ADDIS ABABA UNIVERSITY

FACULTY OF MEDICINE

DEPARTMENT OF COM MUNITY HEALTH

ASSESSMENT OF FACTORS ASSOCIATED WITH HIV/AIDS AMONG WOMEN SEEKING POST ABORTION CARE IN PUBLIC HOSPITALS OF ADDIS ABABA

BY

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A THESIS SUBMITED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITTY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF PUBLIC HEALTH

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Declaration

I the undersigned declared that this is my original work, this has not been presented for a degree in this or any other university that all resources of materials used for this has been fully acknowledged.

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Abbreviations

AIDS	Acquired immuno deficiency syndrome
ANC	Ante natal care
ART	Anti retro viral treatment
BSS	Behavioral surveillance survey
DHS	Demographic and health survey
ESOG	Ethiopian society of obstetricians and gynecologists society
HIV	Human immuno deficiency virus
ISY	In school youth
MOH	Ministry of health
NGO	Non governmental organization
OSY	Out of school youth
PMTCT	Prevention of mother to child transmission
PLWHA	People living with HIV/AIDS
STI	Sexually transmitted infections
SNNPR	Southern Nations Nationality and People Republic
STD	Sexual transmitted diseases
VCT	Voluntary counseling and testing

Abstract

Background: Very high number of unsafe abortions occurre annually in Asia and Africa given the hig and still increasing rate of HIV prevalence among women of reproductive age in these regions. I Ethiopia the national HIV prevalence among women estimated to be 4 % which is higher than men an it has been speculated that the prevalence rate may be higher among women seeking pregnanc termination than ANC attendants.

Objective: To assess the risk factors of HIV/AIDS among women receiving post abortion care in public hospitals of Addis Ababa.

Methods: A cross-sectional descriptive study was conducted from February to March 2007. A total o 405 participants were interviewed using structured questionnaire. An in-depth interview was als conducted in 5 % of study subjects and heads of post abortion care units of sampled hospitals.

Results: The odds of having perceived HIV infection risk was 2 times higher among women wh presented with induced abortion compared with spontaneous one (P< 0.05, OR=1.91 (1.02, 3.60 Marital status, number of sexual partner(s), occupational status and having sex first with permanen sexual partners were found to have significant statistical association with high HIV infection perceptio risk. Misconception on the mode of transmission and prevention of HIV was assessed by the educationa status and it revealed that misconception statistically associated with being not educated (p< 0.05, df= 1 x^2 = 5.44). However, no significance statistical associations observed on knowledge and misconceptio by the type of abortion (p > 0.05).

Conclusions: The perceived HIV infection risk of the study subjects in general and single an employed women in particular were high. Therefore, special attention should be given to women wh are at risk to HIV infection.

1. Background

1.1 Introduction

Each year nearly 600000 women die from complication of pregnancy, child birth, and unsafe abortion (1). Everyday about 500 women die from complication of unsafe abortion and ninety-nine percent of these abortion related deaths occurred among poor women living in developing countries (2). Complications of unsafe abortion are estimated to comprise more than 50 % of these deaths. In many developing countries, unsafe abortion is the cause for one in every four maternal deaths, and in some countries it goes as high as 50 % (2).

In Ethiopia maternal death associated with complication of pregnancy and delivery is the highest in the world and the maternal mortality ratio (MMR) estimates range between 500 and 1,400 per 100,000 live births (3, 4, 5). One out of every seven women in Ethiopia dies due to pregnancy related causes with more than 50 % resulting from unsafe abortion, making Ethiopian women at the highest reproductive risk in the world (3).

In Africa 4.2 million and in Asia 10.5 million unsafe abortions occurred annually given the high and still increasing rates of HIV prevalence among women of reproductive age in these regions, it may be assumed that with HIV/AIDS are among the women affected and the health consequences may be even more serious for them than for other women (6).

The 2005 EDHS indicated all women aged 15-45 and men aged 15-59 living in the household were selected for HIV testing. A total of 11,050 adults (83 % of the 7,142 eligible women and 76

% of the 6,778 eligible men) were tested for HIV. The result showed an adult HIV prevalence of 1.4 % and the HIV prevalence in women was 1.9 % and for that of men was 0.9 % making the male to female ratio of 1:2 (8). In the same year a total of 52,428 pregnant women were tested for HIV and 4,172 (8%) were found to be HIV positive (7).

Studies in Addis Ababa indicate that the city has around 300,000 people infected with HIV and the prevalence in the adult population is 16.8 %. Existing data's on young people reveal a falling age at sexual debut, increasing rates of sexual involvement, high morbidity and mortality from abortion complications and high prevalence of HIV/AIDS (9).

1.2 Rationale of the study

In Addis Ababa both community and hospital based studies have demonstrated that abortion accounts for 25-35 % of maternal deaths (10, 11). Investigators in other parts of the country have reported higher figures (27 % to 41 %) (12, 13). HIV is significantly prevalent among youth in Addis Ababa, particularly out- of school and female youth. Different socio-cultural contexts of sexuality and gender norms underpin this excess vulnerability (8). And it has been speculated that HIV prevalence rate may be higher among women seeking pregnancy termination than among prenatal clinic attendants but literatures offered no conclusive evidences (9). Many studies revealed induced abortion is common among unmarried, young age and students (14, 15, 16). Similarly, the proportion of HIV infection is higher in that group of the population. Therefore, this study is intended to evaluate the association of factors related to HIV/AIDS among women seeking post abortion care.

2. Literature review

2.1 Magnitude of the problem

2.1.1 Problem of abortion

Each year, approximately 20 million unsafe abortions are performed worldwide which results in nearly 80,000 maternal deaths and hundreds of thousands of disabilities. In some countries, unsafe abortion is the most common cause of maternal death. It is also one of the most easily preventable and treatable conditions. In Africa, the risk of dying after unsafe abortion is one in hundred fifty and the percent of maternal deaths due to abortion is 13 % (17).

International awareness of abortion increased following the 1987 Safe Motherhood Conference in Nairobi that drew attention to the need to reduce maternal mortality and morbidity. In many developing countries, giving attention and solving the problem of abortion is a low priority for the health service managers. In the country with restrictive abortion laws, as in Ethiopia, one of the safest procedure, abortion, becomes a hazardous public health problem. This is mainly due to the fact that women will interfere with their unwanted pregnancies irrespective of legal and other obstacles. The restrictive law also affects the abortion service provision (18).

Studies in Ethiopia have shown that abortion is the major public health problem (15). Studies carried out in the country indicated that complication from unsafe abortion account for almost 55 % of all recorded maternal deaths, some 13 % of which occur under the age of 20 (19).

2.1.2 Problem of HIV/AIDS

An estimated 40.3 million people world wide were living with HIV at the end of 2005 and close to 5 million became newly infected with HIV and an estimated 2.8 million lost their lives to AIDS (21). Around the world from the sub Sahara Africa and Asia to Europe, Latin America and the pacific an increasing number of women are being infected with HIV. It is often women with little or no income who are most at risk. A wide spread inequalities including political, social cultural and human security future also exacerbates the situation for women and girls (21).

Sub Sahara Africa has just over 10 % of the world population, but is home to more than 25.8 million (60%) of all people living with HIV. In 2005 an estimated 3.2 million people in the region became newly infected, while 2.4 million adult and children died of AIDS. Among young people of aged 15-24 years, an estimated 4.6 % of women and 1.7 % of men were living with HIV in 2005. In this region data indicate that the HIV incident rate has peaked in most countries. However, the epidemic in this region is highly diverse and specially severs in the southern Africa, where some of the epidemics are still expanding. In South Africa's an estimated 5.5 million people were living with HIV. An estimated 18.8 % of adult were living with HIV in the same year. Almost one in three pregnant women attending public ANC were living with HIV/AIDS in 2004 and trends over time showed a gradual increase in the HIV prevalence (21).

There are no clear signs of declining HIV prevalence elsewhere in southern Africa including in Botswana, Namibia and Swaziland, where exceptionally high infection level continue. In Swaziland, national adult HIV prevalence is estimated at 33.4 %. HIV prevalence among pregnant women attending antenatal clinic rose from 4 % in 1992 to 43 % in 2004. Botswana's epidemic is equally serious, with national adult HIV prevalence estimated at 24.1% in 2005. The dynamic

epidemic is under way in Mozambique, where the estimated national adult HIV prevalence is 16.1%.

In several southern African countries more than three quarter of all young people living with HIV are women. In many countries marriage and women owns fidelity are not enough to protect them against HIV infection. Among women surveyed in Harare, Durban and Soweto 66 % reported having one lifetime partner, 79% abstained from sex at least until the age of 17. Yet 40 % of the young women were HIV positive. Many had been infected despite staying faithful to one another (21).

In Ethiopia, the national HIV prevalence in 2005 is estimated to be 3.5 %: 3 % among males and 4 % among females. Females also accounted for 54.5 % of AIDS cases and 53.2 % of new infections in 2005. In the age group 15-29 years, there were more women living with HIV/AIDS than men while in the age group 30+ years, there were more men living with HIV/AIDS than women (8, 22).

The regional HIV prevalence estimated for 2005 ranged from 1.2 % in Somali to 11.7 % in Addis Ababa. Amhara, Oromia, Addis Ababa, and SNNPR accounted for 86.6 % of all people living with HIV/AIDS in 2005. Similarly, these four region share 86.7% of the total estimated HIV positive pregnancies, 85.3% of new infections, 87.9% of new AIDS cases, and 88.2% of AIDS deaths that occurred in Ethiopia in 2005 (22).

2.2 Reproductive and HIV/AIDS evidences

2.2.1 Reproductive evidences

Abortion is the removal or expulsion of an embryo or fetus from the uterus, resulting in or caused by its death. This can occur spontaneously as a miscarriage, or be artificially induced by chemical, surgical or other means. "Abortion" can refer to an induced procedure at any point during human pregnancy; it is sometimes medically defined as either miscarriage or induced termination before the point of viability

The three elements of post abortion care are:

1. Emergency treatment service for incomplete abortion and related complication to reduce morbidly and mortality

2. Post abortion family planning to prevent unwanted pregnancy.

3. Links between emergency abortion treatment services and comprehensive reproductive health services to improve women over all health (31).

A total of 1075 abortion cases were included in the study carried out at national level. Women in the age group 20-29 accounted for 58.3 % of all cases, 66 % were married and the rest were single. Students accounted for 14.6 % of all cases. The distribution of women by the type of abortion revealed that 800 women (74.4 %) had spontaneous abortion where as the remaining 275 (25.6 %) were induced cases (16).

In a community based survey of North West Ethiopia the reasons given to terminate pregnancies were fear of families and economical problems mentioned by 31.3 % and 14.1% respectively. The

method used to induce abortion was inserting plastic tubes in the vagina by 54.7 % and taking different type of oral drugs by 35.9 % of participants (23).

A cross-sectional descriptive study of induced abortion was conducted in Jimma Hospital, South-western Ethiopia to determine socio-economic factors and associated problems. Among total respondents eighteen (22.5%) gave economic problems as reason for termination of pregnancy (30).

A survey to assess illegal abortion was conducted over a six-month period at five hospitals in Addis Ababa. A total of 2275 patients were interviewed and 1296 (56.7 %) admitted to have had induced abortion, while 43.3% stated they had spontaneous abortion (24).

2.3 Evidence on HIV/AIDS

Many United Nation agencies are now promoting a three-pronged strategy to address the intersection between HIV/AIDS and pregnancy: 1) prevent HIV infection in young people and women of childbearing age, 2) prevent unwanted pregnancy among women with HIV infection and 3) prevent transmission of HIV from an infected mother to her infant. Despite widespread educational programs focused on the first strategy, large numbers of youth and women worldwide continue to contract HIV because of factors outside their control (inability to negotiate condom use, lack of access to condoms, infection due to sexual violence) (25).

The HIV prevalence among pregnant women estimated in 2000 and it was found that 29.6 % in Namibia, 32.3 % in Swaziland, and 35 % in Zimbabwe. An annual survey conducted by the South Africa Ministry found 24.8 % of women attending clinics were living with HIV virus. While HIV

infection among older pregnant women in south Africa continue to increase, HIV prevalence rate for pregnant women under 20 fell from 21 % in 1998 to 15.4 % in 2001, indicating that prevention effort with younger women are having an impact (25).

In Ethiopia, knowledge of AIDS is widespread but not universal; 90 % of women 15-49 years of age and 97 % of men year 15-49 have heard of AIDS. The HIV prevention programs focus their messages and efforts on three important aspects of behavior; delaying sexual debut in youth person (abstinence), limiting the number of sexual partner and use of condom (8).

Assessment of high risk behaviors in Ethiopia was initiated as early as 1990. High score especially in some mode of viral transmission was documented and which showed some success especially in raising awareness both in general and sub group of the population.

A total of 421 (47.6%) respondents in general population surveyed were aware of being engaged in high risk practice, which exposed them to HIV infection. Being female and individuals who had a positive attitude to take VCT felt themselves more at risk (28).

Knowledge of condom and the role that they can play in preventing transmission of the AIDS virus is much less common, particularly among women. Sixty nine percent of women and 75 % of men knew that HIV could transmit by breast-feeding, only slightly more than around one fifth of women and one fourth of men knew that the risk of mother to child transmission could reduced through the use of certain drugs during pregnancy (8).

The 2005 DHS in Ethiopia indicated the marital status found to be closely related to HIV prevalence. Women and men who are widowed, divorced, or separated have significantly higher rate than those who are married or living together. HIV rates are lowest for respondents who have never been in union. However, women who are sexually active but have never been in marital union, have HIV prevalence rate of 9 % and higher than the level found among widowed or divorced and separated women (8).

HIV infection level increase directly with education among both women and men and are markedly higher among those who have secondary or higher education compared with those with less education. Employment is also related to HIV levels among both women and men: with those who are employed being more likely than the unemployed to be infected.

Knowledge of HIV preventive methods increase with increasing exposure to various media sources (radio, TV, and printing media). Misconception about the transmission of HIV from person to person especially local misconception like" eating uncooked egg laid by chicken that has swallowed condom could transmit HIV and eating raw meat prepared by an HIV infected person could transmit the virus" still remain high in almost all groups. The common misconceptions are more than 40 % in all study groups except in school youth were it was 10 %. The study also showed that misconception about HIV/AIDS is high irrespective of level of knowledge (8).

Four hundred and eighty four mothers were interviewed at the antenatal follow-up of Arba Minch Hospital and Arba Minch Health Centre. Eighty percent of mothers were aware the perinatal transmission of HIV infection and of these 213 (55 %) thought that there is a 100 % risk of transmission of every conception. Out of all mothers interviewed, 424 (91 %) agreed that HIV is

not transmitted by mother-to-child physical contact and 419 (86.5 %) had the knowledge that HIV could transmit through breastfeeding (6).

In BSS 2005 Ethiopia, More than 95 % of respondents from ANC service catchments area had heard of HIV/AIDS. Of these 73.7 % knew some one who was infected with HIV or had died of AIDS 12.1% knew some one who was their close relative. Of all participants 42.8 % correctly mentioned all the three programmatically important HIV preventive methods and 84.4 % had at least one misconception and 67.9 % respondents had more than one misconception indicating the persistence of high level of misconceptions in the target group (27).

The majority (81 %) of ANC catchments population had heard of sexually transmitted diseases. Those who had were asked to describe STI symptoms in women and men. The most commonly mentioned symptoms of STI in women were burning sensation on urination 33.6 %, genital ulcers or sores 28.8 %, genital discharge 26.7 %, and foul smelling genital discharge 18.8 %. The respondent who were aware of the existence of STI were asked whether they had experienced genital discharge or genital ulcer in the last 12 months. Of all participants, 23 (1.3 %) males and 91(4.9 %) females' reported genital discharge (27).

In the population survey 758 (85.8 %) have heard about the different types of STD. Respondents in the general population who correctly mentioned all symptom of STI in women were 7.2 % and mentioned up to four of the symptoms. The prevalence of self reported symptom or signs of sexually transmitted diseases in the last 12 months was 2.8 % (28).

In the study conducted at Zewditu and Tikur Anbessa hospitals that all the 384 respondents had heard about HIV/AIDS of which 82.3 % mentioned the major routes of transmission HIV and 89.8 % knew that HIV could transmit from an infected mother to her baby. Most respondents knew that MTCT of HIV is preventable and 64.6 % knew the protective effect of ART (29).

There are clear evidences that indicate the death of women related to abortion is high in developing countries including Ethiopia. The burden of the problem is being complicated by ever increasing the prevalence of HIV/AIDS among women than men in the same area. There fore, this study attempted to investigate factors associated with HIV/AIDS among women seeking post abortion care in public hospitals of Addis Ababa.

3. Objective of the study

3.1 General objective

To assess the risk factors of HIV/AIDS among women receiving postabortion care in 5 public hospitals of Addis Ababa.

3.2 Specific objectives

- **To describe the socio demographic and economic characteristics of women coming for post abortion care.**
- To assess the knowledge, attitude and practice of women on HIV/AIDS.
- To assess the levels of HIV infection perception risks among women receiving postabortion care.
- To assess the association of HIV/AIDS risks with the type of abortion.

4. Methodology

4.1 Study area

The study area is Addis Ababa which is the capital city of the Federal Government of Ethiopia. Administratively it is divided in to 10 sub cities and 103 kebeles. It is located in the heartland of the country with an area of 540 sq. km. and situated between 9-degree east longitudes in a plateau that stretches at the range of 2200-2800 meter of altitude above sea level. The climate varies from season of summer, about 9 months, to cool month of rainfall about 3 months, with an overall average maximum and minimum temperature of 22.9 and 10.8 degrees centigrade, respectively.

According to the 1994 population census, the total population of Addis Ababa in 2007 is projected to be 3,228,272 of which 1,996,512 are males and 2,078,005 are females, which makes the male to female ratio of 49% and 51% respectively. The number of females in the reproductive age group (15-49) constitutes 35.3% (1,139,580) of the total population. In Adds Ababa there are a total of 30 hospitals, of which 5 (yekatit12, Zewiditu memorial, Ghandi memorial, Mililik and Ras desta hospital) are governed under Addis Ababa Health Bureau, 5 by Ministry of Health, 2 by NGOs, 3 by Ministry of Defense and Police and the remaining 15 are by private owners. There are also 27 health centers, 387 clinics, and 42 health posts run by Health Bureau, NGOs, governmental organizations, factories, and private owners (32).

4.2 Study design

A cross-sectional descriptive study was conducted to assess the risk factors of HIV/AIDS on women who have received postabortion care from February 2006 to March 2007 in 5 public hospitals of Addis Ababa where post abortion care is given

4.3 Study population

All women who received postabortion care form February to March 2007 at Tikur Anbessa, Ghandi Memorial, Zewditu Memorial, Yekatit 12, and Saint Paul hospitals were the study population. The knowledge, attitude and practice of the study subjects on HIV/AIDS and its associated factors with the type of abortions were assessed using structured questionnaire.

Of the total participants 5 % of women who presented with induced abortion were selected to be included in the qualitative part of the study. The qualitative parts of the data i.e. in-depth interview with pos abortion care seekers as well as head nurses of post abortion care units were conducted by the principal investigator and the responses were recorded on the note book.

4.3.1 Inclusion criteria:

All Women who received postabortion care from February to March 2007 in the respective hospitals were included in the study.

4.3.2 Exclusion criteria:

Women who were discharged from respective hospitals against medical advice and those who were not able to respond to the questionnaire due to their illness were excluded from the study.

4.3.3 Sample size determination

Since the perceived risk of HIV infection is not known by women who had received post abortion care. An assumption of 50 % is taken. An assumption also made any particular outcome to be with 5 % marginal error and 95 % confidence interval of certainty (alpha=0.05) and with a contingency of 10 %. Based on these assumptions the actual sample size of the study population was computed using one sample population proportion as the formula depicted below.

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

Where:

n = Sample size

$Z(\alpha/2)^2$ = critical value (confident limit)

P = knowledge on HIV/AIDS by participants'

d = precision (marginal error)

Thus $n = \frac{(1.96)^2(0.5)(1-0.5)}{(0.0025)}$

Total sample size = 384

Non response rate = 10 % x 384 = 38

Total sample size= 422

4.3.4 Sampling procedure

A total of 422 women who have received post abortion care were interviewed just before their discharge from the respective hospitals using structured questionnaire. Accordingly, the number of women interviewed in Ghandi Memorial, Saint Paul, Yekatit 12, Zewditu Memorial and Tikur Anbesa hospitals were 187, 117, 74, 35 and 9 respectively.

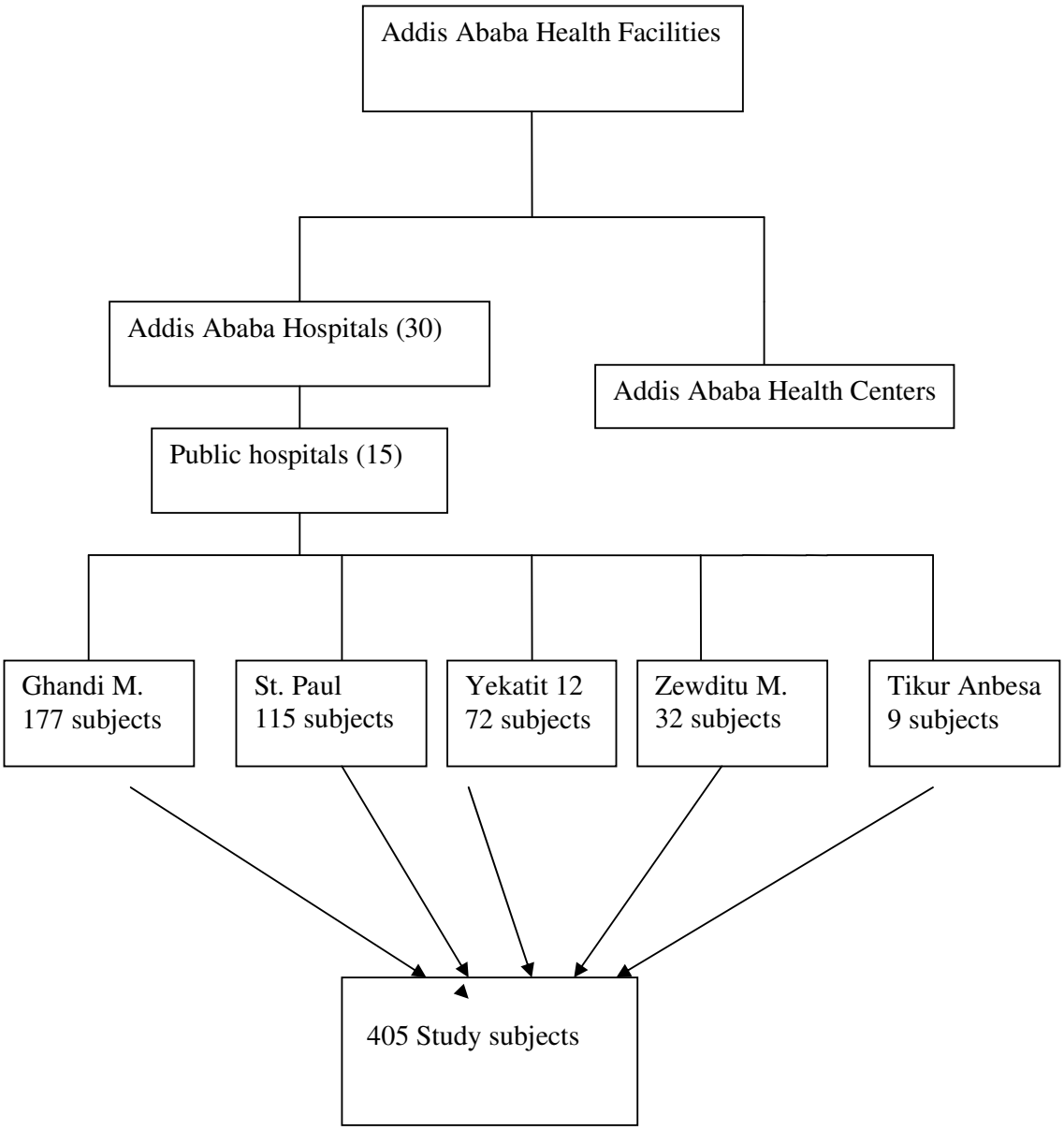

Figure 1 schematic presentation of sampled study subjects among women seeking post abortion care, pubic hospitals of Addis Ababa, February- March 2007.

4.3.5 Data collection procedures

The questionnaire initially was prepared in English then translated into Amharic for easiness to data collectors and back to English to maintain its consistencies. The structured questionnaire used to interview consists of 7 sections; General information, Risk behavior assessment, Assessment of sexual history, Knowledge attitude and opinion about HIV/AIDS, Exposure to information, Care and support and Perceived risk to HIV.

Before the actual data collection was commenced, the questionnaire was pre-tested in 5 % of sampled population at Ghandi Memorial Hospital. The collected data was checked and comments were gathered and then adjustment was made accordingly.

Initially it was planned to collect the data by trained 12 grade completed female students under the supervision of head nurses in the respective department of each hospitals. But during pre-testing period it was found that the majority of cases were appearing during night time when the data collectors were not available. Therefore, the responsibility of data collection was shifted to trained staff nurses under the supervision of head nurses and health officers.

The approach used to collect the data was to conduct an interview just before the client was discharged from respective hospitals. At the end of each day the principal investigator thoroughly reviewed each questionnaire for its completeness and feedback given accordingly.

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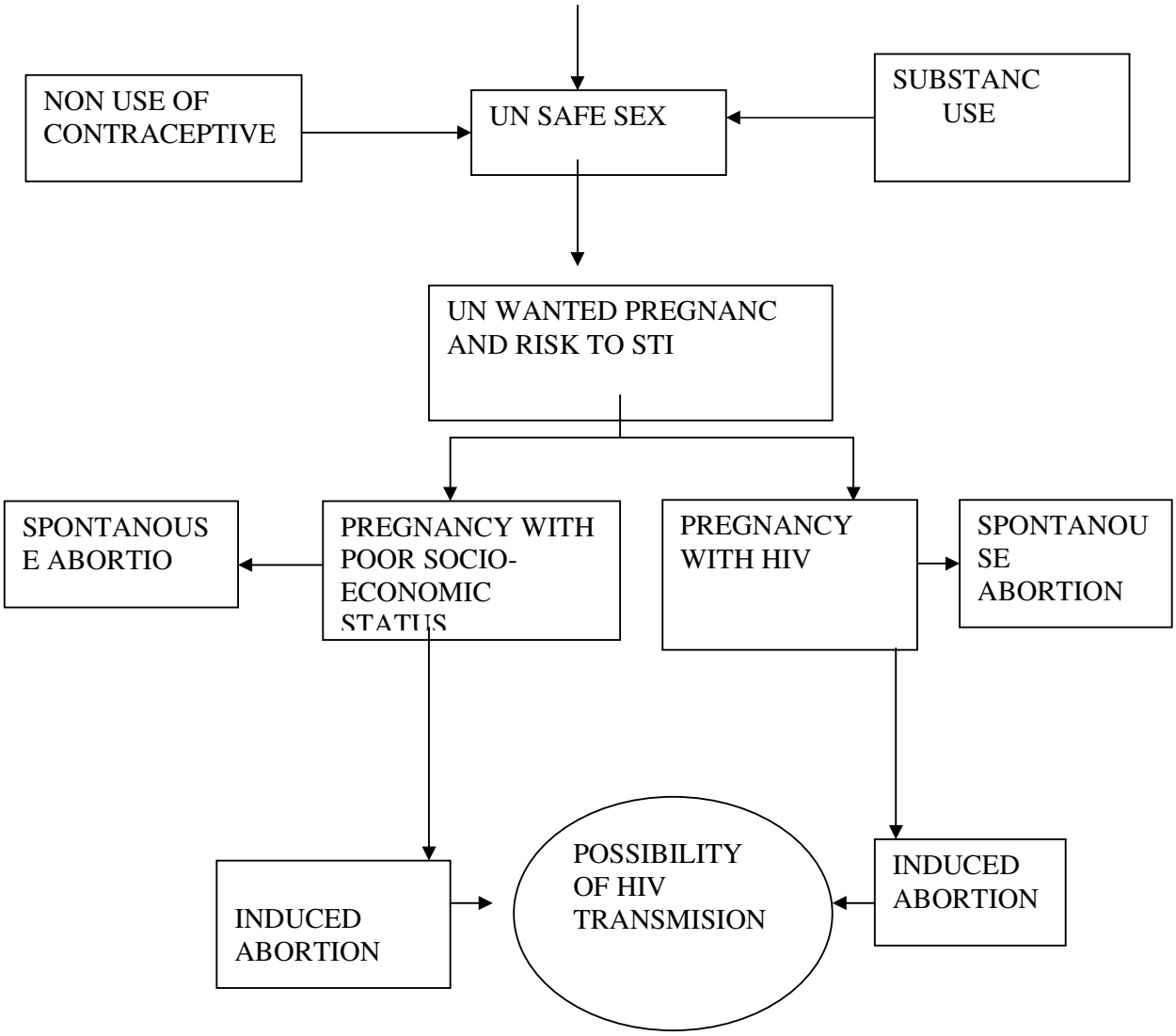


Figure 2 Conceptual framework on the mechanism of abortion and possibility of HIV transmission

4.4 Variables

Dependent variables were:

Perceived HIV/AIDS risks (Low risk and high risk)

- Types of Abortion (spontaneous and induced)

Independent variables were

- Socio-demography and economic characteristics: age of women, occupation, marital status, ethnicity, religion, literacy status, and family income.
- History of substance abuse: alcohol consumption, drug use, chat chewing.
- Reproductive history, Sexual history, history on STI, exposure to information.
- Onset of abortion, methods of termination of pregnancies, place of induction and responsible persons for termination of pregnancies.
- Knowledge on HIV/AIDS, STI, Condom

4.5 Data quality management

- Standardized questionnaire was adopted from BSS 2005 and IPAS Ethiopia.
- Training was given for data collectors before one of the pre testing period.
- Questionnaire was pre-tested in 5 % of the study population.
- The data was checked every day for its completeness, accuracy and consistency
- An in-depth interview was done by the principal investigator.

4.6 Data analysis

After the data collection, the principal investigator coded each questionnaire and data entry was made using EPI INFO version 6 statistical packages. Frequency output was used to check missing values and outliers and cleaning was done using original code number. Descriptive statistics and summary measures were employed to the data. The association of dependent and independent variables were assessed and their degree of associations were computed using odds ratio (OR) and with 95 % limit of confidence interval. Logistic regression using SPSS version 13 statistical packages was applied to control potential confounding variables.

4.7 Ethical clearance

Before data collection was initiated, ethical clearance was obtained from the research ethics committee of Department of Community Health, Addis Ababa University. Written/verbal consent was given to each hospital and verbal consent was taken from each eligible woman. Each woman was informed about the purpose of the study and respectfully asked genuine information before the interview started. The right of individual not to participate in the study was respected. Privacy and confidentiality was maintained and identifying information was not taken from study subjects.

4.8 Dissemination of the results

The results of the study will be presented to the Department of Community Health and concerned bodies. At the end, the forwarded comments, ideas and suggestions will be incorporated in the document and then it will be disseminated to concerned government offices: MOH, Addis Ababa administrative region Health Bureau, to sampled hospitals and NGOs working in the reproductive health services and HIV/AIDS, Ethiopian public health association, and other organizations which demand the document. An attempt will also be made to publish this study in the national health related journals.

5. Results

5.1 Distribution of the study population

Among 422 women who were seeking post abortion care identified, seventeen refused to participate in the study making the response rate of 96 %. The distribution of the study clients by hospitals were 177 (43.7 %) from Gandhi Memorial Hospital, 115 (28.4 %) from Saint Paul Hospital, 72 (17.8 %) from Yekatit 12 Hospital, 32 (7.9 %) from Zewditu Memorial Hospital and the remaining 9 (2.2 %) were from Tikur Anbessa Hospital.

5.2 Socio-demographic characteristics

The age of respondents ranged from 18-49 years. The majorities (59 %) are between the age group 20-29 years and four women at the last age group (45-49) making the mean and median age being 27.1 and 26 Years respectively. The mean age difference of women found to be statistically significant by the type of abortion ($p< 0.05$). Two hundred sixty three (64.9 %) women are married followed by single 117 (28.9 %). Almost half (48.4 %) of the study participant are housewives and the majorities (67.4 %) are orthodox by religion. The monthly income of study subjects ranges from 80-3000 ETH birr making the mean and median income of 590 and 500 ETH birr respectively.

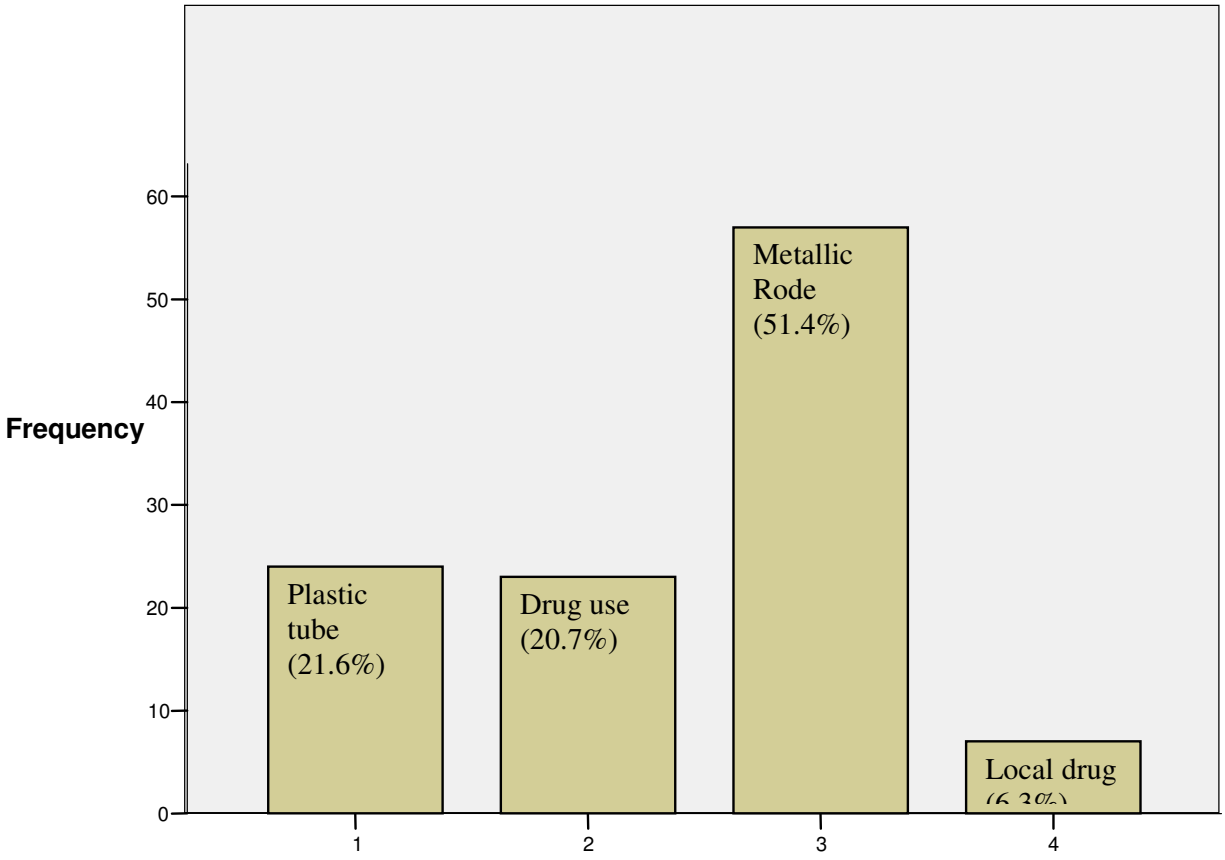
Table 1 Distribution of the study subjects by Socio-demographic characteristics, Public Hospitals, Addis Ababa, February-March 2007.

Variables	**Number**	**Percent**
Age		
15-19	25	6.2
20-24	120	29.6
25-29	119	29.4
30-34	86	21.2
35+	55	13.6
Marital status		
Single	117	28.9
Married	263	64.9
Divorce	8	2.0
Widowed	17	4.2
Occupation		
House wife	196	48.4
employees	45	11.1
Student	44	10.9
House maid	30	7.4
Others	90	22.2
Education		
Illiterate	83	20.0
Read and write only	23	5.7
Primary	111	27.9
Secondary	148	36.5
College and university	40	9..9
Religion		
Orthodox	273	67.4
Muslim	117	28.9
Catholic	15	3.7
Ethnicity		
Amhara	169	41.7
Oromo	104	25.7
Gurage	92	22.7
Others	40	9.9
Address		
Addis ababa	332	82.0
Out of Addis ababa	83	18.0

5.3 Reproductive history

Among the total responding women 73 (18 %) had history of previous abortion and 111(27.4 %) claimed that the current abortion was induced. Among women who had induced abortion 73 (65%) had performed the procedure in private health facilities assisted by health professionals. From in-depth interview it was reported that Seventeen (85%) respondents' pregnancies were occurred with out plan and end up with induction. One of the respondents claimed to be a university student reported that her pregnancy was occurred being raped by her uncle and the other one who was a housewife reported the reason of termination of the current pregnancy was due to fear of her families since she was conceived from some body else.

All Participants were asked the reasons for terminating the current pregnancies. Accordingly, 68 (63 %) respondents reported financial problem and no need of children at that particular time as the major reasons. Metallic rods, plastic tubes, drug uses, and herbal medications were the methods used to terminate the current pregnancy by 57 (51.4 %), 24 (21.6 %), 23 (20.7 %) and 7 (6.3 %) women who presented with induced abortion respectively.



Graph 3 Bar graph showing methods used to induce abortion by post abortion care seeking women, public hospitals of Addis Ababa, February- March 2007

Table 2 Reproductive history, reasons for unwanted pregnancy, and settings of interference of the current pregnancy by post abortion women, Public Hospitals, Addis Ababa, February-March 2007

variable	**Frequency**	**percent**
Previous abortion (n=405)		
Yes	73	18
No	332	82
Current pregnancy induced (n=405)		
Yes	111	27.2
No	294	72.8
Planned current pregnancy (n=405)		
Yes	217	53.6
No	188	46.4
Reasons of current pregnancy (n=188)		
Thought not to be pregnant	80	42.6
Contraceptive failure	53	28.2
Friend pressure	26	13.8
others	29	15.4
Reasons for induce abortion (n=111)		
Not to have a child	43	38.7
Financial problem	25	22.6
Other	33	29.7
total		
Patient assisted (n=111)		
Health professionals	73	65.8
Self	21	18.9
other	17	15.3
Place of interference (n=111)		
Health institute	73	65.8
Patients home	30	27.0
Abortionist home	8	7.2

5.4 Association between socio demographic characteristics and selected reproductive variables with abortion

The impact of socio demographic characteristics and selected reproductive variables on induced abortion was investigated using bivariate logistic regression technique. The socio demographic and selected reproductive variables considered in the Biviriate analysis were: age of women, marital status, educational status, occupational status, religion, ethnicity, income, previous abortion, and current pregnancy. As can be seen in table 3, the bivariate analysis indicated educational status and religion showed significant statistical association with induced abortion (P< 0.05). The lower the monthly income of women also statistically associated with induced abortion (p< 0.01). Similarly, age of women, occupational status, marital status and planned current pregnancy were showed significant statistical association with induced abortion (p<0.001). However, no statistical association was observed in ethnicity and history of previous abortion (p > 0.05).

The risk of having induced abortion was 1.4 times higher among women whose age 20-24 years compared to others (OR= 2.35 (1.48, 3.72)). On the contrary those women whose age 35 or more years were less likely to have induced abortion (OR= 0.35 (0.15, 0.78)). Single and employed women had 11 and 5.9 times higher risk of induced abortion compared to married and housewives respectively (p< 0.001). Being illiterate was found to be less risky to an induced abortion (OR= 0.44 (0.22, 0.83), p< 0.05). The odds of having induced abortion was 31.6 times higher among women whose current pregnancy was unplanned than those who had planned pregnancy (p< 0.001).

Table 3 Associations between socio demographic characteristics and selected reproductive variables with induced abortion, Public Hospitals, Addis Ababa, February-March 2007.

Characteristics	Induced abortion		COR	AOR
	Yes	No		
Age			***	
15-19	10	15	1.84 (0.80, 4.23)	0.98 (2.00, 4.8)
20-24	48	72	**2.35 (1.48, 3.72)**	1.39 (0.43, 4.46)
25-29	28	91	0.75 (0.46, 1.23)	0.86 (0.27, 2.75)
30-34	18	68	0.64 (0.36, 1.14)	1.21 (0.38, 3.83)
35-49	7	48	**0.35 (0.15, 0.78)**	1.02 (0.21, 4.55)
Marital status			***	***
Married	29	234	1.00	1.00
Single	82	60	**11.03 (6.62, 18.36)**	**3.48 (1.73, 7.01)**
Educational status			*	*
Literate	98	226	1.00	1.00
Illiterate	13	68	**0.44 (0.22, 0.83)**	**0.36 (0.15, 0 .86)**
Occupational status			***	
House wife	22	174	1.00	1.00 *
employee	89	120	**5.87 (3.49, 9.88)**	**2.47 (1.19, 5.13)**
Religion			*	
Christian	87	201	1.00	1.00
Muslim	24	93	**0.60 (0.36, 0.99)**	1.02 (0.47, 2.20)
Income			**	
<=500	78	157	1.00	1.00
>500	33	137	**0.48 (0.30, 0.77)**	0.79 (0.40,1.57)
Ethnicity				
Amhara	45	124	0.93 (0.60, 1.46)	0.83 (0.29, 2.35)
0romo	32	72	1.25 (0.77, 2.04)	1.14 (0.38, 3.45)
Gurage	18	74	0.58 (0.33, 1.02)	0.63 (0.19, 2.10)
other	16	24	1.90 (0.96, 3.72)	0.83 (0.34, 2.04)
Previous abortion				
Yes	96	236	1.00	1.00
No	15	58	0.64 (0.34, 1.18)	0.84 (0.34, 2.04)
Planned pregnancy			***	***
Yes	8	209	1.00	1.00
No	103	85	**21.92 (9.30, 51.70)**	**18.76 (8.29, 42.45)**

NB: **COR** Crude odds ratio at 95 % confident interval

AOR Adjusted odds ratio at 95 % confident interval.

* = P-value < 0.05 **= p-value < 0.01 ***= p-value < 0.001

5.5 Sexual history and risky behaviors

Age of women at first sex ranged from 10-34 years making the mean and median ages at first sex to be 19.2 and 19 years respectively. Respondents were asked the age of their sexual partner at first they had sex. Nearly half (48.4 %) participants reported their sexual partners ages were exceeding 5-10 years and only 1(0.2 %) claimed her sexual partner was less than her age. One out of three (33.6 %) women with induced abortion had sex with two or more sexual partners in the last 12 months where as only 16 (5.4 %) women who were presented with spontaneous abortion had sex with two or more sexual partners in the last 12 months. One hundred seventy two (42.5 %) respondents had history of alcohol consumption in the last 1 month where as only 6 (1.5 %) used drugs injection in the last 12 months.

Table 4 Sexual history and risky behavior of postabortion women, public Hospitals, Addis Ababa, February-March 2007.

Variables	**Frequency**	**percent**
Sex at first time		
With my husband/friend	270	66.7
Previous husband/friend	68	16.8
Incidental individual	67	16.5
Age of sexual partner at first time they had sex		
Greater than 5-10 years	196	48.4
Same age group	148	36.5
>10 years of age	60	14.8
Less than her age	1	0.2
Number of sexual partners in the last 12 months		
With only one partner	355	87.7
With two partners	37	9.1
With three or more partners	13	3.2
Alcohol consumption in the last 1 month		
Yes	172	42.5
No	233	57.5

5.6 HIV/AIDS and STI related issues

5.6.1 Knowledge about HIV/AIDS

Almost all (99.5 %) participants had heard about HIV/AIDS. More than three quarter (77.7 %) have got the information on the radio, 258 (64.1 %) had heard from parents and/or partners, 247 (61.3 %) had heard from health institutions. Of those who have heard about HIV/AIDS 309 (76.3 %) knew some one who was infected with HIV or died of AIDS. Three hundred thirty eight (88.4 %) women reported HIV/AIDS can be prevented by using condom properly all times during sex provided that all other sources of HIV transmissions were protected. The knowledge of women on HIV/AIDS was further assessed by the types of abortion and the findings showed that no significance statistical association was observed between knowledge and the type of abortion ($p > 0.05$, df=1, x2= 0.01).

Misconceptions on the mode of transmission and prevention of HIV were seen by 229 (56.5 %) participants. Accordingly, 145 (35.8 %) participants reported HIV could transmit by eating uncooked eggs from chicken swallowed used condom, 92 (22.7 %) believed HIV could transmit through the bite of mosquito and 129 (31.8 %) reported eating food prepared by HIV positive individual could transmit the virus HIV. Misconception on the mode of transmission and prevention of HIV was further examined by the educational status and it was found that misconception was statistically associated with being not educated ($p< 0.05$, df= 1, x^2 =5.44). However, misconception didn't show statistical association with the types of abortion ($p > 0.05$, df=1, $x^{2=}$ 0.01)

Table 5 Information on HIV/AIDS by postabortion women, public Hospitals, Addis Ababa, February-March 2007

variable	Frequency	percent
Knowing one who is infected or died of HIV/AIDS		
Yes	309	76.3
No	94	23.7
Protecting HIV/AIDS by having condom properly all times		
yes	197	48.6
Yes, but not 100%	141	34.8
no	61	15.1
I don't know	6	1.5
HIV transmitted through mosquito bite		
yes	92	22.7
no	273	67.4
I don't know	40	9.9
Eating of eggs from condom swallowed chicken transmit HIV		
yes	145	35.8
no	241	59.5
I don't know	19	4.7
Drinking hard liquor or eating berbere prevent HIV		
Yes	31	7.7
no	349	86.1
I don't	25	6.2
Pregnant women can transmit the virus to her fetus		
yes	333	82.2
No	48	11.9
I don't know	24	5.9
Breast feeding can transmit the virus HIV to child		
Yes		
No	336	83.0
I don't know	45	11.1
	24	5.9

5.6.2 Knowledge and experience on STI and condom

The majority (82.7 %) of post abortion seekers had heard about STI. The most frequently mentioned STI symptoms were: Burning sensation on urination 198 (53.4 %), abnormal vaginal discharge 163 (53.4 %), bad vaginal smelling 150 (49.2 %) and genital ulcer 124 (40.7 %). The existence of any of symptoms in the last 12 months was asked and fifteen (3.7 %) participants reported the presence of at least one symptom in the last 12 months. The treatment seeking behavior indicated 5 (33.4 %) of them sought help from private health felicities where as 9 (60 %) women visited government health facilities. One out of 15 participants with the history of symptom of STI didn't take any action in solving the problems.

Three hundred ninety two (96.8 %) post abortion care seekers had heard about condom. Most 381(90.1 %) knew where to obtain it. on the other hand, all women who had an in-depth interview have heard about condom. The most frequently mentioned sources of condoms were shops, pharmacy, health center and hospitals. All the three major uses of condom were stated by 257 (63.5 %) post abortion care seeking women. Accordingly, three hundred fifty seven (92 %) women mentioned condom is useful for prevention of HIV transmission. The use of condom in the prevention of unwanted pregnancy and sexually transmitted infections were also mentioned by 83.8 % and 71.9 % of post abortion women respectively.

Table 6 Knowledge on condom, STI symptoms and treatment seeking behavior of postabortion women, public Hospitals, Addis Ababa, February-March 2007

variables	**Frequency**	**percent**

Knowledge on STI signs and symptoms		
Yes	305	75.3
No	100	24.7
Sign and symptom on STI described		
Abdominal pain	35	21.5
Abnormal virginal discharge	163	53.4
Bad vaginal smelling	150	49.2
Burning sensation on urination	198	64.9
Genital swelling	47	15.4
Genital itching sensation	84	28.5
Genital ulcer	124	40.7
STI complain in the last 12 months		
Yes	15	3.5
No	377	93.1
STI treatment seeking behavior		
Yes	18	64.3
No	10	35.7
STI treatment seeking preferences		
Seeking government facility	5	33.4
private facility treatment for STI	10	55.6
Time seeking treatment		
Less than one month	8	53.3
greater than one month	6	40
Nothing was done	1	6.7
Heard about condom		
Yes	392	96.8
No	13	3.2
Knowledge on source of condom availability		
Shop	338	88.7
pharmacy	274	71.9
Market	95	24.9
Private Clinic	171	44.9
Health institution	245	64.3
Other source	7	1.8
Knowledge on condom use		
To prevent pregnancy	325	83.8
To prevent STI	279	71.9
To prevent HIV/AIDS	357	92.0
Others	8	2.0

5.6.3 Media exposure on HIV/AIDS information

Participants were asked how their exposure was to mass media in the last 12 months concerning HIV/AIDS. The responses indicated that radio, TV and printing medias had been used as a source

of information in the last 12 months by 348 (86 %), 304 (75 %) and 160 (39.5 %) respectively. Amongst women listening radio, Yibekal was found to be the most popular program 238 (72.9 %) followed by dramas 232 (68.4 %). The vast majority of respondents indicated that radio and TV messages about HIV/AIDS were clearly stated. Less than half (43.5 %) participants knew as there was an on line HIV/AIDS counseling service and only few 21 (5.2 %) had ever used the service.

Table 7 Mass media exposure on the issue of HIV/AIDS by post abortion care seekers, Public Hospitals, Addis Ababa, February-march 2007.

Variables	**Number**	**Percent**
Programmes' heard on radio about HIV/AIDS(348)		
Advertising	153	43.7
Drama	232	68.4
News	195	56.0
Yibekal	283	72.9
Comments on radio about HIV/AIDS programmes (348)		
Clear	316	90.8
Some times clear and some times not clear	32	9.2
Information on TV about HIV/AIDS		
Yes	304	75.0
No	101	25.0
Comment on TV about HIV/AIDS programmes (304)		
clear	274	90.2
Some times clear and some times not clear	30	9.8
Reading articles on HIV AIDS		
Yes	160	39.5
No	245	60.5
knowledge on availability of on line HIV counseling service		
Yes	176	43.5
No	229	56.5
Ever used on line HIV counseling service		
Yes	21	5.2
No	384	94.8

5.6.4 HIV testing

Considerable number (32.3 %) of post abortion care seekers claimed to have been tested for HIV and equal proportion of women with induced and spontaneous abortion reported as they have undergone HIV testing. Out of 131 women, 106 were tested for HIV voluntarily and more than

three fourth (78.5 %) were tested for HIV in the past 2 years. Seven (5.7 %) post abortion care seekers stated that they were tested for HIV and turned out to be positive.

Among 20 women who had an in-depth interviewee, less than a quarter had been tested for HIV and those who never tested for HIV were asked why they didn't take the test. Accordingly, three of them reported that they worried about their previous sexual experiences, five of them afraid the test it self and the remaining mentioned that they didn't think about it but they want to be tested in the future. Only 2 out of 20 respondents knew the sero status of their sexual partners.

5.6.5 Risk perception

The risk of acquiring HIV infection by post abortion care seekers were assessed by no or low and moderate or high risk perception levels. The majority (57 %) of women with induced abortion claimed to have high perception of HIV infection risks. on the other hand, only one in 5 (20 %) women with spontaneous abortion had high HIV acquiring perception risks. The larger proportion (70 %) of post abortion care seeking women claimed that they had no or low perception risks. The reasons forwarded for this low risk were: trusting of their partners by 264 (93 %) women, had no sexual contact with HIV positive persons by 75 (26.5 %) women, and had no needle stick injuries by 101 (35.7 %) women. One hundred twenty two (30 %) of post abortion women had a feeling of moderate to high risk of perceived HIV infection. No use of condom during sex, having more than one sexual partners, lack of trust to their sexual partners and exposure to abortion procedures were taken as a major reasons of moderate to high HIV perception risks by 77 (63.1%), 54 (44.3%), 26 (21.3%) and 26 (21.3%) post abortion women respectively

Service providers indicated that HIV/AIDS is very high among youth and single people similarly most post abortion care seekers were also youth and single women. The majority of respondents claimed that women who presented with induced abortion most likely terminated their pregnancies in the wrong places that expose them for the possibility of transmission of HIV. All but one respondent believed that the transmission of HIV related to abortion could be minimized by making abortion service legal at hospital level.

Table 8 self perceptions of HIV infection risks among postabortion women, public Hospital, Addis Ababa, February-march, 2007

Characteristics	Risk perception		COR	AOR
	High	Low		
Age				
15-19	8	17	1.11 (0.47, 2.65)	0.95 (0.25, 3.57)
20-24	45	75	**1.65 (1.05, 2.60)**	1.21 (0.47, 3.13)
25-29	38	81	1.15 (0.72, 1.82)	1.08 (0.42, 2.79)
30-34	21	65	0.71 (0.40, 1.22)	0.99 (0.37, 2.65)
35-49	9	46	**0.42 (0.20, 0.88)**	1.05 (0.32, 3.45)
Induced abortion			***	*
No	57	237	1.00	1.00
Yes	64	47	**5.66 (3.52, 9.10)**	**1.94 (1.03, 3.65)**
Marital status			***	***
Married	41	222	1.00	1.00
single	80	62	**6.99 (4.37 , 11.18)**	**2.81 (1.50, 5.27)**
Educational status				
illiterate	21	60	1.00	1.00
Literate	100	224	0.78 (0.45, 1.36)	1.18 (0.57, 2.45)
Occupation			***	**
House wife	30	166	1.00	1.00
employee	91	118	**4.26 (2.65 , 6.86)**	**2.31 (1.27 4.19)**
Income				
<=590	78	161	1.00	1.00
>590	43	123	0.72 (0.47, 1.11)	1.29 (0.73, 2.30)
Alcohol consumption in the Last one month			*	
No	59	172	1.00	1.00
yes	62	112	1.62 (1.05, 2.48)	0.76 (0.43, 1.32)
History of drugs abuse in the last one month			*	
No	94	284	1.00	1.000
yes	27	36	1.98 (1.14, 3.44)	1.06 (0.52, 2.18)
Sex first with permanent partner			***	**
Yes	53	217	1.00	1.00
No	68	67	**4.15 (2.64, 6.53)**	**2.34 (1.35, 4.04)**
Number of sexual partners the last 12 months			***	***
One	81	274	1.00	1.00
More than one	40	10	**13.53 (6.48, 28.24)**	**5.90 (2.55, 13.61)**

NB COR- crude odds ratio with 95% confidence interval.
AOR- adjusted odds ratio with 95% confidence interval.
* = p-value < 0.05 **= p-value <0.01 *** = p-value < 0.001

5.7 Association between of socio-demographic characteristics and other selected variables with perceived HIV acquiring risks

The perceived risk of HIV infection with socio demographic and other selected variables were computed using bivariate logistic regression technique. Accordingly, types of abortion, marital status occupation, having sex at first time with permanent sexual partners, number of sexual partners in the last 12 months were examined and found to have statistically significant association with moderate to high HIV acquiring perception risk ($P < 0.001$).

The perceived risk of acquiring HIV infection was 1.6 times higher among women whose age ranges from 20-24 years compared to other. On the other hand women whose ages 35 or more were less likely to acquire HIV infection compared to others. Single and employed women had 6.9 and 4.2 times higher HIV acquiring perception risk compared to married and housewives respectively. Similarly, women who had more than one sexual partner in the last 12 months and those who had sex for the first time with their previous sexual partners were 13.5 and 4.1 times higher HIV acquiring perception risk compared to those who had sex for the firs time with their permanent sexual partner and who had sex in the last 12 months with only one sexual partner respectively. The odds of having perceived HIV infection was 1.6 times higher among alcohol consumers than non consumers. Women presented with induced abortion were found to have 5.6 times higher HIV acquiring perception risks compared to those who presented with spontaneous abortion. Age of women, educational status, and history of drug injection in the last 12 months didn't show statistical association with moderate or high risk perception (see table 10).

6. Discussion

6.1 Characteristics of post abortion care seekers

The majority of participants in this study are at the age group of 20-29 years and married. This finding keeps in touch with the study carried out at national level that 58.3 % and 64.9 % were between the age group of 20-29 and married by occupation respectively (16). History of previous abortion was also consistent with the above study but lower than other studies (16, 20). Twenty seven percent of post abortion women gave witnessed that the current abortion was interfered. The number of induced abortion cases widely varies from one study to another. Fore instance, this study showed similar proportion of induced cases with the studies conducted at community and hospital based in Gojam and at national level respectively (16, 23). On the other hand, high and low proportions of induced cases were also observed in different studies (20, 27). These differences may be explained by the willingness of women who presented with abortion to disclose the way how abortion was started.

Like others, nearly one quarter of post abortion care seekers in this study claimed that the reason of inducing the current pregnancy was financial problem (15, 23, 30). In this study nearly three quarter of women used plastic and metallic substances to induce the current pregnancies and the same method was employed in different studied with various proportions. However, unlike others, the application of these methods performed in this study at private health facilities assisted by health professionals (15, 16, 23).

Socio-demographic and selected reproductive variables with abortion were analyzed using multivariate logistic regression technique which could control the effect of confounding factors. Taking into consideration the p- values and biological plausibility, all variables which were used in the bivariate analysis included in multivariate model. Accordingly, marital status and planned pregnancy remained to be statistically significant with induced abortion ($p < 0.001$). Similarly

occupational status and education were also found to have significant statistical association ($p < 0.05$). However, the degree of their association slightly varies. On the other hand age of women, religion and their incomes which were showed statistical association in bivariate analysis, the association gone in multivariate regression model (p-value> 0.1). History of previous abortion which didn't show statistical significance in the former analysis remained statistically insignificant in multivariate analysis too.

6.2 STI, HIV/AIDS and other related factors

In this study initiation of sexual experience ranges 10-34 years with the mean and median age of women at first sex were 19.2 and 19 years respectively. This finding corresponds with the youth study in BSS Ethiopia 2002 (7).

Knowledge on sexually transmitted diseases was consistent with the finding on BSS 2005 antenatal catchments population and lower than the Assossa BSS (27, 28). The three forefront symptoms mentioned by post abortion women were also in agreement with BSS 2005 ANC catchments population i.e. burning sensation on urination, abnormal vaginal discharge and genital ulcer.

In Ethiopia knowledge on HIV/AIDS is wide spread but not universal. Ninety percent of women 15-49 years of age and 97 % men years 15-45 have heard of AIDS (26). More than 96 % of respondents from ANC service catchments population of BSS 2002 had heard about HIV/AIDS. In this study almost all 99.5 % of post abortion women have heard about HIV/AIDS. This could be explained by accessibility of information on HIV/AIDS in Adds Ababa and its surroundings. The majority of respondents in this study have heard about HIV/AIDS on radio, watching

television and reading printing medias in the past 12 months. The finding is in line with BSS 2002 ISY, ANC and Bahir Dar OSY indicated that most participants have got information through mass medias (7, 27, 29).

Two hundred forty seven out of 403 women who have heard about HIV/AIDS knew some one who was infected by HIV or died of AIDS. This is higher than the findings in BSS 2002, DHS 2000, DHS 2005, and BSS 2005 (21,29,31,37).The possible explanation could be an increasing number of people who are being infected and disclosing themselves to various medias. Like other studies misconception like" eating uncooked egg laid by chicken that has swallowed condom could transmit HIV and eating raw meat prepared by an HIV infected person could transmit the virus" still remain high (7, 8, 14, 27)

The prevalence of HIV among pregnant women estimated in 2000 and it was found that 29.6 % in Namibia, 32.3 % in Swaziland and 35 % in Zimbabwe (25). Eighty three percent of post abortion women in this study knew HIV can be transmitted from infected mother to her unborn fetus. This study is in agreement with the finding in Isiolo and Garissa district of Kenya, where 84 % and 83 % knew mother to child transmission of HIV respectively (29). This finding is also consistent with the study in Arbaminch that among 484 women interviewed at ANC follow up of Arbaminch health center 80 % of mothers were aware of the prenatal transmission of HIV infection (6). In this study most participants reported HIV positive women could transmit the virus through breast feeding. This is also in line with ANC follow up of Arbaminch health center that 86 % reported HIV positive women could transmit the virus through breast feeding (6).

Women and men are most aware that the chance of getting HIV can be reduced by limiting sex to one uninfected partner who has no other partner. Knowledge of condom and the role that it plays in preventing transmission of HIV is much less common particularly among women. Condom use remains one of the key methods to prevent HIV transmission over the past years. Partners in the response of HIV/AIDS have been involved actively in the promotion of condom use for HIV and STI prevention and contraception. Condom is an important indicator of HIV/AIDS related behavior (7). In this study three hundred ninety two (96.6 %) respondents had heard about condom and knew where to obtain it and the result is in agreement with BSS 2002 OSY report.

Considerable number (32.5 %) of post abortion care seekers claimed to have been tested for HIV 4 years back, 2-4 years back, 1-2 years back, and in the last one year by 9.9 %, 11.5 %, 26 %, and 52.7 % respectively. The finding indicated that an increasing pattern of people receiving HIV testing in the past 4 or more years. In this study the share of having high perception of HIV infection risk is 30 % which is higher compared to other study (27).

Perceived HIV/AIDS risks with socio demographic and other selected variables were analyzed using multivariate technique. All variables which were used in the bivariate regression technique included in this model too. Accordingly, the association of marital status, number of sexual partners in the last 12 months, sex first with permanent sexual partners and abortion remained to be significant with high perceived risk of HIV infection. However, the degree of their association varies. The association of income remained to be insignificant with high risk perception in the second model. On the other hand, Alcohol consumption in the last one month and drug abuse were statistically significant in the bivariate model but their association disappeared in the multivariate one.

7. Strengths of the study

- The data was collected using structured questionnaire adopted from BBS 2005 and IPS Ethiopia.
- The study could serve as a stimulus for researchers to carry out large scale study including HIV testing in this group of the population.

8. Limitations of the study

- Purposive (non probability) sampling method was employed to collect the data which is conventional method for such type of studies. Due to the drawback of this method the study findings might not be generalized to the source population.
- The study was conducted only in public hospitals and that might not give the whole picture of women coming for post abortion care.
- No HIV/AIDS studies so far done on women seeking post abortion care. Thus, it is difficult to compare the findings with appropriate study subjects.
- The result is purely depending on the response of participants. Hence there is a high chance of recall and social desirability biases.

9. Conclusions

- Unlike other studies, termination of pregnancies in this study had been carried out at private heath facilities assisted by health professionals.
- Considerable number of post abortion care seekers claimed to have been tested for HIV at least once in the past.
- The perceived risk of HIV infection is high in the study population.
- Women presented with induced abortion were found to have high perception risk to HIV infections compared to women with spontaneous abortion.
- More than three fourth participants were aware about STI and most of them were able to mention some of its commonest sign and symptoms.
- More than 50 % of participants were found to have at least one form of misconception on the mode of transmission and prevention of HIV
- The majority of participants had access to media information radio being the leading and programmes on HIV/AIDS through Yibekal and dramas drew the majorities' attention.

10. Recommendations

1. Services that are provided in the post abortion care units should be integrated with VCT.
2. To avoid misconceptions on the mode of transmission and prevention of HIV/AIDS women's education is quite important
3. Even though the level of knowledge on HIV/AIDS was high there is still gap in understanding and interpretation of the mode of transmission and prevention of HIV, therefore, proper IEC/BCC should be promoted through mass and local medias.
4. Participants who had been receiving VCT in the past 4 or more years were progressively increasing which encourages and alerts strengthening and expansion of VCT centers.
5. The perceived HIV infection risk of the study population in general single and employed women in particular was high which indicates a large scale study including HIV testing in this group of the population to see its real picture and to take appropriate corrective m

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12. Annex

Addis Ababa University

Faculty of medicine

Department of community health

Questionnaire used to assess the associated factors of HIV/AIDS on women who received post abortion care at Tikur Anbessa, Zewditu Memorial, Ghandi Memorial, Yekatit 12, and St. Paulo's Hospitals in 2006.

Introduction

Consent form

Hello, I am----------I am here to enroll and interview eligible participants, and fill in questionnaire form. I am delighted to inform you that you are one of eligible participant and chosen to take part in the study. I would like to tell you that your participation in the study is very crucial in the study out put. Although some of the questions are sensitive and private so your genuine responses are highly appreciated and valuable. I would also like to inform you that any information exchange for the study purpose is remained between you and me and confidential. Your name is not necessary to take during the interview. Your decision whether to participate or not in the study is highly respected. Would you participate in this study?

Yes -------- 2. No---------- Interviewer informed consent signature----------

Date----------Respondent ID number---------Interviewer code number--------

Thanks for your willingness to participation in this study. The interview will take around 30 minutes. I hope having taken your time you will give me genuine information to all my questions. Any question which is not clear for you please ask me for clarification. Once again I would like to thank you.

12.1 Structured questionnaire

N0	Questions	Possible response	Skip to
I. GENERAL INFORTMATION			
A. Information on hospital visit			

101	Name of hospital	1. Zewditu 2. St .paul 3. Yekatit 12 4. Ghandi 5. Tikur Anbesa	
	B. Personal information		
102	Age in completed years	Year----------	
103	Address	1. Addis Ababa 2. Others	
104	What is your occupation?	1. House wife 2. House maid 3. Student 4. commercial sex worker 5. Daily laborer 6. office worker 7. Other, specify----------	
105	What is your marital status?	1.Single 2.Married 3. Widowed 4. Divorced/separated	
106	What is your ethnicity belongs to?	1. Amhara 2. Oromo 3. Gurage 4. Tigre 5. Other, specify----------	
107	What is your religion?	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others specify----------……	
108	What is the highest level of school you completed?	1. Illiterate2. Read and write only 3. Grade 1-4 4. Grade 5-8 5. Grade 9-10 previous policy 6. Grade 11-12 previous policy 7. Grade 9-10 new policy 8. Grade 11-12 new policy 9. Other, specify…….	
109	What is your family monthly income (monthly expenditure)?	In ETH birr----------	
	C. abortion and related risks		
110	Was this pregnancy planed?	1. Yes 2. No	
111	If the pregnancy was unplanned or unwanted how the pregnancy did occ	1. Contraceptive failure 2. Friend pressure 3. Rape 4. Thought to be infertile 5. Others specify……..	
112	Number of previous abortion	Total Induced…… Total spontaneous……	
113	How did the abortion start?	1. Spontaneous 2. Induced	

114	If the abortion is induced what are the reasons to terminate pregnancy?	1. Not to have a child 2. Not to have any more children 3. Husband or partner does not want to have a child now 4. Personal health reason 5. Financial problem 6. Others	
115	Which methods were used for induction of abortion?	1. Plastic tube 2. Drug use 3. Metallic rode4. Herbal medication 5. Others specify……	
116	Who did the induction of abortion?	1. Self induced 2. Health proffesionals 3. Traditional practitioner 4. Other Specify…….	
117	Where was the induction performed?	1. Abortionist home 2. Private home of patients 3. Health facility 4. Other Specify----------	
118	If the induction was out of your home was there any client(s) who have had abortion in the same day?	1. Yes 2. No	
	II RISK BEHAVIOR ASESSEMENT		
201	Have you had alcohol drinks in the last month (including tela, tej , Areke, bear and the like)	1. Yes 2. No 3. Others specify……	
202	During the last month how often have you had drinks containing alcohol? (including tela, teg , Areke, beer and the like)	1. every day 2. every week more than once a week 3. every week at least once a week 4. few weeks more than once in a week 5. few weeks at least once in a week	
203	Some people have tried a range of different types of drugs. Which of the following, if any, have you tried?	1. khat 2. Shisha (Gaya) 3. Benzene 4. Hashish 5. Cocain 6. Heroin 7. Unknown 8. I haven't taken any drugs 9. Don't know	
204	Have you ever had drug injection in the past 12 months?	1. Yes 2. no	
	III. ASSESSMENT OF SEXUAL BEHAVIOUR		

302	With whom did you make your first sexual intercourse	1.wth steady boy friend/husband 2. With casual boy friend 3.others, specify----------	
303	How old was the person with whom you had first sexual intercourse?	1. Similar age with me. 2. five to ten years older 3. younger than me 4. Other specify	
304	With how many people have you ever had sexual intercourse with the last 12 months?	1.with one person 2.with two people 3.with three people 4.with four or more people	
305	Have you ever heard of diseases that ca transmitted through sexual intercourse?	1. Yes 2. No	
306	Can you describe symptoms of STIs (**More** than one answer is possible).	1. abdominal pain 2. Genital discharge 3. Foul smelling genital discharge 4. Burning pain on urination 5. Genital ulcers/sores. 6. Swellings in groin area 7. Itching on the genital area. 8. Other (specify)_____	
307	Have you had genital **discharge/ulcer/ sores** during the last 12 months?	1. Yes 2. No	
308	What did you do when you had genital discharge or ulcer last time? (more than one answer is possible)	1. Sick medicine from government Health facility 2. Sick medicine from private facility 3. Sick medicine from traditional healer 4. Did not take any action 5. Others (specify)----------	
309	How long after first experiencing symptoms did you seek advice from a health worker in a clinic or hospital?	1. 1 week or less 2. Less than 1 month 3. One month or more	
IV KNOWLEDGE ATTITUDE AND OPENION ABOUT HIV/AIDS			
401	Have you ever **heard** of HIV or the disease called AIDS?	1. Yes 2. No	
402	If you heard about HIV/AIDS from which source did you get more information (more than one answer is possible)	1. My parents 2. Sexual partner 3 .Health institutions. 4. Newsletter, posters and pamphlets. 4. Radio and television 5.Others,specify----	

403	What are the ways of HIV transmission?	1.Through multiple sexual partners 2. Having sex with unfaith full partner 3. Through contaminated sharp materials injection. 4. Through blood transfusion 5From infected mother to children. 6. Other, specify.	
404	Do you know anyone who is infected with HIV or who has died of AIDS?	1. Yes 2. No	
405	Can people protect themselves from HIV,the virus that causesAIDS by usingcondom **correctly every time** they have sex?	1. Yes 2. yes, but not 100% 3. No	
406	Can a person get the HIV virus from mosquito bites?	1.Yes 2. No	
407	Can a person get the HIV virus from eating uncooked eggs from a chicken that has swallowed a condom?	1. Yes 2. No	
408	Can a person get HIV by using contaminated needle?	1.Yes 2. No	
409	Can a person get the HIV from eating food prepared by a person infected by the virus?	1. Yes 2. No	
410	Can people protect themselves from HIV by drinking local hard liquors or eating hot pepper?	1. Yes 2. No	
411	Can people protect themselves from HIV by having one uninfected faithful sexual partner?	1.Yes 2. No	
412	Can people protect themselves from HIV by abstaining from sexual intercourse	1.Yes 2.No	
413	Do you think that a healthy-looking personcan be infected with HIV, the virusthat causes AIDS?	1. Yes 2. No	
414	Have you Discussed HIV/AIDS with your partner in the last 12 months? With a family member? With someon in your community outside your fami (other than a provider/counselor/peer educate?)	1. Yes 2. No	
415	Can a pregnant woman infected with HIV or AIDS transmit the virus to he unbornchild?	1. Yes 2. No	
416	What can a pregnant woman do to reduce the risk of transmission of HIV to her unborn child? **(more than one answer is possible)**	1. Take Antiretroviral medication 2. Abortion 3. Consulting health professional 4. Nothing could be done Others(specify)_____	
417	Can a woman with HIV or AIDS transmit the virus to her newborn chi through breastfeeding?	1. Yes 2. No	

418	I don't want to know the result, but have *you* ever had an HIV test?	1. Yes 2. No	
419	Did you voluntarily undergo the HIV test, or were you required to have the test?	1. Voluntary 2. Required 3. Specify if other ……	
420	Please do not tell me the result, but did you find out the result of your test	1. Yes 2. No	
421	When did you have your most recent HIV test?	. Less than one year 2. Between 1-2 years 3. Between 2-4 years 4. More than 4 years	
	V EXPOSURE TO INFORMATION		
501	Have you ever ***heard of*** condom?	1. Yes 2. No	
502	Please tell me the place or person where you can get condom? (more than one answer is possible)	1. Shop 2.Pharmacy 3. Market place 4.Privet clinic 5. Health center/ Hospital 6. I don't know 7. If other specify----------	
503	What are the uses of condom? (Circle all possible responses)	1. To prevent pregnancy 2. To prevent STI 3. To prevent HIV/AID 4. Others, if any-----	
504	Have you heard any messages about HIV/AIDS on radio in the last 12-month?	1. Yes 2. No 3. Other specify----------	
505	What was the program?	1. Advertisement 2.Drama/play 3. News 4. Others (specify)	
506	What is your comment on the clearliness of the messages on HIV/AIDS delivered by radio?	1. Very clear 2. Clear 3. Not clear 4. Sometimes clear sometimes not 5. Others specify……	
507	Have you seen any messages about HIV/AIDS on TV in the last 12-months?	1. Yes 2. No 3. Others specify……	
508	What is your comment on the clearliness of the messages on HIV/AIDSdelivered by television?	1. Very clear 2. Clear 3. Not clear 4. Sometimes clear sometimes not 5. Others specify……	
509	Have you seen or read any articles about HIV/AIDS on print press (newspapers, magazines, etc.) in the last 12 month?	1.Yes 2.No 3. Other specify……	
510	Do you know that there is an online telephone counseling service?	1. Yes 2. No	
511	Have you ever used online telephone counseling service?	Yes No	
512	Have you been approached/discussed HIV/AIDS issues with a "peer educat in a youth club, social venue, religiou organization, on the street, or other similar venue in the last 12-month?	1. Yes 2. No	
	VI CARE AND SUPPORT		

601	If you have a member of your family whohas been sick fora long time from AIDS, how would you take care in handling body fluids like diarrhea, vomit,sputum and blood? (**More than one response is possible)**	1. No special care 2. Use plastic gloves 3. Ask someone else to help 4. I will use festal 5.Other(specify----------	
602	Who do you think is the right group to provide this type of service? **(more than one answer is possible)**	1. Family members 2. Volunteers 3. Neighbors 4. Religious groups 5. Health workers 6. Others (specify	
603	Do you know that there is a treatment for AIDS?	1. Yes 2. No	
604	Can this treatment cure AIDS?	1. Yes 2. No	
VII PERCEPION ABOUT RISK TO HIV/AIDS			
701	What are your chances of getting infected with HIV?	1. No chance 2. Low chance 3. Moderate 4. High 5. Others specify …….	
702	If your response is NO or LOW chance Why? (more than one answer is possible)	1. I trust my sexual partner 2. No injection with contaminated needles 3. I am Healthy and have no contact with HIV infected person 4. others specify_____	
703	If your response is moderate or high chance why? **(more than one answer is possible**	1. I had sexual contact with HIV positive person 2. I had sex without condom 3. I have more than one sexual partner 4. I had induced abortion 5. I had accident with sharps 6. Other(specify)----------	

12.2 Qualitative method

1. In-depth interview with clients

1. Reasons for current pregnancy

- Do you know about contraceptive methods?
- Which contraceptive methods have you ever used?
- What do you know about condom?
- How was the current pregnancy occurred?

2. Termination of pregnancy

- What are the reasons that women tend to terminate their pregnancy?
- What should be done in the future for women who will have unwanted pregnancy?

3. The interaction of HIV/AIDS and abortion

- -Where was induction of abortion performed?
- -How many trials have you made to induce abortion?
- -What were the instruments used for induction of abortion?
- -How do you see those instruments in relation to HIV transmission?
- Was there any other client(s) in the same place to have an induce abortion like you?
- -What do you know about the relation of HIV transmission and having an induced abortion?
- Why most women like to have induced by non-professional personnel's and what could be the risk?

4. Sexual relations and the issue of HIV/AIDS

- -Have you ever discussed about the issue of HIV/AIDS with your friend/ partner/ husband or families?
- -Have you ever tested for HIV? If not, why?
- Do you know the HIV Sero- status of your sexual partner(s)? If not, why?
- -Why HIV and abortion are common among young a

2. Interview with service providers

Name of health facility_____
Position of respondent_____
Date_____

- What components of post abortion care are provided in your health facility?
- How do you integrate these post abortion services?

- What HIV related counseling services available in this hospital?
- The prevalence of HIV is believed to be high among women who presented with an induced abortion. What special attention is given for this group of clients?
- What strategies have you designed to prevent the occurrence of induced abortion and the possibility of transmission of HIV /AIDS?

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lØ`	ØÁo-‹	›T^ß SMf‹	¨Å ØÁo
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101	¾Jeú K< eU	1. ²¨<Ç=~ S cu=Á 2. pÆe ä¨<Kae 3. ¾"+ƒ Jeú M 4. Ò"Ê S cu=Á 5. Øl` ›"ud	
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102	°ÉT@- e”ƒ ’¨<;	----------›Sƒ	
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104	Y^- U”É ’¨<;	1. ¾u?ƒ Su?ƒ 2. ¾u?ƒ c^}— 3 }T] 4. c?}— ›Ç] 5. ¾S”Óeƒ c^}— 6. Y^ ›Ø 6. K?L ŸJ’ ÃÓKÖ< ----------	
105	¾Òu=‰ G<’@ U”É” ’¨<;	1. ÁLÑv 2. ÁÑv 3. ›Ów„ ¾V}uƒ 4. ›Ów„ ¾}ó /¾}KÁ¿	
106	wN?`- U”É” ’¨<;	1. ›T^ 2. *aV 3. Ñ<^Ñ@ 4. ƒÓ_ 5. K?L ŸJ’ ÃÓKè----------	
107	ÃT•ƒ- U”É” ’¨;<	1. *`„Ê¡e 2. .S<eK=U 2. ýa}e”ƒ 4. "„K=¡ 5. K?L ŸJ’ ÃÓKç----------	
108	¾ƒUl`ƒ Å[Í U”É” ’¨<;	1. ›M}T`Ÿ<U 2. T”uw“ Síõ w‰ 3. Ÿ1-4— ¡õM 4. Ÿ5—-8— ¡õM 5. Ÿ9-10— uÆa 6. Ÿ11-12— uÆa 7. Ÿ9-10 u›Ç=c< 8. Ÿ11-12 u›Ç=c< 9. K?L ŸJ’ ÃÑKê----------	
109	¾ÒÅ—-/¾u?}c- ¾¨` Ñu= U” ÁIM ’¨<;	¾¨` Ñu= uw`----------	
N. c’}ªMÊ]¡ u}SKŸ}			
110	ÃI `Ó´“ upÉ Sc[ƒ ¾}ðçS ’¨<”;	1. ›- 2. ›ÃÅMU	
111	upÉSc[ƒ ÁM}ðçS ŸJ’ ”Èƒ K=Ÿcƒ ‰K;	1. u¨K=É SŸLŸÁ ‹Ó` 2. uÒÅ— Óòƒ 3. }Åõ_ ’¨< 4. ¾TL[Ó´ SeKA˜ ’¨< 5. K?L ŸJ’ ÃÑKê----------	
112	U” ÁIM Ñ>²? ›e-`É-M;	}’Ÿ¡„---- u^c< Ñ>²?------	
113	ÃI ¨<`Í ”Èƒ }Ÿc};	u^c< Ñ>²? }’”¡„ ËS[	
114	¨<`Í¨< }’”¡„ ŸJ’ ¾ËS[¨< KS’””ƒ ÁeÑÅÅ¨< U¡”Áƒ U”É”¨<;	1. MÏ ”Ç=•[˜ eKTMðMÓ 2. }ÚT] MÏ eLMðKŸ<< 3. vKu?} ¨ÃU ÕÅ—Â MÏ eKTÃðMÓ 4. uÖ?“ ‹Ó` ¾}’d 5. ¾Ñ”²w ‹Ó` eLKw˜ 6. K?L ŸJ’ ÃÑKê----------	
115	`Ó´“ ”Ç=s[Ø ¾}Å[Ñ¨< uU”É” ’¨<;	1. uýLe+¡ ~x 2. SÉG’>ƒ uSªØ 3. uw[ƒ ²”Ó uSÖkU 4. uvIM SÉG’>ƒ 5. K?L ŸJ’ ÃÑKê----------	
116	`Ó´“- ”Ç=s[Ø ÁÅ[Ñ¨< T¨¨??;	1. ”@ ^c? ’˜ 2. ¾Ö?“ vKS<Á 3. uMUÉ ¾I¡U“ ›ÑMÓKAƒ cÜ 4. K?L ŸJ’ ÃÑKî ----------	
117	¾`Ó´“ Ss[Ø ¾}Å[Ñuƒ x ¾ƒ ’¨<;	1. u^c? u?ƒ 2. uÖ?“ É`Ïƒ 3. ¨<`Í” v”H@Å¨< c¨< u?ƒ ¨<eØ 4. K?L ŸJ’ ÃÓKê----------	
2. Kc<e }ÒLß’ê” u}SKŸ}			
201	vKð¨< 1 ¨` ›M¢M SÖÙ‹ ÖØ}¨< Á¨<nK<”? (ÖL' ÖÏ' u=^”“ ¾SdcKƒ”U ÃÚU^M)	1. ›- 2. ¾KU 3. K?L ÃÑKê----------	

202	vKð¨< 1 ¨` ›M¢M SÖÙ‹ ›¨dcÉ- ”È*ƒ* 'u`;	1. u¾k'< 2. udU”*ƒ* Ÿ1 Ñ>²? uLÃ 3. udU”*ƒ* u=Á”e 1 Ñ>²? 4. u}¨c'< dU”*ƒ* Ÿ1 Ñ>²? uLÃ 5. u}¨c'< dU”*ƒ* udU”*ƒ* 1 Ñ>²?	
203	›”Ç”É c-‹ ¾}KÁ¾ ›Å”³¶/ ›'nm 'Ña‹ Ã¨eÇK<:: ›`e- Ÿ²=I uò*ƒ* Ÿ}ÖkS< ¾*ƒ*—¬” ›Ã'*ƒ* î ¨eÅ¨< Á¨<nK<;	1. Ý*ƒ* 2. g=h/ÒÁ 3. u?”²=”/G^”v 4. Gg=i 5. ¢Ÿ?Ã” 6. H@aÃ” 8. eS<” ¾TL¨<k¨< 9. U”U ›M¨cÉŸ<U	
204	vKñ*ƒ* 12 ¨^*ƒ* uS`ô ¾T>¨cÆ ›Å”³» ï‹” }ÖpS¨< Á¨<nK<”;	1. ›-” 2. ›L¨<pU	
3. eK Ów[eÒ Ó'<˜*ƒ* ¡ u}SKŸ}			
301	¾Ów[YÒ Ó'<˜*ƒ* KSËS]Á Ñ>²? cÁÅ`Ñ< ÉT@- e”*ƒ* 'u`;	°ÉT@ u¯S*ƒ* ----------	
302	¾Ów[YÒ Ó'<˜*ƒ* uSËS]Á Ñ>²? ÁÅ`Ñ<*ƒ*< ŸT” Ò` '˜<	1. ›wa˜ "K¨< vM ¨ÃU ÕÅ—Â Ò` 2. u›Ò×T> Ÿ}Ñ“–G<<*ƒ* c¨< Ò` 3. K?L ŸJ' ÃÑKî ----------	
303	¾Ów[YÒ Ó'<˜*ƒ* KSËS]Á Ñ>²? ÁÅ[Ñ<*ƒ* c¨< °ÉT@¨< Ÿ`f U” ÁIM M¿'*ƒ* 'u[¨<	1. }SddÃ °ÉT@ LÃ 'u`” 2. Ÿ 5-10 ¯S*ƒ* ÃuMÖ—M 3. Ÿ 10 ¯S*ƒ* uLÃ ÃuMÖ—M 4. Ÿ'@ uÉT@ Á”dM 5. K?L ŸJ' ÃÑKî----------	
304	uvKð¨< 12 ¨` ¨<eØ ŸU” ÁIM c¨< Ò` ¾Ów[YÒ Ó”–<'*ƒ* ›É`ÑªM;	1. Ÿ›”É c¨< Ò` w‰ 2. ŸG<K*ƒ* c¨< Ò`w‰ 3. ŸZe*ƒ* c¨< Ò` 4. Ÿ›^*ƒ* ¨ÃU Ÿ²=Á uLÃ	
305	uÓw[eÒ Ó”–<'*ƒ*¾T>}LKñ ¾›vK²` ui-‹ S•^†¬” cU}¨< Á¨<nK<”;	1. ›-” 2. ›L¨<pU	
306	uÓw[eÒ Ó”–<'*ƒ* ¾T>}LKñ ¾›vK²` ui-‹ ¾T>Ád¿*ƒ*” UM¡„‹ u=Öpc<M˜; (Ÿ1 uLÃ SMe Ã‰LM)	Ÿ Uw`*ƒ* u‹ JÉ ISU 2. ¾wM*ƒ* ðdi 3. SØö i ÁK¬ ¾wM*ƒ* ðdi 4. i”*ƒ* c=g'< ¾TnÖM eT@*ƒ* 5. ¾wM*ƒ* leM 6. ¾wii*ƒ* wÖ*ƒ* 7. ¾wM*ƒ* TdŸ¡ 8. K?L (ÃÑKî)------	
307	vKñ*ƒ* 12 ¨^*ƒ* ¬eØ Ÿ¨*ƒ*a ¾}K¾ ŸwM*ƒ*- ðdi S¨<×*ƒ*/SlcM 'u`”;	1. ›-” 2. ¾KU	
308	¾wM*ƒ* ðdi ¨ÃU ¾wM*ƒ* leM/SLØ vÒÖS- Ñ>²? U” ›É`Ñ¨< 'u`; uLÃ SMe Ã‰LM)	**1.** ŸS”Öe*ƒ* ¾Ó?“ }sT*ƒ* U¡` ¨ÃU/SÉG'>*ƒ* ›Ó¨‰KG<< **2.** ŸÓM ¾Ö?“ }sT*ƒ* U¡` ¨ÃU SÉG'>*ƒ* ›Ó¨‰KG<< **3.** ŸvQM SÉH'>*ƒ* ›ªm-‹ U¡` ¨ÃU SÉG'>*ƒ*›Ó¨‰K%G< **4.** U”U 'Ñ` ›M}ÖkUŸ<U **5.** K?L ŸJ' ÃÑKè----------	
309	¾ISS< UM¡„‹ Ÿ¿ Ÿe”*ƒ* Ñ>²? u%EL ¨Å Ö?“ }sT*ƒ* H@Å¨< Ö?“ vKS<Á U¡` Ö¾l;	1. Ÿ›”É dU”*ƒ* u‹ 2. Ÿ1 ¨` u‹ 3. Ÿ1¨` uLÃ	
4. eK ›?‹ ›Ã y=/›?Ée ¬k*ƒ*' ›e}Á¾*ƒ* “ ›SK"Ÿ*ƒ*” u}SKŸ}			
401	Ÿ›G<” uò*ƒ* eK ›?‹ ›Ã y= ¨ÃU ›?Ée ui cU}¨< Á¨<nK<”;	1. ›-” 2. ›MWTG<U	

402	cK ›?‹ ›Ãy= ›?Ée cU}¨< ŸJ' ÃÌ"" ¾cS<ƒ Ÿ¾ƒ—¨< ¡õM (U"ß) '¨<;	1. Ÿu?}cxŠ 2. ŸvM ¨Ã"U ŸÕÅ— 3. ŸÖ?“ É`Ï„‹ 4.ŸÒ²?×“ ŸK?KA‹ èG<ö‹ 5. Ÿ_ÉÄ 6. K?KA‹ "K< ¾ÑKì----------	
403	¾›?‹ ›Ãy= S}LKòÁ S"ÑÊ‹ U"É" “†¨< (Ÿ1 uLÃ SMe Ã‰LM)	1. Mp ¾J' ¾Ów[eÒ Ó"–<'ƒ 2. T˜ ŸMJ' ÕÅ— Ò` ¾Ów[ YÒ Ó'<˜ƒ TÉ[Ó 3.eKƒ vL‹¨<“ u}uŸK< 'Ña‹ S¨Òƒ 4. uÅU ˜¨<¨<` ›T"˜ƒ 5. zÃ[c< "Kvƒ “ƒ ¨Å ê"e ¨ÃU ¨Å T>Öv MÏ 6. K?L "K ÃØkc ----------	
404	u›?‹ ›Ã y= ¾}Á² ¨ÃU u›?Ée ¾V} c¬ Á¨<nK<";	1. ›-" 2. ›L¨<pSkU	
405	c-‹ uÓw[eÒ Ó"–<'ƒ ¨pƒ G<M Ñ>²?“ u›Óvu< ¢"ÊU uSÖkU ^d†¬" Ÿ›?‹ ›Ã y= SŸLŸM Ã‹LK<;	1. ›-" 2. ›-" J•U Ÿ 100 % u‹ 3. ›Ã‰MU	
306	u¨v ƒ"˜ ›T"˜'ƒ ›?‹ ›Ã y= K=}LKõ Ã‹LM;	1. ›-" 2. ›Ã‹MU	
407	¢"ÊU ¾ªÖ‹ Êa ¾×K‹¬ "lLM Ø_¨< u=uL/u=Ö× ›?‹ ›Ã y= K=Ác=´ Ã‹LM?	1. ›-" 2. ›ÁeÃ´U	
408	K?L c¬ u}¨Òuƒ S`ô uSÖkU ›"É c¬ ›?‹ ›Ã y= K Ã‹LM";	1. ›-" 2. ›ÃÁ´U	
409	u›?‹ ›Ã y= ¾}Á² c¨< Á²ÒË¨<" UÓw Ø_ YÒ/¡ƒö SwLƒ ›?‹ ›Ã y= Áe}LMóM;	1. ›-" 2. ›Ác}LMõU	
410	¾›M¢M SÖÙ‹" SÖ×ƒ ¨ÃU ¾T>ÁnØM u`u_ SwLƒ Ÿ›?‹ ›Ãy=/›?Ée K=ŸLŸM Ã‹LM;	1. ›-" 2. ›Ã‹MU	
411	Ÿ›"É T˜“ zÃ[c< ŸK?Kuƒ ¾Ów[eÒ ÕÅ— Ò` uS¨c" ^e" Ÿ›?‹ ›Ãy= SŸLŸM Ã‰LM";	1. ›-" 2. ›Ã‹MU	
412	ŸÓw[eÒ Ó"–<'ƒ uSkw Ÿ›?‹ ›Ãy= SŸLŸM Ã‰LM;	1. ›-" 2. ›Ã‰MU	
413	›"É Ö?'— ¾T>SeM c¬ u›?‹ ›Ãy= ¾}Á² K=J" Ã‹LM;	1. ›-" 2. ›Ã‹MU	
414	vKñƒ 12 ¨^ƒ ¬eØ ›?‹ ›Ã y= ›?Ée" u}SKŸ}" Ÿ˜"É ÕÅ™-' Ÿu?}cw ¨ÃU ŸK?L c¬ Ò` }¨ÁÃ}ªM";	1. ›-" 2. ›M}«Á¾G<U	
415	u›?‹ ›Ãy= }lªe ¾}Á²‹ 'õc Ö<` c?ƒ uTlì"E LK î"e zÃ[c<" M e}LMõ ƒ‹LK‹;	1. ›-" 2. ›ƒ‹MU	
416	u›?‹ ›Ã y= ¾}Á²‹ 'õcÖ<` "ƒ ›?‹ ›Ãy= ¨Å î"c< "ÇÃ}LKõ U" TÉ[Ó ›Kvƒ; (Ÿ1 uLÃ SMe Ã‰LM)	1. ¾zÃ[e SŸLŸÁ SÉ'>ƒ SÖkU 2. Te¨[É 3. ¾Ö?“ vKVÁ TTŸ` 4. U"U TÉ[Ó ›Ã‰MU	
417	u›?‹ ›Ã y= ¾}Á²‹ c?ƒ Ö<ƒ uTØvƒ ¨Å}¨KÅ¬	1. ›-" 2. ›ƒ‹MU	

	Ií" zÃ[c<" Te}Lkõ *ƒ*‹LK‹;		
418	¬Ö?~" ›*ƒ*"Ñ]˜:: Ó" ¾›?‹ ›Ã y= U`S^ ›É`Ñi ¬nKi;	1. ›-" 2. ›L¨<pU	
419	uõnÅ˜*ƒ* '¬ ¾}S[S`ï¨< ¨Ãe U`S^ "É Å`Ñ> }ÖÃk¨< 'u`;	1. uõnÅ˜*ƒ* 2. }ÖÃo	
420	K'@ ¬Ö?~" ›Ã"Ñ\˜ 'Ñ` Ó" K^ei- ¬Ö?~" ›¬kªM";	1. ›-" 2. ›L¨pG<U	
421	KSÚ[h Ñ>²? ¾›?‹ ›Ãy= U`S^ ÁÅ[Óï¨< SŠ '¬;	1. ¯S*ƒ* ›MVL˜U 2. Ÿ1 ¯S*ƒ* uò*ƒ* 3. Ÿ2 - 4 ¯S*ƒ* 4. Ÿ 4 ¯S*ƒ* uLÃ	
	5. Ÿ²=l uò*ƒ* eLÑ–<*ƒ* S[Í' *ƒ*Ul`*ƒ*" Ó"³u		
501	eK ¢'ÊU cU}¨< Á¬nK<";	1. ›-" 2. ›L¨<pU	
502	¢'ÊU ¾T>gØv†¨</ ¾T>Ñ–<u*ƒ* x-‹" u=Öpc<KM˜; (Ÿ1 uLÃ SMe Ã‰LM)	1. uc<p ¬eØ 2. uó`Tc= 3. uÑvÁ x 4. uÓM ¡K='>¡ 5. uÖ?" ×u=Á/Jeú M 6. K?L ŸJ'ÃÖke----------	
503	¾¢"ÊU ØpU/ØpV‹ U"É" "†¨< (Ÿ›"É uLÃ SMe Ã‰LM)	1. `Ó´"" KSŸLŸM 2. ÁvL²` ui" KSŸLŸM 3. ¾›?‹ ›Ãy= zÃ[e" KSŸLŸKc 4. K?L ŸK ÃÑKê----------	
504	vKñ*ƒ* 12 ¨^*ƒ* ¬eØ eK ›?‹ ›Ãy=/ ›?Ée u_Ç=Ä ¾T>}LKõ SM¡*ƒ* cU}HM;	1. ›-" !.. ›MgTG<U	
505	ØaÑ^S< U"É" 'u`;	1. Tc-mÁ 2. Å^T 3. ²?" 4. ML ŸJ' ÃÑKê----------	
506	u_Ç=Ä eKT>}LKñ*ƒ* ¾›?‹ ›Ã y= ›?Ée SM°¡„‹ ÓMî'*ƒ* U" ›e}Á¾*ƒ* ›KA*ƒ*;	1. u×U ÓMî '¬ 2. ÓMî '¬ 3. ›"Ç"É Ñ>²? ÓMî '¬ ›"Ç"É Ñ>²? ›ÃÅKU 4. ÓMî ›ÃÅKU 5. K?L ŸJ' ÃÓKè----------	
507	vKñ*ƒ* 12 ¨^*ƒ* ¬eØ eK ›?‹ ›Ãy=/ ›?Ée u}SKŸ} u,K?y= ¾T>}LKõ SM¡*ƒ* cU}ªM;	1. ›-" 2. ›McTG<U	
508	u,K?y=»" eKT>}LKñ*ƒ* ¾›?‹ ›Ã y= ›?Ée SM°¡„‹ ÓMî'*ƒ* U" ›e}Á¾*ƒ* ›KI;	1. u×U ÓMî '¬ 2. ÓMî '¬ 3. ›"Ç"É Ñ>²? ÓMî '¬ ›"Ç"É Ñ>²? ›ÃÅKU 4. ÓMî ›ÃÅKU 5. K?L ŸJ' ÃÓKè----------	
509	vKñ*ƒ* 12 ¨^*ƒ* ¬eØ eK ›?‹ ›Ã y= ›?Ée ¾}íñ îG<ö‹" (uÒ²?×'uSêN?*ƒ*'... ¨²}) ›Ó˜}I ›"wuGM;	1. ›-" 2. ¾KU 3. KL ŸJ' ÃÑKê----------	
510	ueM¡ eK ›?‹ ›Ã y=/›?Ée S[Í" ¾U¡` ›ÑMÓKA*ƒ* "ÅT>cØ Á¨<kK<";	1. ›-" 2. ›L¨<pU	
511	u›ÑMÓKA~ }ÖpS¨< Á¨<nK<";	1. ›-" 2. ›L¨<pU	

512	vKñƒ 12 ¨^ƒ ¬eØ uT"—¨<U ›Ò×T> eK ›?‹ ›Ãy= Ñ<ÇÃ uTQu^© Ó"–<'ƒ 'uNÃT•ƒ É`Ïƒ' uÔÇ“ LÃ' œ‰ K›‰ ¨ÃU K?L }TddÃ G<'@ k`x Á¨Á¿ƒ ›‰ ¨ÃU Ÿ<Á ›e}T] 'u`;	1. ›-" 2. ¾KU	
6. "¡w"u?“ ÉÒõ u}SKŸ}			
601	u›?Ée ui K[ÏU Ñ>²? ¾SS ¾u?}cw ›vM u=•`¡ leKA‡"'ÅS<"'SÓK<"' }pTÖ<"'ƒ¬Ÿ~" ' ¾SdcK<ƒ" uUïÏuƒ ¨pƒ U" ›Ã'ƒ Ø"no Å`Ñ>ÁKi; (Ÿ1 uLÃ SMe Ã‰LM)	1. U"U ¾}K¾ Ø"no ›LÅ`ÓU 2. "ìÇG<Kƒ u%EL ÐŠ" ÖvKG< 3. ¾ýLe+¡ Õ"ƒ ÖkTKG< 4. K?L c¬ "Ç=[Ç˜ ÖÃnKG< 5. ôe M ÖkTKG< 6.K?L ŸJ'ÃÑKî_____	
602	K›?Ée IS<T" ¾›"¡wŸu? ›ÑMÓKA„‹" KSeÖƒ ƒ¡¡K—¬ ›"M T" '¬ wK¨< ÁevK<; (Ÿ1 uLÃ SMe Ã‰LM)	1. ¾u?}cw ›vLƒ 2. uÑA ðnÅ™‹ 3. Ô[u?„‹ 4. ¾NÃT•ƒ u<É•‹ 5. ¾Ö?“ vKS<Á-‹ 6. K?L(ÃÑKî)_____	
603	K›?Ée ¾T>J" Q¡U“ S•\" Á¨<nK<";	1. ›- 2. ›L¨<pU	
604	Q¡U"¨< ›?Ée" Sð¨e Ã‹LM;	1. ›- Ã‹LM 2. ›Ã‹MU	
	7. K›?‹ ›Ã y= ¾SÒKØ ÓL© du ?		
701	Ÿ›G<" uòƒ u›?‹ ›Ãy= ¾SÁ´ ÉM- U" ÁIM '¬ ÃLK<;	1. U"U 2. ´p}— 3. S"ŸK— 4. Ÿõ}—	
702	¾SÁ´ ÉM ¨ÃU ›Ò×T> U"U ¨ÃU ´p}— ŸJ' KU"; (Ÿ1 uLÃ SMe Ã‰LM	1. ÕÅ—Â" ›U KG< 2. K?L c¬ u}¨ÒuƒS`ô }¨ÓŠ ›L¬pU 3. G<M Ñ>²? ¢"ÊU eKUÖkU 4. Ö?'— eKJ"Ÿ<“ u›?‹ ›Ãy= Ÿ}Á² c¬ Ò` Ó"–<'ƒ eKK?K 5. K ?L ŸJ' ÃÑKê--------	
703	SMe- ÉMi/ ›Ò×T> S"ŸK— ¨ÃU Ÿõ}— '¬ ¾T>M ŸJ' KU"; (Ÿ1 uLÃ SMe Ã‰LM	1. u›?‹ ›Ã y= Ÿ}Á² ÕÅ—Â)` ¾Ów[eÒ Ó"–<'ƒ eK›Å[Ÿ< 2. ÁK ¢"ÊU ¾Ów[eÒ Ó"–<'ƒ eKðçUŸ< 3. Ÿ›"É uLÃ ¾Ów[eÒ Ó"–<'ƒ ÕÅ— eLK˜ 4. ¢"ÊU eK}ud/ eK}kÅÅ 6. ueK U 'Ña‹ eK}¨ÒG< ¨ÃUeK}q[ØŸ< 7. K?L ŸJ'ÃÑKê) _____	

KnK UMMe ¾k[u SÖÃp

1. ¬`Í" u}SKŸ} ŸÅ"u™‹ Ò` ¾}Å[Ñ nK UMMe

1. ¾›G<'<" `Ó´“ u}SKŸ}

- ✓ -eK ¨MÉ SŸLŸÁ ²È-‹ Á¨"K<";
- ✓ -¾ƒ—¨<" ¾UŸLŸÁ ²È Ÿ²=I uòƒ }ÖpS¨< Á¨<nK<;

- ✓ -eK ¢'ÊU U" Á¬nK;
- ✓ -ÃI `Ó´" "È*ƒ* '¨< '¨< ¾k[w-;

2. `Ó´" Tn[Ø u}SKŸ}

- ✓ c?„‹ ¬`Í ¾T>Á"H>Æu*ƒ* U¡'>Á*ƒ* U"É" '¨<;
- ✓ ¨Åò*ƒ* ¬`Í KT>ðMÑ< e„† U" SÅ[Ó ÁKu*ƒ* ÃSeM-M;

3. ¾›? ‹.›Ã.y= ›?Ée " ¬`Í Ó'<˜*ƒ* u}SKŸ}

- ✓ ¬`Ë¨<" ÁŸHÆu*ƒ* x ¾*ƒ* '¨<;
- ✓ ¬`Í¨<" KTŸH@É U" ÁIM S<Ÿ^ }Å`ÒM;
- ✓ ¬`Í¨<" KTŸIÉ ¾}ÖkS<u*ƒ* Sd]Á U"É" 'u`;
- ✓ K¨<`Í ¾}ÖkS<u*ƒ* Sd]Á ›? ‹.›.y= ŸTe}LKõ ›"é` "È*ƒ* Á¿M;
- ✓ ¬`Í eTŸH@É K?L ›ÑMÓKA*ƒ* ¾T>ðMÓ c?*ƒ* 'u`";
- ✓ eK ¬`Í TŸH@É" ›? ‹.›Ã.y= ´UÉ" U" ¾T>'Ó\˜ 'Ñ` ›K;
- ✓ w²< e„‹ KU"É" '¨< ¬`Í Ö?" vKS<Á vMJ' c¨< ¾T>ÁŸH>Æ*ƒ* U"e ‹Ó` K=Áe†Ó`v†¨< Ã‹LM;

4. eK Ów[eÒ Ó'<˜*ƒ*" ›? ‹.›Ã.y= ›?Ée u}SKŸ}

- ✓ eK ›? ‹.›Ã.y= ›?Ée u}SKŸ} ŸÒÅ™-/u?}cw- Ò` ¬ÃÃ*ƒ* ›É`Ñ¨< Á¬nK<";
- ✓ ¾›? ‹.›Ã.y= U`S^ ›É`Ñ¨< Á¨<nK<"; ŸLÅ[Ñ< KU";
- ✓ eK vKu?*ƒ*- ¨Ã"U õp[—- ¾›?†.›Ãy= G<'@ Á¨<nK<";
- ✓ ›? ‹.›Ã.y= " ¬`Í u¨×„‹ LÃ KU" uw³*ƒ* ÃŸc M;

2. Ÿ›ÑMÓKA*ƒ* cÜ-‹ Ò` ¾}Å[Ñ ¬ÃÃ*ƒ*

¾Ö?" É`Ï~ eU----------

¾SMe cÜ¨< ¾e^ É`h----------

k"----------

- ¾¬`Í ‹Ó` LÒÖT†¨< c?„‹ ¾T>c×†¨< ›ÑMÓKA„‹ T”U” “†¨<;
- ’²=I” ›ÑMÓKA„‹ ’È*ƒ* ¨< ¾U k“Í†¨<;
- Ÿ¾›? ‹.›Ã.y= ›?Ée Ò` u}ÁÁ² ¾T>cÖ< ›ÑMÓKA„† U”É” “†¨<;
- ¾¾›? ‹.›Ã.y= ›?Ée e`ß*ƒ* ¬`Í uT>ÁŸH>Æ c?„‹ LÃ u`Ÿ*ƒ* K=M Ã†LM }wKA Ã S“M; K’²=I ›Ã’*ƒ* c?„‹ U” ¾}K¾ *ƒ*Ÿ<[*ƒ* ¾U*ƒ*cÖ<*ƒ* ’Ñ` ›K;
- ¾¬`Í ¡e}*ƒ*” KSk’e“ ¾›? ‹.›Ã.y= ›?Ée e`ß*ƒ* KSŸLŸM U” ¾k¾d‹G<*ƒ* pÉ ›K;