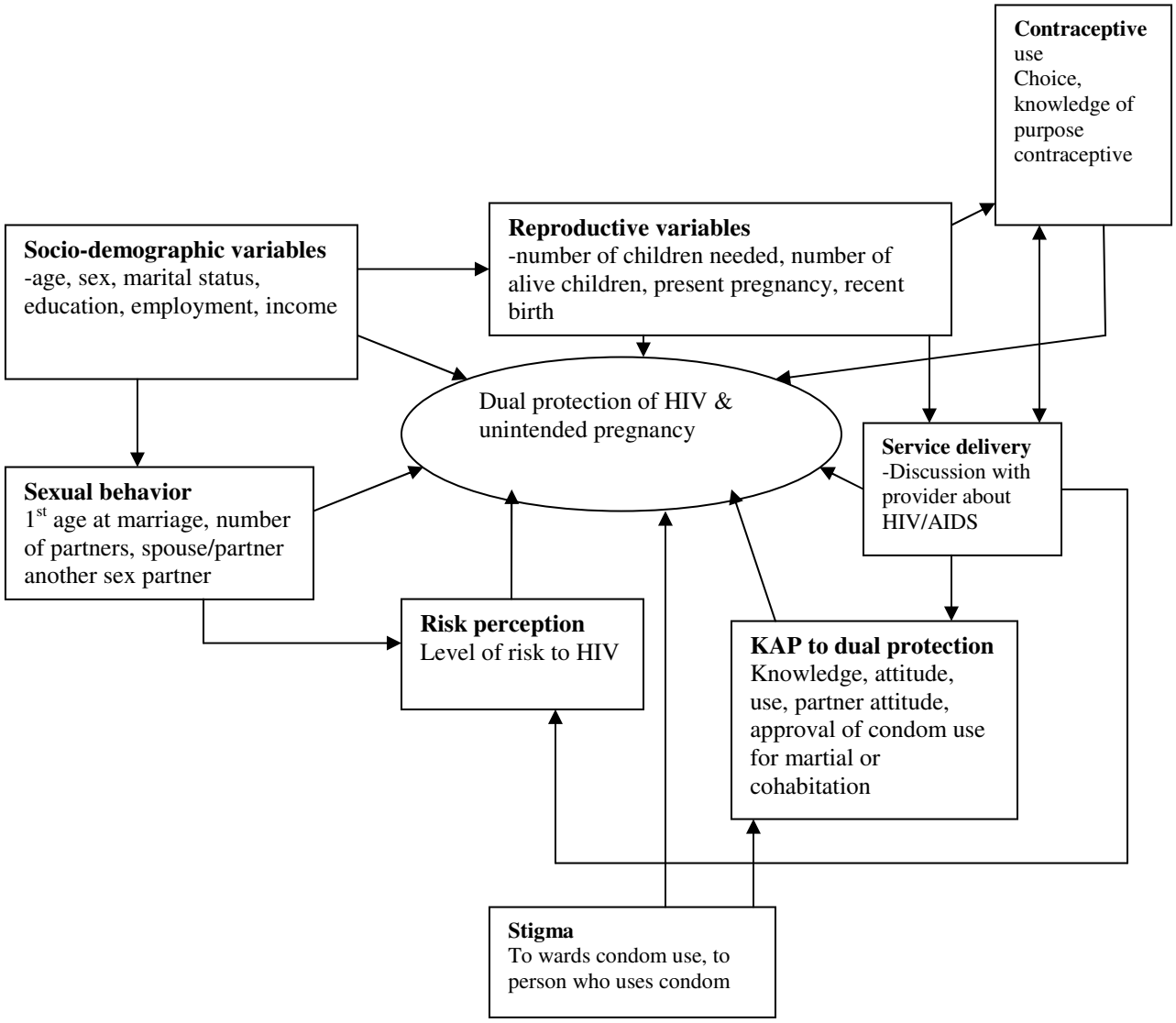
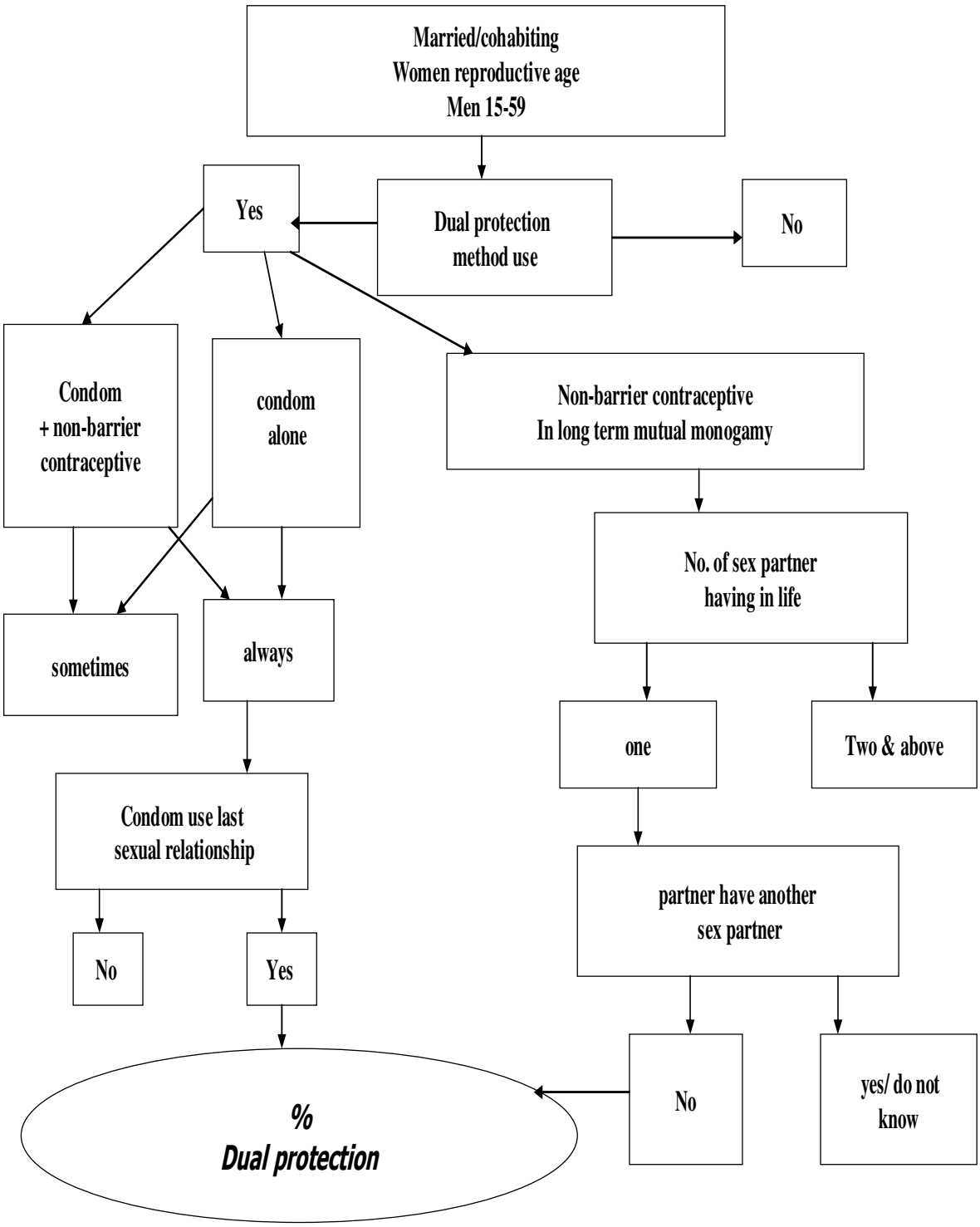
Annex 1: Conceptual framework of dual protection to HIV and unintended pregnancy



Annex 2-Frame work analysis of for extent the of dual protection



Appendix A: Sample English questionnaire

Addis Ababa University

Faculty of Medicine

Questionnaire for data collection on dual risk of HIV and unintended pregnancy, Tigray, 2006

Greeting;

Hello, My Name is_____ I am a student of MPH working my thesis in the research team of AAU. I would like to invite you to have a short discussion concerning this study. Before we go to our discussion, I will request you to listen carefully to what I am going to read to you about the purpose and general condition of the study and tell me whether you agree or disagree to participate in this study.

VERBAL CONSENT FORM BEFORE CONDUCTING THE INTERVIEW

The purpose of this study is to asses and explores risk of unintended pregnancy and HIV/AIDS, the attitudes and use of effective methods to prevent this dual risk. Of your neighbors, you are selected to be one of the participants in the study. The study will be conducted through interviews. We are asking you for a little of your time, about 45 min, to help us in this study. At the end, it is hoped that the information you give us could help to design appropriate, IEC, BCC, service delivery strategy for married or cohabiting peoples. The interview involves intimate and private life questions. So private setting is needed in which you & the interviewer will carry out

the interview. We could like to assure you that this privacy should strictly be maintained through out. A code no will identify every participant and no name will be used your responses to any of the questions will not be given to anyone else & no reports of the study will ever identify you. If a report of results is published, only information about the total group will appear.

The interview is voluntary. Your participation/ non participation, or refuse to respond to the questions will have no effect now or in the future, on services that you or any member of your family may receive from any service provider.

Are you willing to participate in this study?

1, Yes; continue to the next page

2, NO; skip to the next participant

Interviewer name _____ signature _____Date of interview _____Time started _____time-finished _____

Supervisor name _____ signature_____.

Annex. 3

I. **Questionnaire for females**

General instruction: ***On this questionnaire, there is no need to write the name or the Addresses of the respondents***.

Code no _____

Part, 1. Socio-demographic information			**code**
1.01	What is your age now? (Based on last birth day)	_____Years	
1.02	What is your religion?	1. O orthodox 2. O catholic 3. O protestant 4. O Muslim 5. O other specify_____	
1.03	What is your marital status?	1.O married 2.O cohabiting partner 3.O others specify	If married skip to 1.05
1.04	If cohabiting, for how many years do you live together?	1.O <1 year 2.O 1-2 year 3.O above 2 year	
1.05	To which ethnic group do you belong?	1. O Tigraway/ti 2. O Amhara 3. O others specify_____	

1.06	What is your educational status?	1. O Illiterate 2. O Primary school 3. O Secondary 4. O above secondary school	
1.07	What is your employment status?	1. O Gov't employee 2. O non gov't employee 3. O unemployed 4. O others specify_____	
1.08	What is your average monthly income?	_____Birr	
Part, 2. Reproductive history			
2.01	At what age did you first married?	1. O at the age of _____ 2. O I don't remember 3. O others specify_____	
2.02	Have you ever been pregnant?	1. O yes 2. O No 3. O others specify_____	If no skip to 2.06
2.03	If yes, Have you ever given birth to a child?	1. O yes 2. O No 3. O others specify_____	
2.04	How many live children do you have?	1. Enter no___ a. sons_____ b. Daughter_____ 2. O others specify_____	

2.05	If you could go back to the time, you don't have children & could choose exactly the no of children to have in your life, how many children could that be?	1. Enter no_____ 2. O I don't know 3. others specify_____	If you fill this que. Skip to 2.07
2.06	How many children would you like to have in your life (for those don't have children)?	1. Enter no_____ 2. O I don't know 3. O No response	
2.07	Are you currently pregnant?	1. O yes 2. O No 3. O others specify_____	If no skip to 2.09
2.08	If yes, is the pregnancy _____?	1. O wanted 2. O wanted later 3. O not wanted at all	
2.09	Did you give birth with in the last six months?	1. O yes 2. O No 3. O others specify_____	If no skip to 3.01
2.10	If yes, is the birth _____?	1. O wanted 2. O wanted later 3. O not wanted at all 4. O no response	
Part, 3. Attitude and use of modern contraceptive			

3.01	Which advantage of contraceptive methods do you know of? Tick all mentioned	1. O avoid unwanted pregnancy 2. O to delay mistimed pregnancy 3. O regulation of period 4. O to limit family size 5 O to prevent HIV infection 5. O other specify_____	
3.02	Do your self approves or disapproves using a modern method of family planning?	1. O approve 2. O disapprove 3. O others specify_____	
3.03	Does your husband or partner know whether you are using or not any modern contraceptive?	1. O yes 2. O no 3. O others specify_____	
3.04	Do you know if your spouse/partner is using or not using any modern contraceptive method?	1. O yes 2. O no 3. O others specify_____	
3.05	Have you ever-used modern contraceptive method?	1. O never user 2. O past user 3. O current user 4. O others specify_____	If never user skip to 3.09, if current user skip to 3.07

3.06	If past user, what is the method you or your partner/spouse used?	1. O Pill 2. O inject able 3. O Norplant 4. O IUCD 5. O female sterilization 6. O male sterilization 4. O spermicidal 5. O condom 6. Others specify_____	If you fill this skip to 3.09
3.07	If current user what method of family planning are you using?	1. O Pill 2. O inject able 3. O Norplant 4. O IUCD 5. O female sterilization 6. O male sterilization 7. O spermicidal 8. O condom 9. Other specify_____	
3.08	If you are current user, for what purpose you are using the method? (tick all mentioned)	1. O spacing birth 2. O limiting birth 3. O don't know 4. O to prevent HIV infection 5. O to limit/space & prevent HIV infection 6. others specify_____	

3.09	Would you say that using contraception is mainly your decision, or your spouse or partner decision, or did you both decide together?	1. O mainly female decision 2. O mainly male decision 3. O joint decision 4. O others specify_____	If you fill this for past & never users skip to 4.01
3.10	If you are current user, from which source do you get your contraception?	1. O from governmental health institution 2. O from CBD(TTBA/CHA) 3. O from private pharmacy 4. O others specify_____	
3.11	(for current users ONLY) Have you ever discussed about HIV/ AIDS with your family planning provider?	1. O yes 2. O no 3. O others specify_____	If no skip to 4.01
3.12	If yes, about which topics?	1 .O.no of partner having 2. O partner faithfulness 3 O HIV prevention method 4.others specify_____	
3.13	How many times have you discussed?	1. O always at each visit 2. O at first visit only 3. O others specify_____	
Part –4. Sexual history, Perceptions and belief about risk of HIV			
4.01	At what age did you 1st have sexual intercourse?	1. _____Age in years 2. Don't know/ remember	

4.02	How many people in total have you ever had sexual intercourse with?	1. O With one person 2. O With two person 3. O above two persons 4. Others specify_____	
4.03	How many people in total have you had sexual intercourse with during the last 12 months?	1. O With one person 2. O With two person 3. O Others specify_____	
4.04	Does your spouse/partner have another sex partner?	1. O Yes 2. O No 3. O Don't Know	
4.05	Do you believe you have done anything that may have put you at risk of getting the HIV Virus?	1. O yes 2. O no 3. O Don't know 4. O Others specify_____	If no skip to 4.07
4.06	If yes, why? (tick all mentioned)	1. O Have had sex with out condom 2. O Have had more than one partner 3. O My partner is unfaithful 4. Others specify	

4.07	Where do you put your subjective HIV risk status?	1. O Low 2. O Medium 3. O High 4. O Others specify_____	
4.08	If low, or medium or high why?	_____	
Part –5. Knowledge, Attitude and practice of dual protection			
5.01	Do you know how to prevent unintended pregnancy and HIV infection and transmission?	1. O Yes 2. O No 3. O Others specify_____	If no, skip to 5.03
5.02	If yes, which methods do you know? (tick all mentioned)	1. O non barrier contraceptive in mutual monogamous relationship 2. O non barrier contraceptive & condom 3. O condom alone (including during pregnancy) 4. O abstinence 5. O avoiding all penetrative sex 6. O others specify	
5.03	What is your attitude to wards dual protection?	1. positive 2. moderate 3. negative 4. O Others specify_____	

5.04	If negative, why?	_____	
5.05	Do your self approves or disapproves dual protection method use?	1. O approve 2. O disapprove 3. O Others specify____	If approve skip to5.07
5.06	If disapprove, why?	_____	
5.07	Have you discussed about unintended pregnancy and HIV prevention with your spouse/partner with in the last six-month?	1. O Yes 2. O No 3. O Others specify_____	If yes skip to 5.09
5.08	If no, why?	_____	
5.09	What is your spouse's/ partner attitude to wards dual protection?	1. O Negative 2. O Moderate 3. O Positive 4. O Others specify_____	
5.10	Have you ever use dual protection with in the last 12 months?	1. O Yes 2. O no 3. O Others specify____	If no skip to 5.15
5.11	If yes, which method do you use?	1. O non barrier contraceptive in mutual monogamous r/nship 2. O non barrier contraceptive & condom 3. O condom alone 4. O others specify	
5.12	If non-barrier contraceptive alone, why?	_____	

5.13	If condom alone or along with other contraceptive, How often did you use condom in the last 12 months?	1. O Always 2. O Sometimes 3. O Not remember 4. O Others specify____	
5.14	If condom alone or along with other contraceptive, used the last 12 months, with whom do you use?	1. O With in marriage 2. O Out side marriage 3. O Other specify_____	
5.15	Did you use a condom the last time you had sexual intercourse?	1. O Yes 2. O No 3. O Other specify_____	If no skip to 5.17
5.16	For what purpose did you use?	1. O To prevent pregnancy 2. O To prevent HIV infection 3. O Both 4. Other specify_____	
5.17	Using condom with spouse or partner is a sign of mistrust.	1. O Agree 2. O Disagree 3. O Not sure 4. O mixed	
5.18	Do you approve condom use for married or cohabiting partners?	1. O approve 2. O disapprove 3. O others specify	If approve skip to 5.20
5.19	If disapprove, why?	_____	

5.20	A person who uses condom is promiscuous.	1. O Agree 2. O Disagree 3. O Other specify_____	
5.21	What are the barriers that prevent you from using dual methods? Tick all mentioned	1. O don't know how to prevent 2. O not think of risk of unintended pregnancy and or HIV infection 3. O need to have more children 4. O spouse/partner don' allow 5. O fear of social stigma 6. O others specify	

Thank you! This is the end of my interview

Annex 4. Questionnaire for Males

General instruction: ***On this questionnaire, there is no need to write the name or the Addresses of the respondents***.

Code no _____

Part, 1. Socio-demographic information			**Code**
1.01	What is your age now? (Based on last birth day)	_____Years	
1.02	What is your religion?	1. O orthodox 2. O catholic 3. O protestant 4. O Muslim 5. O other specify_____	
1.03	What is your marital statue?	1.O married 2.O cohabiting partner 3.O others specify	If married skip to 1.05
1.04	If cohabiting, for how many years do you live together?	1.O <1 year 2.O 1-2 year 3.O above 2 year	
1.05	To which ethnic group do you belong?	1. O Tigraway/ti 2. O Amhara 3. O others specify_____	

1.06	What is your educational status?	1.O Illiterate 2.O Primary school 3.O Secondary 4. O above secondary school	
1.07	What is your employment?	1. O Gov't employee 2. O non Gov't employee 3. O unemployed 4. O others specify _____	
1.08	What is your average monthly income?	_____Birr	
Part, 2. Reproductive history			
2.01	At what age did you first married?	1. O at the age of _____ 2. O I don't remember 3. O others specify_____	
2.02	Have ever child born to you?	1. O yes 2. O No 3. others specify_____	If no skip to 2.05
2.03	If yes, How many live children do you have?	1. Enter no___a. sons_____ b. Daughter_____ 2. others specify_____	

2.04	If you could go back to the time you don't have children & could choose exactly the no of children to have in your life, how many children could that be?	1. Enter no_____ 2. O I don't know 3. O others specify_____	If you enter ans. Skip to 2.06
2.05	How many children would you like to have in your life (for those don't have children)?	1. Enter no_____ 2. O I don't know 3. O others specify_____	
2.06	Is your wife/partner currently pregnant?	1. O yes 2. O No 3. O others specify_____	If no skip to 2.08
2.07	If yes, is the pregnancy _____?	1. O wanted 2. O wanted later 3. O not wanted at all	
2.08	Did your spouse/partner give birth with in the last six months?	1. O yes 2. O No 3. O others specify_____	If no skip to 3.01
2.09	If yes, did the birth that occurred within the last six months _____?	1. O wanted 2. O wanted later 3. O not wanted at all	
Part, 3. Attitude and use of modern contraceptive			

3.01	Which advantage of contraceptive methods do you know of? Tick all mentioned	1. O avoid unwanted pregnancy 2. O to delay mistimed pregnancy 3. O regulation of period 4. O to limit family size 5. O to prevent HIV infection 6. O other specify_____	
3.02	Do your self approves or disapproves using a modern method of family planning?	1. O approve 2. O disapprove 3. O others specify_____	
3.03	Do you know if your wife/spouse/partner is using or not using any modern contraceptive method?	1. O yes 2. O no 3. O others specify_____	
3.04	Have you ever-used modern contraceptive method or your wife or partner?	1. O never user 2. O past user 3. O current user 4. O others specify_____	If never user skip to 3.09 if current user skip to 3.06

3.05	If past user, what are the method you or your partner used?	1. O Pill 2. O inject able 3. O Norplant 4. O IUCD 5. O female sterilization 6. O male sterilization 7. O spermicidal 8.O others specify_____	If you fill this skip to 3.08
3.06	If current user what method of family planning are you using?	1. O Pill 2. O inject able 3. O Norplant 4. O IUCD 5. O female sterilization 6. O male sterilization 7. O spermicidal 8. O Other specify_____	
3.07	If you are current user, for what purpose you are using the method?	1. O spacing birth 2. O limiting birth 3. O don't know 4. O to prevent HIV infection 5. O for F/P & prevent HIV 6. O others specify	

3.08	Would you say that using contraception is mainly your decision, or your spouse or partner decision, or did you both decide together?	1. O mainly female decision 2. O mainly male decision 3. O joint decision 4. Others specify_____	For past user & never user if you fill this skip to 4.01
3.09	If you are current user, from which source do you get your contraception?	1. O from governmental health institution 2. O from CBD(TTBA/CHA) 3. O from private pharmacy 4. O others specify_____	
Part –4. Sexual history, Perceptions and believes about risk of HIV			
4.01	At what age did you 1st have sexual intercourse?	1. _____Age in years 2. Don't know/ remember	
4.02	How many people in total have you ever had sexual intercourse with?	1. O With one person 2. O With two person 3. O above two persons 4. Others specify_____	
4.03	How many people in total have you ever had sexual intercourse with during the last 12 months?	1. O With one person 2. O With two person 3. O Others specify_____	
4.04	Does your spouse/partner have another sex partner?	1. O Yes 2. O No 3. O Don't Know	

4.05	Do you believe you have done anything that may have put you at risk of getting the HIV Virus?	1. O yes 3. O Don't know 2. O no	If no skip to 4.07
4.06	If yes, why?	1. O Have had sex with out condom 2. O Have had more than one partner 3. O My partner is unfaithful 4. O others specify	
4.07	Where do you put your subjective HIV risk status?	1. O Low 2. O Medium 3. O High 4. O others specify	
4.08	If low or medium or high, why?	_____	
Part –5. knowledge, attitude and use of dual protection			
5.01	Do you know how to prevent unintended pregnancy and HIV infection and transmission	1. O Yes 2. O No 3. O others specify_____	If no skip to 5.03

5.02	If yes, which methods do you know?	1. O non barrier contraceptive in mutual monogamous r/nship 2. O non barrier contraceptive & condom 3. O condom alone (including during pregnancy) 4. O others specify	
5.03	What is your attitude to wards dual protection	1. O positive 2. O moderate 3. O negative 4. O others specify_____	If positive/ middle skip to 5.05
5.04	If negative, why?	_____	
5.05	Do your self approves or disapproves dual protection method use?	1. O approve 2. O disapprove 3. O others specify_____	If approve skip to 5.07
5.06	If disapprove, why?	_____	
5.07	Have you discussed about dual risk of unintended pregnancy and HIV infection with your spouse or partner in the past six months?	1. O Yes 2. O No 3. O others specify_____	If yes skip to 5.09
5.08	If no, why?	_____	

5.09	What is your spouse's/ partner attitude to wards dual protection?	1. O Negative 2. O Moderate 3. O Positive 4. others specify_____	
5.10	Have you ever use dual protection with in the last 12 months?	1. O Yes 2. O no 3. others specify_____	If no skip to 5.15
5.11	If yes, which method do you use?	1. O non barrier contraceptive in mutual monogamous r/nship 2. O non-barrier contraceptive & condom 3. O condom alone 4. O others specify	
5.12	If non-barrier contraceptive alone, why?	_____	
5.13	If condom, alone or along with other contraceptive is used with in the last six month how often did you use?	1. O Always 2. O Sometimes 3. O others specify	
5.14	If condom, alone or along with other contraceptive is used with in the last six month, with whom did you use?	1. O With in marriage 2. O Out side marriage 3. O others specify	
5.15	Did you use a condom the last time you had sexual intercourse?	1. O Yes 2. O No 3. O others specify_____	If no skip to 5.17

5.16	For what purpose did you use?	1. O To prevent pregnancy 2. O To prevent HIV infection 3. O Both 4. Other specify_____	
5.17	Using condom wit h spouse or partner is a sign mistrust.	1. O Agree 2. O Disagree 3. O Not sure 4. O mixed	
5.18	Do you approve condom use married and cohabiting partner?	1. O Approve 2. O Disapprove 3. O Other specify_____	If approve skip to 5.20
5.19	If disapprove, why?	_____	
5.20	A person who uses condom is promiscuous.	1. O Agree 2. O Disagree 3. O Other specify_____	
5.21	What are the barriers that prevent you from using dual methods? Tick all mentioned	1. O don't know how to prevent 2. O not think of risk of unintended pregnancy and/ HIV 3. O need to have more children 4. O spouse/partner don' allow 5 O fear of social stigma 6. O others specify_____	

Thank you! This is the end of my interview

Appendix B: Guidelines for Focus-group Discussions

***Introduction*:**

My name is _____I am from Addis Ababa University research team, to carry out this study here in Adwa town. We would like to know what you think about reproductive and sexual health. ***Every one*** of you should ***participate freely***, and ***all your views*,** what ever they are, ***are welcome***. If you don't mind, we ***shall record the discussions*** on tape and on paper to ensure that all that is said is captured. No one will be identified by name. We shall treat the ***entire discussion confidentially***, and we request all of you the same. Well come to the discussion. (**Stress on the bold and underlined phrases)***

Main point: Research on how people protect themselves from dual risk of unintended pregnancy and HIV infection?

Questions

1. What is the most important health issues affecting adult men/women in this area? (Note: ask men about men, women about women; make clear that we are not interested in questioning children or old people).
2. (If not mentioned above) How serious a problem is HIV/AIDS for (men/women) in this area? What are the kinds of things people in this are do to avoid HIV/AIDS? Can HIV/AIDS be cured? If "yes", how? If "no", why not?
3. Now, let's talk about family planning. What is meant by family planning? What kinds of people use family planning in this area? How big a problem is unwanted/-mistimed

pregnancy in this area? Are condoms known and accepted in this area? When is it acceptable to use condoms? (Is it ever acceptable?)

What are the problems with using condoms? Is it (ever) acceptable for a married couple to use a condom? Can condoms be used as a method of family planning?

4. 4a. For example, the women is having modern contraceptive methods to space or to limit birth; she fears that her partner is having affairs with other women, and she fears especially that he will bring her STDs or, even the worse, HIV/AIDS. If this happened in this community, what could she do to protect herself if she fears being infected by her partner? Probe (if necessary) can she ask him to use a condom? What is the consequence? Can she refuse to have sex with him? What is the consequence? Can she talk about it with him? What is the consequence? Is there any thing she can do to change his behavior?

4b. For example, the women is having modern contraceptive methods to space or to limit birth; But her spouse or partner fears that she is having affairs with other men, and he fears especially that she will bring him STDs or, even the worse, HIV/AIDS. If this happened in this community, what could he do to protect himself if he fears being infected by his partner? Probe (if necessary) can he ask that they use a condom? What is the consequence? Can he refuse to have sex with her? What is the consequence? Can he talk about it with her? What is the consequence? Is there any thing he can do to change her behavior?

5. What kinds of things can a (women/men) do if (she/he) wants to have sex but doesn't want to (become pregnant/make his partner pregnant)? Probe: Any thing else?

6. How men and women talk to each other about health concerns and family planning. When it comes to deciding to use family planning or stop having children, do men and women usually discuss this with each other? Is there anything that prevents men and women in this area from discussing family planning if they want to? Is there anything that prevents men and women from discussing HIV/AIDS or STDs with each other?

7. Would people in this area accept using condoms instead of other methods of family planning as a response to the threat of HIV/AIDS? If no, why not? Would they accept using condoms at the same time as other methods to prevent unwanted/mistimed pregnancy and HIV/AIDS? If not, why not?

8. Do you know how to prevent dual risk of HIV infection and unintended pregnancy? What are the barriers in using dual protection method?

Thank you! This is the end of the discussion.

Map of the study area