RESPONSE TO HIV/AIDS PREVENTION MESSAGES: BASED ON THE EXTENDED PARALLEL PROCESS MODEL, AMONG BAHIR DAR UNIVERSITY STUDENTS, NORTH WEST ETHIOPIA

BY

AMSALU SHIFERAW, (BSC)

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH

JUNE 2004

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JUNE 2004

ADISS ABABA

DECLARATION

I the undersigned MPH student declare that this thesis is my original work in partial fulfillment for the requirements for the degree of Master of Public Health. The thesis my original work has not been presented for a degree in only other University and that all the sources of the materials used for the thesis and all people and institutions that gave support for this work are duly acknowledged.

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Acknowledgements

First and for most I would like to express my deepest gratitude to my Advisors Ato Fikere Enquselesse and Dr. Abera kumie for their un reserved guidance and encouragement at all the steps of this project.

I am also grateful to thank Dr. Tefere Gedife for his constructive comments and for his precious time devoted in reviewing this thesis. My appreciation is also extended to Professor Kim Witte who developed the model and sends me reference materials.

My heartfelt thanks go to Ato Alemu Kebede and Engineer Daniel Geilen for their support and encouragement during data collection and entry. I would also like to thank Ato Gebermedehin Kidanamriam and Ato Wondewesn Tamis from Health Education Center for their encouragement and assistance during the project work.

I will also extend my special thanks to EPHA for financial support for this project. I am also grateful to the Amhara Regional Health Bureau for sponsoring the study.

I sincerely thank Bahir Dar University, Deans of the Faculty, and all departments for allowing me to collect data and particularly Mr Tessema Belay for his support and encouragement during the data collection and for providing important comments.

My sincere gratitude also goes to study participants for their willingness to participate in the study.

I am also thankful to the Department of Community Health, Health Education Center, and the AIDS Resource Center for allowing me to search literature.

Lastly, my special thanks and appreciation goes to my wife S/r Zufan Abera and my sons for their encouragement, patience and tolerance during my stay.

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ABSTRACT

The Extended Parallel Process Model (EPPM) provides useful information to understand the health communication messages gap. The survey was conducted to assess perception level of the risk communication variables and to examine whether the risk communication variables are predictors to HIV/AIDS prevention practices. A cross-sectional study was conducted based on EPPM in December 2003 among Bahir Dar University students. Self-administrative questionnaire prepared in English was used to collect data. Data analysis and interpreted was done using appropriate statistical methods.

In this study 456-second year and above students participated. The result showed that 166(34.6%) of the students, more males than females (P<0.001) had ever had sexual intercourse. Condom use among those who had sex in 12 months prior to the survey was about 52%. A belief of personal susceptibility was very low particularly for females (1.8±1.05), (P<0.001) perceived severity was moderately high (3.8±1.32) and the perception of efficacy was high for abstinence (4.5±0.97) and seems undecided for condom (2.9±1.09). Females strongly agreed (4.2± 1.15) (P<0.001) than males (3.7±1.28) that they could able to be abstinent. The study participants reported low self-efficacy regarding condom use. Male students moderately agreed (3.5 ±1.16; P<0.001) than females (2.6±1.25) for self-efficacy of condom use). They had extremely positive attitude towards abstinence (4.5 ± 0.83) good for monogamy (4.0 ± 1.06) and fair attitude (3.1±1.15) towards condom use. Correlation and regression analysis of risk communication and outcome variables showed that perceived response-efficacy, self-efficacy towards condom and perception of susceptibility were predictors for condom use and self-efficacy was predictor for being abstinent. Credible source of information were cited as persons living with HIV/AIDS, religious persons and health personnel. Most important type of messages were with real experience and preferred way of learning was reported as religious affiliated, peer education and discussion with families.

This study revealed that among health communication variables self-efficacy is strong predictor and response-efficacy, and perceived susceptibility are moderate predictors particularly for condom use. Where as perception of severity of disease was not related with response behaviors. Therefore, models/theory needs to be used to assess, design, develop and promote health intervention messages.

Key words *perception of threat, susceptibility, severity, efficacy, response- efficacy, self-efficacy, no response, danger control fear control*

1. INTRODUCTION

In the era of HIV/AIDS, several evidences showed that people want to know more about HIV/AIDS transmission, severity, prevention, treatment and cure from friends, family, and mass media and discuss with health professionals. Then they are willing to respond/change their behavior if HIV/AIDS messages are helping them make this change (1).

Theories/ models help to explain the process that individuals go through changes as they exchange information and as they interpret and react to different messages. Various models for these processes were developed in different fields. Use of the social and behavioral models in the health education interventions and evaluation is highly encouraged (2, 3). In this study, a recently developed model called Extended Parallel Process Model (EPPM) was used to guide the observation of perceptions about HIV/AIDS infection and prevention practices (2).

So far, the adoption of preventive behavior would be the only protection measure against the HIV. Thus, the Information Education Communication (IEC) campaigns conducted by different organizations, were mainly focused on knowledge diffusion, and have met the success. Hence, the majority (more than 98%) of the population knows about HIV/AIDS transmission and at least one method of prevention (4, 5, 6).

Different studies also documented that the majority of the in-school youth who are sexually active have high awareness and knowledge about HIV infection and prevention (4-11). However, this does not lead to the lower risk behavior. Hence

significant proportions of respondents reported that they do not always use condom with non-regular partners, though they know that condom use protects from HIV infection (7). Some even thought that condoms are less effective and /or potentially dangerous to disseminate HIV, which is low perception towards response efficacy (8). Own risk perception is also very low. According to the first round BSS report, only 20% of the youth perceived that they are moderately or highly at risk for HIV. The study conducted in Addis Ababa and other parts of the country also showed that though the majority of out of school youth know about the transmission and prevention of HIV/AIDS, less than half felt that they are at risk (8,9,10). Most even thought that HIV is an exaggerated danger. In fact, the majority believes that acquiring HIV/AIDS is serious threat (8). Nevertheless, if they do not feel that they are at risk, they might not be encouraged in adopting self-protective behaviors. Perception about the capability to take preventive methods and effectiveness of the recommended responses, in this group also determines the practice of prevention measures. This indicates that the existence of the gap between knowledge and actual practices.

Based on some studies (8) and own observation a psychographic profile of student's personalities may also influence the practice of recommend responses and can be categorized in to three distinct groups. In fact, there might not be clear demarcated and distinct difference between these groups. Group one could represent a group perhaps who are never had sex and in most cases younger in age. They valued religion, and other social norms, and disapprove pre-marital sex. As they are the generation of the era of HIV/AIDS, they are aware of its transmission and prevention methods. However, they think that they are not susceptible to HIV/AIDS because of that they feel that they

are not currently sexually active. This group with low perception of the threat may appear to the "no response" or the "no action" for HIV prevention messages.

The second group can be categorized as the "Danger control" group. They believe that abstinence is impossible and approve premarital sex. They frequently talk about sex with their closest friends. They are also exposed to several HIV/AIDS prevention messages through different channels. They may approve that they are vulnerable to HIV/AIDS and believe that it has serious harm if protection action is not taken. Thus, they tend to think the effectiveness of recommended responses. Then depending on the level of efficacy of each recommended response, they take actions to protect themselves against HIV/AIDS infection.

The third group perhaps leveled, as the "fear control" is small in proportion. They have low social values, traditions, and religious and normative beliefs. They tend to interact with several opposite sexes than other groups and experiment several risky behaviors. They do not consider seriously the threat and not believe on the recommended responses. For them immediate satisfaction may outweigh long-term threats.

Messages should also be persuasive and appealing in order to bring the effect among the target group. A study done in Addis Ababa high schools showed that most HIV/AIDS messages disseminated are not attractive or persuasive and appealing (12). As the awareness of students about HIV/AIDS is currently high, developing persuasive messages need to be encouraged. Researches have shown that perceptions of threat and efficacy jointly influence behavior change and the fear appeal messages are the most common persuasive messages to bring the intended change. Scaring messages are

particularly used in health educations interventions. Hence, everybody is naturally fearful of disease, injury, pain and or death and wants to stay healthy (2). The Health Education Center and ETV were promoting a TV spot targeting the University students. Just in 45 seconds a TV spot "Astewlo ymiramed bizu erqet yegoazel" meaning s/he who walks cautiously, travels a long journey" (own translation) was broadcasted two to three times a week. This message tries to persuade the target audiences by comparing the threat and benefits. The impact of this message among students was also assessed based on the model variables. Besides, identifying what sources, type of messages and channels they want to get is important for further planning of the intervention programs.

Based on EPPM two hypotheses were examined in this study. The first hypothesis is that, is there a linear relationship between perceived threat and perceived efficacy to bring HIV/AIDS prevention methods? Second, are responses for prevention practices particularly abstinence and condom use vary by gender among students? The null hypotheses are there is a leaner relationship between perceived threat and perceived efficacy to bring HIV/AIDS prevention practices and abstinence and condom use will not vary by gender.

Therefore, this survey is intended to identify the relationship of risk communication variables in bringing behavioral response that reduce the risk of HIV acquisition using the self administrative questionnaire among Bahir Dar University Students.

2 LITRATURE REVIEW

Assessment of models/ Theories

Models are theoretical constructs used to represent reality (2, 14). Models/ theories are useful in understanding and explaining success or failures of health interventions. Models/ Theories for behavior change focus on individual, social, and on structural and environmental factors. Those health behavior change models commonly basis on the individual psychological factors and those focus on the variables of threat, efficacy and barriers are reviewed.

2.1 Stages of Change Model

This model attempts to explain why people do not easily change their behavior, even when they are knowledgeable or even directly affected by the condition. This model has five stages each with key and presumed variables (1, 2, 14). The first stage is pre-contemplation stage where individual lives with the problem with consciously or not. The second is individual gets into contemplation stage when he/she becomes aware of the problem. At the third stage, the individual enters to preparation, at the forth and fifth stages the individual is starting taking actions and then maintenance. The model is widely used in smoking cessation, weight control, addictive behavior, drug users, in voluntary counseling and testing and commercial sex workers. Researchers can effectively analyze and segment a target group according to their different stages of change and then practitioners can design appropriate messages to move individuals through stages. However, it has limitation in addressing environmental factors, and considers human behavior to function in a leaner fashion

2.2 Social Cognitive Theory

Albert Bandura's social cognitive theory has been used in a wide variety of health intervention (2, 14). This model stipulates that human behavior is an interaction between cognitive, behavior and environmental determinants. The model is relevant to interventions that emphasize self-efficacy, and beliefs about outcome expectancies. The model also states that the new behavior is learned either by modeling behavior of others or direct by experience and access to sustainable sources. Supportive cultural values, Government policies and sustainable source of information are presumed to be environmental and structural variables necessary for behavior change. This model can be used among adolescents in an intervention on outcome expectancies about condom use and self-efficacy training.

2.3 Theory of Reasoned Action

This model bases on two attributes, namely an individual's attitude towards a new behavior and the subjective norms. At the individual, level the variables recognized are beliefs about the new behavior, value judgments: of other people's perception about the behavior and willingness to comply with their thinking. It was used in HIV/AIDS intervention, smoking, drinking, contraceptive use and breast-feeding. However, it assumes that people always weigh the perceived benefits and behave accordingly (14).

2.4 The Health Belief Model

The Health Belief Model is one of mostly used models, which is grounded in six key variables namely; Perceived threat, perceived severity, perceived benefits, perceived barrier, cues to action, and self efficacy (2,13,14). This model suggests that individuals

weigh the potential benefits of the recommended response against the psychological, physical financial costs of the action when deciding to act. This model has been empirically tested as a guide for educational campaign on a number of health behaviors and viewed as grandmother of most modern health education theories. This model is criticized for not taking into considerations the environmental, social, peer influences and economic factors

2.5 Extended Parallel Process Model (EPPM)

The model has been tested with a verity of the research methods including experiments, surveys, focus groups and content analysis in different fields including HIV/AIDS prevention, cancer, violence prevention, dental hygiene, radon awareness etc (2, 13). Similarly, EPPM studies have focused on many different populations including juvenile delinquents, students, Kenyan prostitutes, gun owners, other youth etc. in different countries (2). Across these diverse topics and population, relatively consistent results have emerged. However, it was mentioned that exceptions in the general pattern of findings have occurred. Therefore, it is recommended by the authors that much more research is needed before it is conclusively said that EPPM is an accurate health risk message (13).

2.5.1. Theoretical Framework of the Model

The EPPM suggests that health risk messages produce two cognitive appraisals namely an appraisal of threat and an appraisal of efficacy of recommended responses. According to the EPPM, when people face with a health threat they either control the danger or control their fear about the danger. The variables that cause individuals to either control their danger or control their fear are (2):

Threat: - The danger to which one feels susceptible to a serious threat, composed of the two dimensions:

Severity of the threat: The perceived seriousness of the threat the magnitude of harm (e.g. disease, illness, loss, death, etc.) e.g. Is getting AIDS serious?

Susceptibility to threat: The perceived likelihood of experiencing the threat Am I at risk of contracting HIV?

Efficacy: The degree to which one believes s/he is effectively, feasibly, easily does the recommended response that would avert a threat. It is composed of two dimensions:

Response efficacy*:* - Beliefs about the recommended action whether or not the recommended response works in averting the threat. E.g., do you think condoms prevent transmission of HIV?

Self-efficacy: - Beliefs about one's ability to perform the recommended response. Are you able to use condoms to prevent the transmission of AIDS?

Researches have shown that perception of threat and perception of efficacy jointly influence health related behaviors. Based on these appraisals, one of the three results or outcomes, no response, a danger control or a fear control will occur (Figure1).

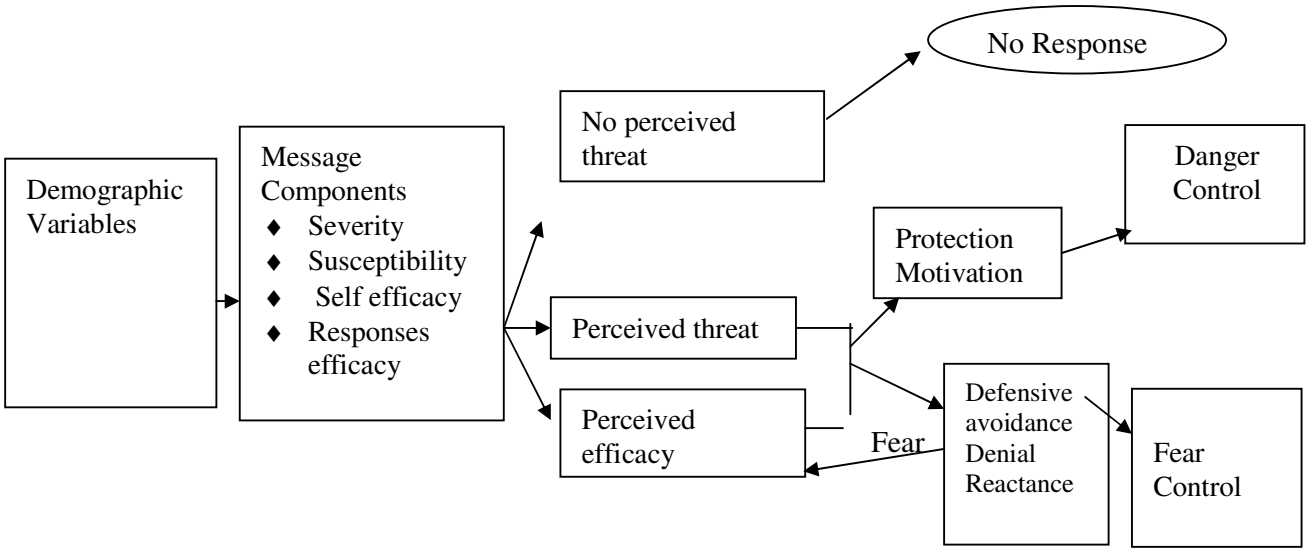


Fig1 Theoretical framework of Extended Parallels Process Model (EPPM)

Source: ***Kim Witte (2001), Effective Health risk messages a step-by-step guide***

When perceived threat is low, there is no response to the message. If a health threat is believed to be irrelevant to a person then, s/he simply ignores any message about HIV or other threat. For example, if a person in countryside of Ethiopia hears about an outbreak of SARS (Sever Acute Respiratory Syndrome) in China then s/he will perceive the threat to be irrelevant to the community where he or she belongs and will not pay any attention to the message about SARS (this is an example of low perceived susceptibility). Similarly, if there is a flu outbreak in the surrounding, but people do not think of the flu as being a serious, and then they may not respond to a message because it is of low priority in their daily lives. (An example of low perceived severity)

Threat motivates action: The greater the threat perceived, the more the person is motivated to do something to get rid of the negative feelings caused by the fear arousal.

That is, the one believes a threat to be and the more vulnerable one feels towards that threat, the greater the fear aroused and the greater the motivation to do something.

Efficacy determines type of action to be taken. Once motivated to act, perceived efficacy determines if persons will take danger control or fear control actions. When people believe that they are able to do recommended response that effectively averts the threat; high-perceived efficacy then they are motivated to control the danger and they adopt the recommended action.

In contrast, when perceived efficacy is low, i.e. people doubt if they are able to do a recommended action and/or if they believe the recommended response to be ineffective against the threat, then they turn instead to controlling their fear and engage in psychological defense mechanisms like denial, (e.g. there is no AIDS after 10 pm), defensive avoidance (I just don't want to think about it) or reactance (e.g. this is just to get more money).

Thus, when perceptions of threat are strong, high perceptions of efficacy lead to danger control actions (self-protection action) and low perception of efficacy promote fear control action (self-destructive actions). The EPPM expands on previous approaches in three ways:

i) It explains why fear appeals fail;

ii) It re-incorporates fear as a central variable and

iii) It specifies the relationship between threat and efficacy in prepositional forms.

Generally, it consolidates other theories by arguing that the fear leads to message rejection or acceptance. Threat determines the degree or intensity of the responses, while efficacy determines the nature of responses.

The outcome variables according to the EPPM are summarized in figure2:

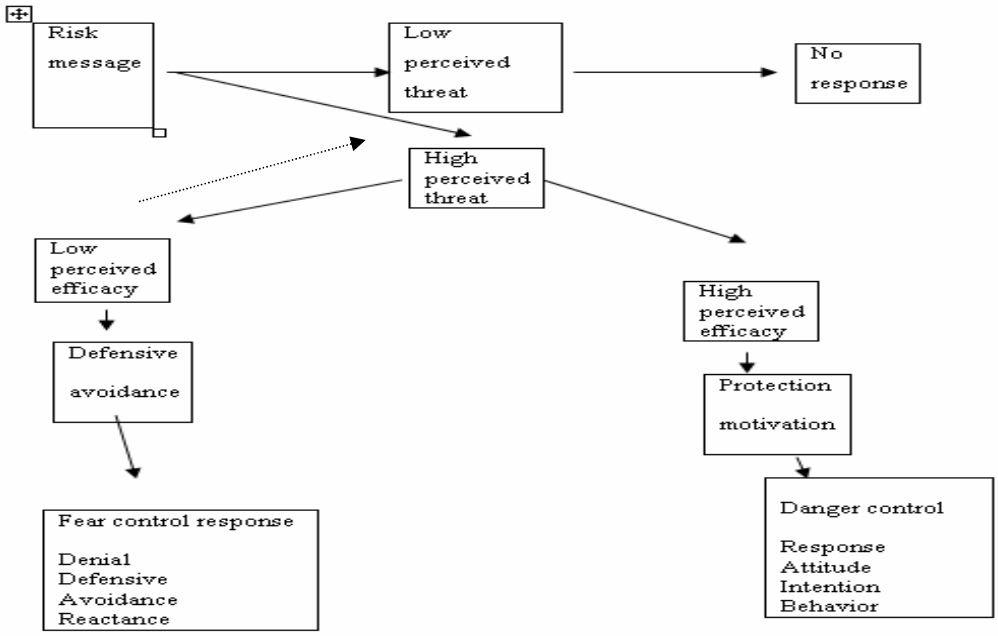


Figure 2 Flow chart showing people's response to fear appeal messages

2.5.2 Receiver Factors

A variety of personality factors such as gender, self-esteem, locus of control, and future orientation also appear to influence the persuasion of fear appeal messages (2). Study suggested that males were more persuaded to use condom than women As indicated in (2) people with high self esteem appear to accept the fear appeal recommendations or persuaded by positive messages while low self esteem persons are more persuaded by negative messages (2,13). Those persons with high locus of control with high susceptibility perception reported more persuaded by fear appeal messages (As Beck & Lund, 1981 noted in 2). However, (as Burnett, 1981 mentioned also in 2); and other researchers suggested that locus of control did not interact with fear appeal message to bring behavioral change (2). Those future oriented persons may also assume to be positively responded for fear appeal messages (15).

2.5.3 Message Characteristics

Message should be appealing and persuasive to convince the audiences. According to the JHU/PCS, there are seven basic rules for persuasive message development. The TV spot "Astewlo yemiramed bezu erqet yegozale" exemplifies some of the seven C rules.

1 It commands attention: with a sort of ringing sound and view two students in dormitory; one student is preparing to go out, while the second student was reading a book.

2 Cater to the head and the heart: the viewers' just watch two students, the first student who wants to go out tried to close the book of his friend while he was reading; and then the first student pointed to the message posted on the wall.

3 Clarify the message: The first student just defensively avoids the message and went out while, the second student continues his studying.

4 Create trust: the first student who went out drink beer and enjoy with a lady, the second student who worked hard viewed satisfied by the good result that he scored.

5 Communicate a benefit: The student who engaged in risk behavior get sick and hospitalized. Where as, the second student who determined to his task graduated and viewed smiling face.

6 Call to action: The spot concludes with a statement "Lalemut gib lmderse erasen k HIV/AIDS mekelekel wosagne new" meaning "To achieve the desired goal; protecting one self against HIV is crucial!" (Own translation)

7 Consistency count: this spot has been promoted frequently via ETV and the caption is also appeared in Abyotawe Democracy the newspaper.

The reason for focusing on University students is because of the assumption that young people are particularly vulnerable to HIV/ AIDS, usually involved in

experimentation, being young and recently become sexually active. The tendency not to be in a stable partner, being involved in risk taking activities and being far from their families or guardians and started to live in different environment with their peer groups also put them at risk for HIV/AIDS. Besides, University students are assumed to have high level of awareness and knowledge of HIV transmission and infection and they are appropriate for this type of study. They can also be relatively future oriented due to the achievements in higher education, which could be one of the proximal determinants for self-protection.

2.6. Significance of the Study

Most of the researches done so far have shown that almost each urban youth are currently aware of HIV/AIDS (4-10). This study tried to assess the risk communication variables outlined in the theoretical framework of the Extended Parallel Process Model in selected target group. The Model is more appropriate for assessing motivational variables than awareness in situations where the target groups have already a high level of awareness. Unlike other studies that go often unused for message design; the findings of this study will enable to design appropriate and effective campaign messages that will fit the audience specific need.

2.6 Objectives

2.6 1 General Objective

To assess the responses to HIV/AIDS prevention messages based on the Extended Parallel Process Model (EPPM) among Bahir Dar University students in order to design appropriate intervention messages.

2.6.2 Specific Objectives

- To describe sexual experience of the students
- To assess perceived threats towards HIV/AIDS infection
- To assess perceived efficacy to prevent HIV/AIDS
- To compare the perception of risk communication variables.
- To determine whether there is perception differences between gender
- To examine factors that influence behavioral response.
- To describe preferred source, message type and most important ways of learning about HIV/AIDS

3. Methodology

3.1. Study Design

A cross- sectional survey was conducted among Bihar Dar University students in December 2003. The study was based on EPPM frameworks to explain the response of the University students to HIV/AIDS prevention messages and related factors that may determine message acceptance or rejection.

3.2. Study Area

The study area, Bahir Dar, is the capital of Amhara Regional State and is situated 565 kms in the North West of Addis Ababa. This town is a growing metropolitan hosting a number of guests from many areas in the region and other parts within the country and outside. It has recently been recognized as one of the tourist attractions area in the country. The number of hotels, restaurants, pubs and clubs are increasing from time to time and in the same way, commercial sex workers and their clients have increased. According to successive sentinel surveillance of antenatal followers, Bahir Dar is the leading town in HIV prevalence in the country (16). Therefore, it is potentially risk area for HIV dissemination and this may indicate the seriousness of the problem in the area.

In the town, there are two secondary schools, one vocational technical training school, one University, two private colleges and other vocational training schools. The town hosts several students who come from surrounding zones, woredas, and other parts of the country for a variety of training programs.

Bahir Dar University is one of the eight higher Governmental institutions in the country. It was upgraded to University on 22nd of December 1999 by according to the council of Ministries Regulation number No 60/1999 and like other higher institutions,

its capacity of students acceptance increased from year to year. The number of female students is also increasing because of affirmative actions recently taken by the Government. As of 2003/04 it has three Faculties, 28 departments and 48 sections. The total number of the students in the University was estimated to be 7340. University students are living in the campus. They commonly visit the town center for recreational and other business. As they are young and living away from their families, this group could be vulnerable for HIV infection.

3.3 Study Population

The source population for this study is regular University students second year to final year in all faculties. The first year students were not admitted during data collection period.

3.4. Sample Size Determination

The sample size was calculated for each sex by using the following formula (2)

$$n = \frac{\{(Z_{\alpha/2} + Z_{\beta}) * \sigma\}^2}{\Delta^2}$$

Where n= the required sample size

Δ=the difference between the mean score of risk communication variables

σ = the average standard deviation for the mean score of the risk communication variables

$Z_{\alpha/2}$= the two- tailed critical value of significance level which is 0.05

β= Z-score corresponding to the likelihood of finding the true significant result based on 95% level of confidence interval and 80% power

The magnitude of means score difference 0.25 and the standard deviation of 1.25 for the mean score of different variables was taken from previous base line survey of urban youth (8). The above formula yields n= 196. To increase precision a non-response rate of 15% was added making the actual sample size of 225 from each sex and a total sample of 450 students.

3.5. Sampling Procedures

Since the number of male and female students was not equal in the institution, different selection criteria were applied for male and female students to ensure adequate representation.

3.5.1 Selection of male students

A two-stage approach was used, at the first stage list of departments and classes in all the three Faculties were obtained. At the second stages, classes were selected randomly from the selected departments using probability-sampling method proportional to their size (PPS). All male students (254) within the selected classes were participated in the study (Fig.3 Appendix II).

3.5.2 Selection of female students

As female students in each class were few in number, selection was made from all classes in each faculty. The female education center of the University arranged the meeting of all female students in all Faculties. Then after short briefing about the study, four female facilitators distributed the questionnaire randomly in different directions until the 225 questionnaires were complete.

3.6. Instrument Development and Data collection

3.6.1 Questionnaire

A questionnaire was developed based on Extended Parallel Process Model (EPPM) (8). It was adapted to fit the university students in Ethiopian context. The format for the questionnaire consisted of eighty-five items separated in to five domains. The first domain ascertained background information of the students, the second domain asked about their sexual experiences and the third domain queried individual psychological factors. The fourth domain enquired the perception of risk communication variables (susceptibility, severity, response efficacy, and self-efficacy) attitudes, beliefs and opinions on prevention activities and the impact of the TV spot. The last domain sought information on preferred source of message, type of message and best channels for learning about HIV/AIDS.

The questionnaire was developed in a way that multiple questions can be collapsed in to one or a set of variables whose reliability can be measured. The type of the questions were checklist in which the respondents were asked to circle the relevant item, Likert-type approach involves providing people with a statement and asking them to indicate how strongly they agree or disagree (having a scale ranging from 1 strongly disagree to 5 strongly agree)(17). These types of response format allow the study participants to choose carefully response that best represents their opinion or feelings. In ranking formats, lists of alternatives were given and they were asked to rank in their order of preferences.

The questionnaire was pre-tested initially among the radiography students in Addis Ababa University and later among the Blue Nile College students in Bahir Dar who were similar in age and educational level to the study group to ensure that the questionnaire is clear for respondents. Then it was checked for its clarity, understandability, completeness, reliability, consistency, time and pattern of response or acquiescent response set problem etc. Then some modifications were made to improve clarity.

3.6.2 Data Collection

Four facilitators (two females and two males) were selected and recruited for data collection. They had first degree in language, social science or public health and they were trained for two days before and after the pre-test. The training was based on the guide that was developed for data collection and clarifying self-administration questionnaires as well as how to fill the Likert scale type questions. They were allowed to fill the questionnaire by themselves and later discussion was made on all content of the formats and areas of difficulties. Besides, they were trained on overall procedures of data collection. The facilitators were responsible for describing the purpose of the study, distributing questionnaires, telling the importance of honest and sincere reply and responding to questions rose during filling the format and finally collecting the filled questionnaire. The questionnaire was prepared and administered in English.

3.7 Ethical Consideration

Ethical clearance was obtained from Department of Community Health, Medical Faculty of Addis Ababa University. Letter of consent was obtained from Vice President

for Research and Academics Affairs of Bahir Dar University. This letter was dispatched to all faculties. Faculty Deans also dispatched letters of cooperation to the respective department heads, teachers and to all concerned. In the Engineering Faculty, the research and publication officer facilitated and assisted all the data collection process. Their respective department heads or teachers or other responsible person told the students to remain in the class after the class or before they started the class. A letter of consent was also attached to the questionnaire to obtain the consent of each individual. Then the facilitators and the research coordinator briefed the importance of the survey and requested to fill the format. To ensure the completeness of the questionnaire, further clarification was given by facilitators. Facilitators were assigned in each class and assisted when need arises in filling of the questionnaire. For female students, after a short briefing about the objective of the study, formats were distributed. Two female data collectors' one representative of the female students' and the woman in charge of female education support unit assisted the data collection.

3.8. Definition of important Terms and Concepts from EPPM (2)

Theory: - An explanation of how two or more variables work together to produce a certain outcome.

EPPM: - A theory that suggests health risk messages initiate two cognitive appraisals- an appraisal of the threat and an appraisal of efficacy of the recommended responses. Based on these appraisals, one of the three outcomes results namely no response, a danger control response or fear control response is obtained (figure1).

Perceived susceptibility: - **B**eliefs about one's risk of experiencing the threat

Perceived severity: - Beliefs about the significance or magnitude of the threat

Self-efficacy: - Beliefs about one's ability to perform the recommended response to avert the threat.

Response-efficacy: - Beliefs about the effectiveness of the recommended responses in deterring the threat.

Threat: - A danger or harm that exists in the environment whether one knows it or not

Efficacy: - Effectiveness, feasibility and ease of recommended response in averting a threat.

Fear: - An internal emotional reaction comprised of psychological dimensions that, may be aroused when a serious and personally relevant threat is perceived.

Danger control: - A cognitive process creating protection motivation that occurs when one believed she/he is able to effectively avert a significant threat.

No response – If perceived threat is low or if the health threat is believed to be irrelevant to a person, then s/he simply ignore any message.

Danger control response: - Beliefs, attitudes, intentions and behavior change in accordance with messages recommendations.

Fear control response: - An emotional process eliciting defensive motivation that occurs when people are faced with a significant and relevant threat but believe themselves to be un able to perform recommended response and/or they believe that the recommended response to be in effective.

Behavioral Responses- No response, danger control or fear control

3.9. Data processing

3.9.1 Data Entry and Cleaning

The questionnaires were checked for completeness and consistency by the principal investigator. The questionnaires were classified as unfilled, partially incomplete, item missed and completed. Totally unfilled and partially field formats were excluded from the analysis. Fully completed and completed with few missing items were coded. The investigator with the data clerk entered the coded questionnaire in to EPI Info version 2002 statistical package. Few inconsistencies were corrected during data entry. About 80(17.5%) of the questionnaire were double entered to verify accuracy of data entry and no discrepancies were noted. Data clean up was performed by running frequencies of each variable to check for accuracy, outliers, and consistencies and missed values. Then the data was transformed in to Statistical Package for Social Sciences (SPSS) version 10.0 programs (18). Chronobach's alpha was used to check internal consistency, based on the average inter-item correlation (2, 17). To minimize the effect of missing values in each set of variables group means by sex were used besides, to the overall mean. Some variables were also measured using scales (a combination of multiple questionnaire items combined to measure a concept or a set of concepts) (2, 17). The list of variables, sample items; number of items creating scale and Cronobach's alpha are depicted in Appendix II (Table 1). When there was lack of internal consistency among items on the scale ($\alpha < 0.7$) the question that was most representative of the variable or the construct was used to measure the concept or indicator (2, 17). Single item measures were also used for specific prevention methods.

3.9.2 Data Analysis

Univariate and bivariate statistical analyses were employed. In univariate method, a two-step analysis was made; first frequencies of each item were observed then the descriptive (measures of central tendencies and variations) were examined to assess the perception level of risk communication and other related variables. Descriptive statistics were used to summarize data. Then the level of the perceptions of the threat and efficacy were analyzed and explained in terms of what each measure tells about the study subjects. Where as in bivariate analysis cross tabulation and comparisons of means between males and female respondents were made. Student's t- test for the normally distributed data and the non-parametric test (the Mann-Whitney U test) for skewed data were used to test equality of means. Besides, Kendeall`s tau correlation was made to examine the relation of health communication variables and behavioral responses. Multiple regressions were also used to explain predictors of current practices; specifically abstinence and condom use. Logistic regression analysis was also made to check whether the results of descriptive summaries, correlation and multiple regressions were consistently predicting specific variables. Dependent variables were collapsed in to two for logistic regression analysis. The results are illustrated in the form of frequency tables, descriptive, and depicted graphically in order to give a quick glance for respondents' feelings of the theoretical variables (susceptibility, severity, response-efficacy and self- efficacy) towards HIV/AIDS infection and prevention methods. Examining the distribution of the responses ranging from 1-strongly disagree to 5- strongly agree showed where the sample of the population falls in terms of their level of perceptions on theoretical variables.

4. RESULT

4.1 Demographic Characteristic

Four hundred and fifty six (254 males and 202 female) students from the three Faculties filled the self-administrative questionnaire. Fourteen 23 female students did not return the completed questionnaire and were excluded from analysis.

List of various demographic characteristics are depicted by sex in Table1.The majority of participants (88.9%) were between 18-23 years old. Almost 60% of females were with in the age range of 18- 20 and 65% of males were within age range of 21-23, years. The mean age was 21.4 ±1.97. About three –quarter (73.2%) of the respondents were Orthodox Christians. Protestants Muslims and other religion followers were 12%, 9.5% and 5.3% respectively. Regarding ethnic composition Amhara, Oromo and Tigrie accounted for 54.3%, 19.6% and 11.6% respectively. The rest were mixed and other ethnic groups. The great majority (97%) was not married at all. Distribution of the respondents according to their Faculties is also shown in Table 1.About 29.4% were from Business and Economics, the rest 35.5% and another 35.1% were from Education and Engineering faculties, respectively. Greater than two-thirds (68.7%) of the participants were year two and three students. Near to three-fourth (73.7%) of female respondents were second and third year.

Table1. Demographic Characteristics and education profile of the Respondents, by sex, Bahir Dar, Dec. 2003

Demographic Variables	Male (n=254)		Female (n=202)		Total (n=456)	
	No	%	No	%	No	%
Age group						
18-20	46	18.0	121	59.9	167	36.6
21-23	165	65.0	72	35.6	237	52.0
24+	43	17.0	9	4.5	52	11.4
Religions						
Orthodox	185	72.5	148	73.3	333	73.2
Protestant	31	12.2	24	11.9	55	12.1
Muslim	23	9.1	20	9.9	43	9.4
Other	14		10	4.0	24	5.3
Ethnicity						
Amhara	148	58.3	99	49.0	247	54.2
Oromo	46	18.1	43	21.3	89	19.5
Tigre	29	11.4	24	11.9	53	11.6
Gurage	10	3.9	20	9.9	30	6.6
Wolita	21	4.6	16	7.9	37	8.1
Marital Status						
Not Married	250	98.4	192	95.0	442	96.9
Married & live together	2	0.8	4	2.0	6	1.3
Married but not live together	2	0.8	5	2.5	7	1.5
Divorced	-	-	1	0.5	1	0.2
Faculty						
Business & Economics	57	22.4	77	38.1	134	29.4
Education	84	33.1	78	38.6	16	35.5
Engineering	113	44.5	47	23.3	160	35.1
Year of the study						
II	40	15.7	94	46.5	134	29.4
III	124	48.8	55	27.2	179	39.3
IV	75	29.5	45	22.3	120	26.3
V	15	6.0	8	4.0	23	5.0
Program						
Degree	207	81.5	174	86.1	381	83.6
Diploma	47	18.5	28	13.9	75	16.4

4.2. Sexual Experiences

One hundred and sixty six (36.4%) of the students (52.8%) males and (15.8%) females) reported having sex in the past. More males were found to be sexually active than females (χ^2 = 66.23, P<0.0001). Age of sexual commencement ranged from 13 to 25 with mean age of 18.8 ± 2.08, (18.6 ± 2.07 for females and 18.8 ± 2.12 for males). Among those sexually active 44% respondents: (73% of females and 36.9% of males) reported that they currently have regular or occasional partner while 93(56%) reported no sexual partner (Table 2). Of those sexually active respondents 78.8%, females and 60.3% males responded that they had had sex in the last 12 months. Among those who had sex in the last 12 months only 55 (52.4%) reported that they used condoms consistently. Males used condoms more regularly than females (χ^2 = 11.34 DF 3 P< 0.01). Reported reasons for not using condoms were trust on partner, reduce pleasure, and did not think of, in love with partner, dislike and partner refusal accounted 23% 12.2%, 10.2%, 10.2 % and 4.1%, respectively.

Reported mean sexual frequency with the same partner in a single night was 3.3 ± 1.34 (3.36 for males and 3.09 for males) and ranged from 1 to 9. The mean lifetime sexual partners for respondents were 2.53 ± 2.39 (2.7 ± .22 and 1.88 ± 0.21) for males and females, respectively and ranged from 1 to 21.

Table 2 Sexual Experience of the University students by sex Bahir Dar, Dec.2003,

Sexual Experiences	Male n =132	Female n =34	t-value	DF	P-value
Mean age of sexual commencement	18.8±2.07	18.6±2.12	0.63	164	0.53
Mean sexual frequency in a single night	3.4±1.32	3.1±1.42	0.97	46.74	0.34
Mean life time sexual partner	2.7±2.27	1.9±1.19	1.78	161	0.08
Current sexual partner					
No	84 (63.2%)	9 (27.3%)			
Yes regular partner	21 (15.8%)	15(45.5%)			
Yes occasional partner	29 (21.0%)	8 (27.2%)			
Reported frequency of condom use			**X^2-test**		
Always	47 (59.5%)	8 (30.8%)	11.3	4	0.01
Most of the times	11 (13.9%)	2 (7.7%)			
Sometimes	9 (11.4%)	9 (34.6%)			
Never used	12 (15.2%)	7(26.9%)			

4.3 Individual psychological Factors

Different personality factors, which may probably assumed to influence the response of the students to prevention messages were assessed using 1 to 5 Likert scale type questions where 1 representing strongly disagree and 5 representing strongly agree in the continuum. Mixtures of contradictory questions were included to see whether the respondents were tending to agree or disagree regardless of the question content (17).

4.3.1 Gender Views

Table 3 indicates views on the gender role. In general, the study participants indicated positive views on gender issues as shown by high mean scores for positive statements and low mean scores for contradictory statements. Sample students have strong belief towards virginity and against multiple partnerships. The majority 325 (71.6%) agreed to the statement "women should be virgins until they are married." However, difference in views was noted for some items between sexes. Three- fourth 341(75.3%) (More females than males) do not agree to the statement "It is difficult for women to be faithful to only one partner." Females also strongly believed (mean score= 4.6 ± 0.99 t= -4.49; P<0.001) than males on the statement "Women can perform as equal as men in education." Females also strongly disagreed to the statement (t= 5.931; P< 0.0001) "Women generally cannot make good decisions on important matters."

4.3.2 Self –Esteem

Five items assessed respondents' feelings about themselves. Table 4 shows high mean scores for the positive self-esteem statements, self-satisfaction (mean=3.8), self-qualities and to the statement that "I like most things about myself," mean=4.0 for both sexes and low mean score for negative statements. Generally females felt to have high self-esteem than males (Mean score for females=3.9 ±1.05; and for males=3.7; ± 1.18; t= -2.32; p< 0.021). Females also felt that they have good qualities compared to males: t= -3.063; p < 0.002 (Table 4).

4.3.3 Self Control

Level of locus of control was assessed by six questions. As indicated in Table 3, University students tended to think things carefully before they act. The mean score for the statements "I think things step by step before doing" and "I think about all my choices carefully" was 4.1. However, 131(28.8%) agreed to the statement "I do the first thing that comes to my mind," another 127(28.2%) also agreed to the statement "I sometimes like to break rules" and more than one-third 158(35%) said that they tend to "do what ever feels good at the moment." Gender was unrelated with impulsivity.

4.3.4 Future Orientation

A four- items scale was constructed to assess the extent of whether the students are oriented towards future or preoccupied to the present. Generally as shown in Table 4, low mean scores for contradictory statements and high score for positive statements indicated that the study participants tended to agree that they are future oriented. No significant difference was observed between the scores of both sexes.

Table 3, University students' views on Personality variable scales, Bahir Dar, Dec., 2003

Psychological constructs	Males Mean (SD)	Female Mean (SD)	t-value	Df	P-Value
Views on Gender					
Women should be virgins until married	3.9(1.19)	4.1(1.22)	-1.51	452	0.133
Men should be virgins until married	3.6(1.31)	3.8(1.27)	-1.35	450	0.18
Women cannot be faithful to one partner	2.1(1.25)	1.6(1.09)	5.00	448	0.001
Men can have more than one partner	1.6(1.09)	1.5(1.07	0.61	452	.540
Women can not make good decisions	2.0(1.16)	1.4(0.89)	6.12	451.75	0.001
Women can perform as equal as men	4.1(1.11)	4.5(0.99)	-4.49	453	0.001
Self-Esteem					
I am satisfied on myself	3.7(1.18)	3.9(1.05)	-2.32	443.64	0.02
I feel that I have good qualities	3.9(1.01)	4.1(0.80)	-3.14	448.9	0.02
I like most things about my self	3.9(1.00)	4.1(0.88)	-1.70	448	0.09
At times I think I am not good at all	2.6(1.12)	2.3(1.19)	2.31	426.1	0.02
I wish I were some body	2.1(1.37)	1.9(2.25)	1.56	443	0.12
Impulsivity/self control					
I think things step by step before doing	4.1(0.86)	4.0(0.99)	0.98	447	0.33
I think all my choices carefully	4.1(0.93)	4.1(0.93)	0.24	451	0.81
I do the first thing that comes to my mind	2.6(1.23)	2.5(1.20)	0.96	452	0.34
I some times like to break rules	2.6(1.19)	2.6(1.23)	-0.39	448	0.70
I do whatever feels good at the moment	2.8(1.26)	2.8(1.22)	-0.02	449	0.98
I don't even think it I just do it	2.0(1.12)	1.9(1.07)	1.08	443	0.28
Future orientation					
I enjoy for today tomorrow I may die	2.0(1.21)	1.9(1.15)	1.45	452	0.15
I prefer to enjoy the present	2.2((1.08)	2.2(1.14)	-0.08	451	0.94
I try not to think about my future	1.8(1.12)	1.8(1.14)	0.07	452	0.94
I try to save money for other days	3.8(1.16)	3.8(1.14)	0.35	451	0.72

Scale range 1=strongly disagree to 5= strongly agree

4.4 Perceptions about HIV/AIDS infection and prevention

4.4.1 Perceptions about Threat

The perception of respondents about HIV/AIDS severity and susceptibility was assessed using the EPPM theoretical framework. The reliability coefficient and sample items are indicated in Appendix II Table1. The mean score for perception level of threat items were generally found to be low (2.8 ±1.18). The beliefs of the threat were lower for females compared to males. The mean scores and the SD for each construct are displayed in the Table 4 below.

4.4.2 Perceived Susceptibility

Generally, perceived susceptibility of respondents towards HIV/AIDS was below the mid value. Perceived risk of getting HIV/AIDS was low with a mean score of 2.0 ± 1.14. Figure 4(a) and Table 4 indicates that perception of risk to getting HIV/AIDS was significantly lower for females (t= 4.30 P<001). However, an appreciable number 163 (36.1%) of the respondents agreed that there could be possibility of getting HIV/AIDS.

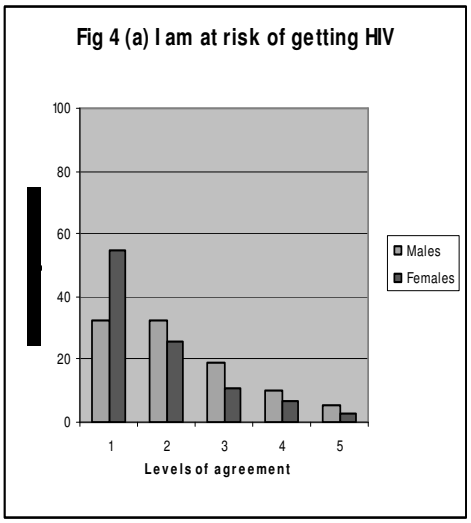
4.4.3 Perceived Severity

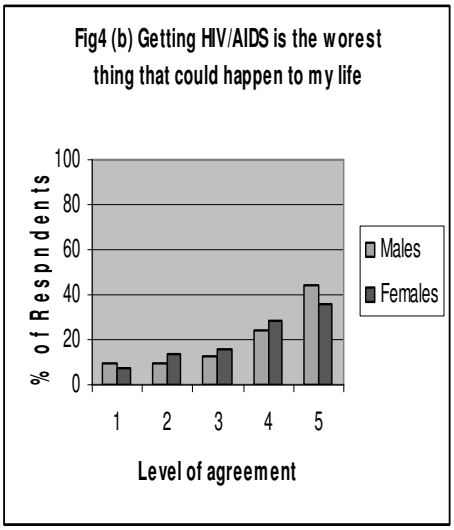
Perceived severity towards HIV/AIDS infection was fairly high with 40% strongly agreed and 25.8% agreed to the statement "getting HIV/AIDS is the worst thing that could happen to my life." (Mean score of 3.8 ±1.31). About 29% also strongly agreed and 24.8% agreed to the statement "getting HIV/AIDS will destroy my future." However, about half 223 (49.8%) of the study subjects did not agree to the statement that, "Getting HIV/AIDS would be a sure death sentence." Generally, Females perceived the severity of the disease less likely than males (Table 4).

Table 4 Perceived threat of University students towards HIV/AIDS, Bahir Dar, Dec., 2003

Perceived susceptibly constructs	Males n =254 Mean (SD)	Females n =202 Mean (SD)	t-test	Df	P-value
I am at risk of getting HIV/AIDS	2.2(1.17)	1.8(1.05)	4.30	448	0.001
It is possible that I will get HIV/AIDS	3.0(1.21)	2.6(1.29)	3.50	411.1	0.001
It is likely that I will get HIV/AIDS	2.4(1.13)	2.1(1.12)	2.77	441	0.006
I might be infected with HIV/AIDS	2.6(1.14)	2.4(1.21)	1.97	432	0.22
Perceived severity towards the disease					
Getting HIV/AIDS is the worst thing that could happen to my life	3.8(1.35)	3.7(1.28)	0.94	447	0.35
If I get HIV/AIDS it will destroy my future	3.6(1.38)	3.1(1.37)	4.36	449	0.001
Getting HIV/AIDS is a sure death sentence	3.1(1.49)	2.6(1.34)	3.82	445	0.001

Scale range 1=strongly disagree 5= strongly agree





4.5. Perceived Efficacy

Perceived efficacy levels of the respondents regarding HIV/AIDS prevention methods were moderately high (items mean score =3.5 ± 1.05). Females had higher beliefs of personal efficacy scores towards abstinence than males while, males were more confident than females in using condoms.

4.5.1 Perceived Response Efficacy to prevent HIV/AIDS

Perception about HIV/AIDS prevention methods seems undecided, fairly strong and extremely strong for condom, monogamy and abstinence respectively (Table5). Perception of response efficacy towards condom was lower for females (t= 4.239, P< 0.0001). About 38% of female respondents disagree to the statement "Condoms prevent HIV/AIDS" compared to 20.8% of males. Perceived response efficacy towards monogamy was strong. Almost three quarter (74.5%) of the respondents agreed or strongly agreed to the statement that "Stick to only one partner is effective to prevent HIV/AIDS." Response efficacy towards abstinence was extremely strong (mean= 4.5 ± 0.97) 72.3% of respondents strongly agreed and 17.9% agreed to the statement "abstinence is effective in preventing HIV/AIDS."

4.5.2 Perceived Self-Efficacy to prevent HIV/AIDS infection

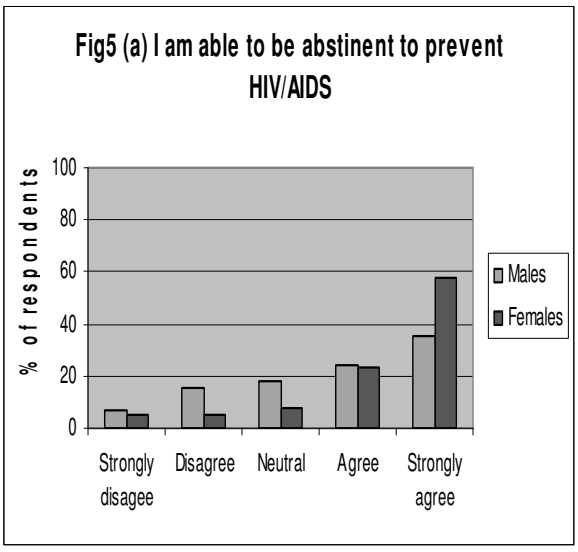
Perceived self-efficacy towards HIV/AIDS prevention methods is illustrated in Table 5. Above two-thirds (69%) of respondents agreed to the statement that, "I am able to be abstinent" to prevent HIV/AIDS. Female respondents have stronger self –efficacy towards abstinence (Mean= 4.2 ± 1.15) than males (Mean = 3.7 ± 1.28) (t= 4.72 P < 0.0001). Eighty one percent of female respondents agreed to the statement that, "I am able to be abstinent to

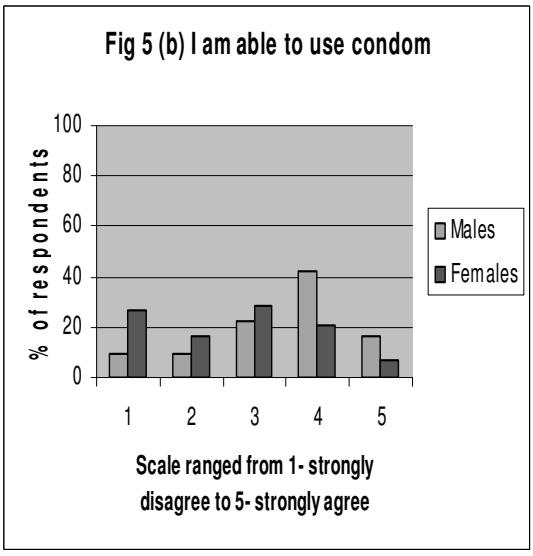
prevent HIV/AIDS" compared with 59.5% of male respondents. More females (74.6%) than males (49.2%) agreed or strongly agreed to the statement "abstinence is easy for me" ($t = 6.049$ $p < 0.001$). Self-efficacy towards monogamy was assessed using two statements. "I am able to stick to only one partner" and "Stick to only one partner is easy for me" (mean score for both was 4.00 ± 1.04). No significant difference was noted between males and females. The response of self-efficacy about condom use was fairly low with mean score of less than mid level (Mean = 2.9 ± 1.09). As shown in Figure 6 self-efficacy towards using condoms to prevent HIV/AIDS was greater for males than for females, ($t = 7.034$, $p <. 0001$).

Table 5 Perceived efficacy towards HIV/AIDS prevention methods, among university students Bahir Dar, Dec. 2003

Perceived Response Efficacy	Males n=254 mean(SD)	Females n= 202 mean(SD)	t-value	Df	P-value
Using condom is effective in preventing HIV	3.1(1.14)	2.8(1.18)	2.9	451	0.004
Condoms prevent HIV/AIDS	3.3(1.04)	2.9(1.14)	4.24	448	.001
If I use condom consistently I am less likely to get HIV	3.4(1.09)	3.2(1.14)	1.98	447	0.049
Stick to only one partner is effective to prevent HIV	4.1(0.91)	4.1(0.96)	0.80	448	0.42
Abstinence is effective in preventing HIV	4.5(0.99)	4.6(0.93)	-0.76	445	0.45
Perceived self-efficacy					
I am able to be abstinent	3.7(1.28)	4.2(1.15)	-4.74	436.5	.001
Abstinence is easy for me	3.3(1.38)	4.1(1.16)	-6.18	438.3	.001
I am able to be stick to only one partner	4.0(0.99)	4.0(1.09)	-0.42	401.6	.67
Being monogamous is easy for me	4.0(1.03)	4.0(1.07)	0.21	443	.83
I am able to use condom	3.5(1.16)	2.6(1.27)	6.95	388	.001
Using condom is easy for me	3.4(1.18)	2.6(1.25)	7.09	437	.001
Using condom is convenient	3.1(1.11)	2.8(1.04)	2.87	441	.004

Range1=strongly disagree 5= strongly agree





Scale ranged from 1=strongly disagree to 5= strongly disagree

4.6 HIV/AIDS prevention practices

4.6.1 Current Behavior

As shown in Table 6 and Figure 6, the majority of respondents strongly agreed (64.5%) and (14.9%), agreed (Mean= 4.2 ± 1.26) that they protect themselves against HIV/AIDS infection by being abstinent. More females (Mean= 4.4 ±1.10) than males (mean= 4.1± 1.35) claimed that they are currently protecting themselves by being abstinent ($t = -3.24$, $P< 0.001$). Respondents fairly strongly agreed (Mean= 3.6 ± 1.25) that they are protecting themselves by being faithful to only one partner. However, the response about current condom use suggested little practice with the mean score falling below the mid point of the continuum (Mean =2.6±1.32). More males (Mean= 2.9 ±1.35; $t= 5.007$, $P < 0.001$) than females (Mean= 2.2 ±1.18) reported that they are currently using condoms to protect against HIV.

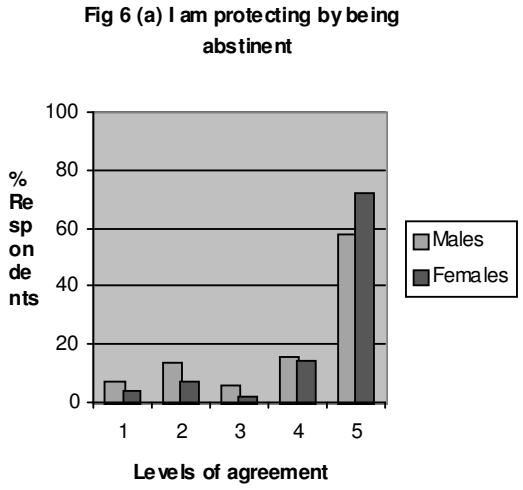
4.6.2 Future Intention

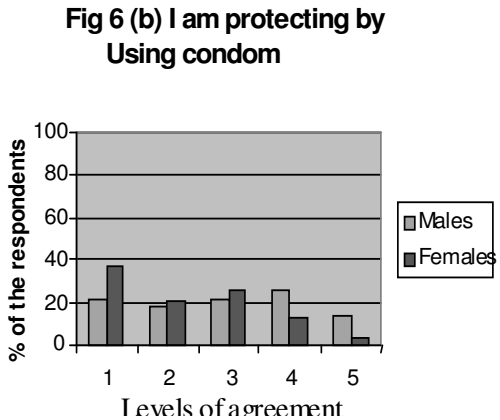
The mean score to stay abstinent in the next 12 months was 4.2± 1.26. Females claimed strongly to stay abstinent (Mean = 4.4 ± 1.16) than males (Mean = 4.0 ± 1.27; $t = -3.157$ $P< 0.01$) (Table 6). The mean score to "be faithful to one partner" was 3.7 ±1.20. However, intention for consistent condom use showed less agreement with the mean score 2.6 ±1.35 falling below the mid score of the continuum. Females scored less agreement (Mean= 2.2 ± 1.19) than males (M= 2.9 ± 1.39; $t = 5.037$ $P< 0.0001$). Respondents were also asked about their agreement level to know their sero-status in the next 12 months. The responses elicited little agreement or undecided with the mean score 3.1 ±1.23 hence 3.00 representing the mid point between agreement and disagreement. Gender was unrelated with an intention to voluntary counseling and testing.

Table 6 Current practice and Intention to practice HIV prevention methods, among University students Bahir Dar, Dec.2003

Current practice and Intention in the next 12 months	Males Mean (SD)	Females Mean(SD)	t-value	Df	P-value
I am protecting myself from HIV infection by;					
Being abstinent	4.1(1.35)	4.4(1.10)	-3.31	433.0	0.001
Being faithful to only one partner	3.6(1.37)	3.6(1.35)	-0.197	366	0.84
Using condom consistently	2.9(1.35)	2.2(1.18)	5.00	371	.001
Intention to protect self from HIV infection in the next 12 months					
Stay abstinent	4.0(1.28)	4.4(1.16)	-3.16	435	0.002
Be faithful to only one partner	3.7(1.25)	3.7(1.29)	0.21	392	0.84
Use condom consistently	2.9(1.38)	2.2(1.18)	5.16	379.7	0.001
Seek VCT	3.2(1.22)	3.1(1.35)	0.37	387	0.71

Scale ranged from 1 strongly disagree to 5 strongly agree





1-strongly disagree to 5-stronglyagree

4.7. Attitude and beliefs towards HIV Prevention methods

4.7.1 Attitudes

Attitudes towards HIV prevention methods are depicted in Table 7. Respondents scored the attitude statements using 1-5 Likert scale. University students strongly agreed (Mean = 4.5 ± 0.83), with the statement "Being abstinent is good "and fairly strongly agreed (Mean= 4.0 ±1.06) with a statement "Being exclusive monogamous is good." But attitude towards the statement "using condom is good" was somewhat between agree and disagree (Mean=3.1±1.15). Males had favorable attitude (Mean= 3.3 ±1.09) towards using condom as HIV prevention means than females (Mean= 2.8 ± 1.18; t= 4.106, P<0.0001). Attitude score to the statement "knowing sero-status is (would) be good." yielded mean score of 3.8 ± 0.93.

4.7.2 Beliefs

Respondents' belief about HIV/AIDS infection and prevention was assessed by some common sayings (Table 7). About 140(32%) strongly agreed, 82 (18.7%) agreed and 18.5% were undecided to the statement "God will protect me from Getting HIV/AIDS." About 100(23%) of the respondents strongly agreed and another 68(15.7%) also agreed to the statement "AIDS is the curse from God." (Mean= 2.96 ±1.51) Gender difference was not significant for the above beliefs.

The study participants were also asked their level of perception to misconception about condom. About 55(13.5%) agreed and 123(29%) remained neutral to the statement "condoms disseminate HIV virus." Females tended to agree more likely than males (t=-2.615, p<0.01).

4.7.3. Behavioral Control

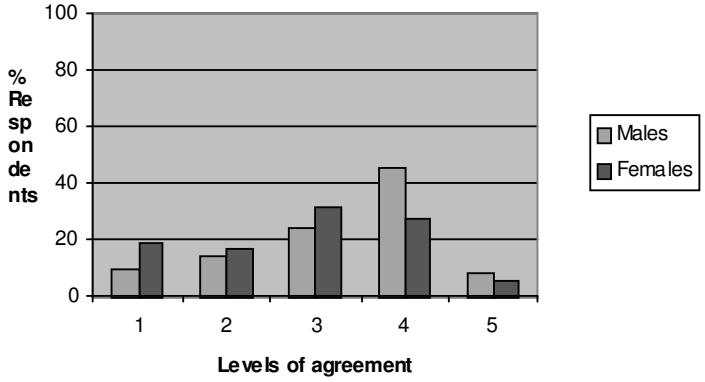
Respondent's perception of capability to do something to protect himself / herself against HIV/AIDS was assessed by the level of agreements to the statements "I don't think I can do something to prevent HIV/ AIDS." More than half (55.5%) strongly disagreed and 28.8 disagree (Mean= 1.72 ± 1.01) to the above statement. Their level of agreement to the statement "I try not to think about HIV/AIDS when having sex" also assessed defensive avoidance. About half of the respondents (51%) strongly disagree another 23% disagree (Mean= 1.91 ± 1.17) and 13.4% were undecided to the above statement. However, it is worth to note that about 51(12.6%) agreed to the above statement.

Table 7 Attitudes towards HIV/AIDS prevention methods and beliefs, among university students Bahir Dar, 2003

Attitude to prevention methods	Males Mean(SD)	Females Mean(SD)	t-value	Df	P-value
Being abstinent is good	4.5(0.91)	4.6(0.83)	-1.58	432	0.12
Being exclusive monogamous is good	4.0(1.04)	4.0(1.08)	-.20	428	.84
Using condom is good	3.3(1.09)	2.8(1.18)	4.11	434	0.001
Knowing sero status is good	3.7(.96)	3.9(.88)	-1.42	408	.16
Misconceptions/beliefs					
God will protect me from getting HIV/AIDS	3.4(1.48)	3.3(1.51)	.93	435	.35
AIDS is curse from God	2.9(1.5)	3.0(1.53)	-.67	431	.50
Condoms are just to disseminate HIV	2.1(1.07)	2.4(1.13)	-2.61	419	0.009
Behavioral control					
I don't think I can do something to prevent HIV/AIDS	1.8(1.01)	1.7(1.04)	.91	435	0.36
I try not to think getting HIV/AIDS when having sex	2.0(1.15)	1.8(1.2)	1.22	423	0.22

Scale ranged from 1=strongly disagree to 5=strongly agree

Fig 7 Using condom is good to from HIV



Scale 1=strongly disagree to 5= strongly agree

4.8 Opinions about HIV prevention messages

4.8.1 Opinions on HIV/AIDS Prevention Messages

Level of approval on current HIV/AIDS prevention campaign and messages were assessed using 1 to 5 scales (Table 8). Respondents generally tended to approve current campaigns (mean=3.3 ±1.19), and messages (Mean=3.4±1.18), respectively. One hundred ninety nine (47.2%) agreed, and 30.3% were neutral to the statement that "current campaigns are trustworthy." About 19% strongly disagreed and 39.5% disagreed to the "statement that current HIV/AIDS prevention messages are misleading." About 15.2% strongly agreed, 33.9% agreed and about 16.6% remained neutral to the statement "HIV/AIDS prevention messages are clear and consistent." However, it is worth to note that about one-fourth 110(24.9%) of the respondents disagreed to the clarity and consistency of the messages.

4.8.2 TV. Spot Impact

The TV spot "*Astwelo yemiramed bezu erqet yegoazale"* meaning "H/she who walks cautiously travels a long journey" "Lalmut gib lemderse erasen kHIV mkelakel wosegn new" meaning "To achieve the intended goal protecting oneself from acquiring HIV/AIDS is crucial" (own translation) was broadcasted by health education center of MOH and ETV in 2003/4. This spot was targeting the University students. The purpose of this spot was to persuade students about the threat of HIV/AIDS and to motivate students to take care to protect themselves form HIV/AIDS. An impact of this spot was assessed using Likert scale. Three hundred and sixty two (79.4%) of the study participants answered that they have watched the TV spot. The effect of this message on the University students was generally high (Table 8). However, the impact of the spot towards increasing susceptibility failed,

somewhat between agree and disagree. Only 8.8% strongly agreed and 35.8% agreed to the statement "The spot made me to believe that I myself may be susceptible to getting HIV/AIDS." (Mean=3.07±1.17). The majority of the study participants 48% strongly agreed and 35.7% agreed to the statement "The spot made me believe that HIV/AIDS has no mercy" i.e. perceived severity. About three fourth agreed (32.2% strongly agreed and 42.2% agreed) that the "Spot influenced them to protect themselves from HIV/AIDS acquisition" (mean =4.0 ±1.19). Four out of five agreed (36.8% strongly agreed and 43.2% agreed) that the spot made them to have a future vision (mean=4.2 ± 0. 99).

TABLE 8.Opinions of university students towards HIV prevention messages Bhiar Dar Dec. 2003,

Opinions on HIV prevention messages	Males Mean(SD)	Females Mean(SD)	t-value	Df	P-value
Messages are clear and consistent	3.4(1.10)	3.5(1.10)	-.96	439	.34
Messages are misleading	2.6(1.20)	2.5(1.21)	.61	437	.55
TV spot impact					
Made be believe that I am susceptible	3.2(1.15)	2.9(1.22)	2.21	350	0.027
Influenced me to protect myself	3.9(0.99)	4.0(1.03)	-1.45	365	0.15
Made me believe that HIV has no mercy	4.1(1.02)	4.3(0.94)	-1.56	354	0.12
Made me to have future vision	4.0(0.95)	4.2(0.87)	-1.31	354	0.19

Scale 1=strongly agree to 5= strongly disagree

4.9 Comparison and Examination of Health Communication Variables.

Kendall's tau correlation coefficient was used to examine the relationship between perceptions of outcomes (attitude, intention and practice towards HIV/AIDS prevention methods) (Table9 (a)). The finding suggested that response efficacy(r=0.43; P=0.001) and self-efficacy(r=0.52; P=0.001) are significantly associated with current practice of being abstinent. While, (perceived susceptibility(r= -0.26; P=0.01) was negatively related and perceived severity(r= 0.054) was not related to attitude and practice of being abstinent. Perception scores for attitudes towards condom use and current practice of condom use were slightly associated with perception of susceptibility (r= 0.16; P=0.01), condom efficacy (r=0.34; P=0.001) and self-efficacy about condom use (r=0.45; P=0.001) were significantly related with perceived current use. This may show us that those who score high on efficacy items scores tended to score high on danger control responses (attitude, intention and current behavior). How ever, perceived severity was unrelated to condom use (Table 9(b).

Multiple regressions were also used to examine the relative ability of risk communication variables to predict abstinence and condom use (Table10 (a) in Appendix I). Analysis was made separately with males and females to examine the difference in predictor variables by gender. Perception of efficacy both self and response accounted for 37% of the variance and was significant at P= 0.00l level. For both sexes, perceived self-efficacy predicted significantly current practice of abstinence (Table 10(b) in Appendix I). Beliefs about susceptibility, response-efficacy and self-efficacy towards condom were found to be predictors of condom use for males (R^2= O.317; F=25.73, P=0.001).

Logistic regression analysis also revealed that perceived self-efficacy toward abstinence predicted significantly (OR= 3.12; P=0.001) the dependent variable, current practice of being abstinent for both sexes among other variables. This means that with every one increase of perceived efficacy

towards abstinence, students are 3 times more likely to practice abstinence. On the other hand, perceived susceptibility (B=-O.456; OR=0.63; P=0.01) was negatively related with abstaining. If perceived susceptibility increases by one unit, there may be a decrease of practicing abstinence by 0.63 times (Table 11(a)).

Table 11 (b) shows logistic regression analysis of health communication variables and condom use responses of the study subjects. Perceived self-efficacy (OR=2.28; Wald test=31.86; P=0.000) and perceived response efficacy (OR=1.82; Wald=13.69; P=000) were predictors of condom use responses.

These results suggested that variables predicting responses are perceived efficacy items (self-efficacy for abstinence) and both efficacy variables for condom use. In addition to perceived efficacy, perceived susceptibility was also predictor of condom use for male students.

Table 9(a) Correlation of Risk Communication Variable items with the Response outcomes (Attitude and Practice towards Abstinence) among Bahir Dar University students Dec. 2003

	At risk of getting HIV/AIDS	Getting HIV is the worst thing	Abstinence is effective against HIV	Able to be abstinent	Abstinence is/would be good	Protect by being abstinent
At risk of getting HIV/AIDS	__					
Getting HIV is worst	0.007	__				
Abstinence is effective	-0.118*	0.043	__			
Able to be abstinent	-0.264*	-0.011	0.446**	__		
Abstinence/is would be good	-0.168*	0.022	0.475**	0.427**	___	
protect by being abstinent	-0.263*	.054	0.318**	0.518**	0.435**	___

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 9 (b) Correlation of Risk Communication Variable items with the Response outcomes (Attitude and Practice towards Condom use) among Bahir Dar university students Dec. 2003

	I am at risk of getting HIV	Getting HIV is the worst thing	Condom prevent HIV	I can able to use condom	Using condom is/would be good	I currently protecting HIV by using condom
I am at risk of getting HIV	___					
Getting HIV is the worst thing	-0.007	__				
Condom prevent HIV	0.112*	0.086	__			
Able to use condom	0.123*	0.091	0.388**	___		
Using condom is/would be good	0.109*	0.086	0.444**	0.48**	__	
protecting by using condom	0.163**	0.050	0.344**	0.551**	0.452**	___

Correlations
** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table10 (a) Multiple Regression Analysis of Risk Communication Variables Predicting Abstinence among Bahir Dar university students, Dec. 2003

Predictor Variables	Males			Females		
	Beta	t-value	Sig.	Beta	t-value	Sig.
Constant		4.223				
Susceptibility	-0.171	-3.17	0.02	-0.076	-1.23	0.19
Severity	0.41	0.777	0.438	0.08	1.43	0.154
Efficacy of abstaining	0.094	1.57	0.117	0.09	1.46	0.146
Self- efficacy to abstain	0.497	8.23	0.000	0.573	8.896	0.000
Over all R						
Adjusted R^2	0.358			0.414		

Table 10(b) Multiple Regression Analysis of Risk Communication Variables Predicting Condom use as HIV prevention among Bahir Dar University students Dec. 2003

Predictor Variables	**Males**			**Females**		
	Beta	t-value	Sig.	Beta	t-value	Sig.
Constant						
Susceptibility	0.161	2.82	0.005	-0.04	-0.623	0.53
Severity	0.048	0.839	0.40	-0.056	-0.86	0.39
Efficacy of condom	0.294	4.396	0.000	0.392	5.24	0.000
Self-efficacy to use condom	0.314	4.70	0.000	0.348	4.667	0.000
Over all R	0.574			0.637		
Adjusted R^2	0.317			0.39		

Table 11 (a) Logistic Regression Analysis of Risk Communication Variables with specific prevention practices (Abstinence). Bahir Dar Dec. 2003

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
P.Suscep.	-.456	.143	10.209	1	.001	.634	.479	.839
P.severity	.194	.132	2.164	1	.141	1.214	.938	1.572
P.Res.Eff.	.113	.155	.530	1	.467	1.120	.826	1.518
P.self-Eff	1.138	.146	60.720	1	.000	3.121	2.344	4.156
Constant	-2.527	.904	7.808	1	.005	.080		

Variable(s) entered on step 1: Susceptibility. Severity Response efficacy, Self-efficacy

Table 11(b) Logistic Regression of Health Communication Variables with Condom use among University students Bahir Dar, Dec. 2003

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
P.Susce.	.196	.122	2.600	1	.107	1.217	.959	1.545
P.Severity	-.074	.111	.447	1	.504	.929	.748	1.154
P.Con eff.	.598	.162	13.687	1	.000	1.818	1.325	2.495
P.Self Eff	.822	.146	31.859	1	.000	2.275	1.710	3.027
Constant	-5.376	.802	44.950	1	.000	.005		

Variable(s) entered on step 1: P. Susceptibility, P. Severity, P. condom Efficacy & P. Self -efficacy.

4.10 Preferred Source, Message type and Channels

The most preferred sources of information, type of message and preferred ways of learning are listed in Table 12. Respondents were asked to rank their preferred source of message if they received the message about HIV/AIDS with one representing the most believable and subsequent numbers represent the list. Person living with HIV/AIDS (38%), religious person (33.7%) and health personnel (26.8%) were identified as most believable sources. Students were also asked to rank the type of the message that they would like to receive for HIV/AIDS prevention. Messages with real experience (51.8%), messages with reasons (26.5%) and message with lots of facts (26.1%) were ranked in order of preference. Preferred ways of learning for students about HIV/AIDS were cited as at religious places (38. 5%), discussion with families (28.1%) and group dialogue and dram/theater (27.7%).

5. DISCUSSION

This cross sectional survey was guided by EPPM and tried to assess the demographic characteristics of the study subjects, their sexual experience, individual psychological factors, risk communication variables, attitudes, practices to prevention methods, opinions, effect of TV spot, message sources, type and preferred ways of learning, among Bahir Dar University students.

5.1 Study Subject

The majority (88.9%) of the study subjects were between 18 and 23 years. The mean and median age of the respondents was 21.4±1.97 (20.5 for females and 22 ± 2.0 for males) and 21 (20 for females and 22 for males) respectively. Almost all (97%) were single. Therefore, vulnerability to HIV/AIDS is high in this group as their counterparts elsewhere (7, 9, 10, 16).

5.2 Sexual Experience

In this study 36.4% of the study subjects claimed to be sexually active which is slightly less than Gonder Collage Students (40.2%) and greater than most studies done among high school adolescents elsewhere in the country (10, 11). More males than females reported to have had sexual intercourse before the survey. The low report of sexual activity by females could be because the information on sexual matters are usually kept too secrete in most communities, thus the issue might not be honestly responded by all female students; a sort of social desirability responses. The other reason could be since most of the female students who joined higher education are usually those who determined to achieve their goal and might be from a better family background who have no problems of money and materials as most girls who do

sex for money approach. Thus, the so called "sugar daddy" and may not be involved in sexual activities as early as those out of school counterparts. On the other hand this is self-administrative survey, which could be believed to be less prone to social desirability. The mean age of sexual commencement for this study sample was 18.76 ± 2.08 and ranged from 13 to 25years.This is consistent with the reports of some studies in the country. For example, a study conducted around Addis Ababa and Nazreth in selected target groups including Addis Ababa University students documented a mean age of 18.2 ± 3.1 (9). Another studies among urban use also showed the mean age of first sexual experience as 18.54 (8). However, the mean age of sexual initiation is higher for most out of school youth and high school students (4, 7, 11)

The present survey also revealed that from those who had sex in the last 12 months preceding the survey, only 55(52.4%) reported consistent condom use. Similarly, a recent study also showed that half or slightly more than half of reported that they are using condoms always to protect HIV infection (4, 9, 11). In this study, the reported mean lifetime sexual partner was 2.53±2.39 (2.7±2.2 for males and 1.9±1.2 for females). The average number of sexual partners among out of school youth in Bahir Dar in 1994 was 3.9±2.8 and similar study in Awassa documented 2.9±2.0 (19, 20). The behavioral surveillance survey and other small-scale studies showed that the majority of young people were involved with more than one sexual partner which is consistent with this study (4, 8, 9). The reported sexual frequency in a single night with the same partner ranged from 1 to 9 with the mean of 3.3±1.34. In one study in Kenya, commercial sex workers said that "they would use condoms initially but then as the night wore on they would go "steel-to-steel" (i.e. skin to skin") (2). This means that it is common to have sex more than three times a night with the same client. Therefore, distribution of a package of three condoms may not be adequate for a single night sexual act.

5.3 Individual Psychological Factors

Generally, the study subjects tended to have positive attitude towards gender views. A summative evaluation of journey of life among urban youth also showed similar views (21). However, males tended to agree less likely than females on some items. This might be emanated from existing culture and status of women in Ethiopia and most African countries.

Males and females compared on self-esteem items such as self-satisfaction, self-quality, and whether they liked the way they looked. In positive items of self-esteem females $P<0.01$ significantly valued themselves than males. Possible explanation for this finding could be the fact that these female students could able to manage to join higher education irrespective of the challenges from cultural, social and environmental factors. Thus, the achievement of higher education might have increased the sense of self-confidence than males who come out relatively with normal circumstances. However, this warrants further investigation.

It is worth to note that 35% of them agreed to the statement that "Do whatever feels good at the moment." This is usually the character of most young people and may lead them to practice a risky behavior. Similar finding was also noted in summative study (21).

Future orientation assessment scale also indicated that fairly high mean score for positive statement and low mean scores for contradictory statements. Because of the desire for the future to be as good as they want it to be; University students, might have a positive future hope than their counter parts that did not joined. Hopping to achieve their goal probably would help them to deter not to practice a dangerous behavior.

5.4 Perception of Threats and Efficacy

The main objective of this study was to examine the perception levels of risk communication variables (susceptibility, severity, response-efficacy and self-efficacy among the target group). A two-step process was used to analyze data. First, the frequency distribution of each item was examined to assess the level of perception of variables. Hence, EPPM suggests that risk communication variables should be at highest level to promote maximum behavior change (2, 13). Second, the mean score of each variable was analyzed and compared between genders and each other. The data was analyzed in order to determine if the mean score of efficacy perception towards abstinence and condom use are stronger than mean score for threat perceptions.

5.4.1 Perceived Threats

Factors reported to motivate people to take precautions against HIV broadly included an individual's perception of vulnerability and severity of contracting HIV such as long illness, stigma and death (22). However, in this study most of the respondents tended to think that they are invulnerable. This is usually people's belief that bad things will not happen to them "unrealistic optimism." (22-25). Female respondents perceived themselves to be not or low susceptible to HIV infection. Such thoughts may be attributed to the fact that the majority (84.2%) of them reported that they did not start sexual activity before this survey. Low perception of vulnerability is consistent with several studies (4, 8, 9, 21, 22). Other several studies also ascertained that although teenagers and college students are knowledgeable about AIDS and its prevention strategies, the majority do not see themselves at risk for HIV/AIDS (22).

Generally, perceived severity towards HIV/AIDS disease was moderately high. However, perception of severity was low among this group (M=3.8±1.31) when compared with baseline (4.8±0.72) and summative evaluation studies (4.3±0.72) (8, 21). The response for the statement "Getting HIV/AIDS is sure death sentence" was also fairly low in this study (M=2.84± 1.45) than summative and panel survey (21) (M=3.95± 1.35 and 3.22± 1.33) respectively. This could be probably the influence of their awareness on the recent introduction of the anti-retroviral therapy. The increased sense of self-confidence acquired by higher education may also contribute for less perception of severity. The less likely perception of females towards the severity of AIDS may also attribute to their high level of confidence scored in this report. Methodologically this is self-report survey where as the previous one was used interview.

5.4.2 Perceived Efficacy

Study subjects perceived that abstinence and exclusive monogamous are effective in preventing HIV/AIDS. Almost all (90.2%) (Mean score 4.5 ± 0.97) participants and three-quarter (74.6%), respectively perceived that abstinence and one-to-one sexual relationship are best means of prevention of HIV/AIDS. Males and females did not differ significantly in either abstinence or monogamy. Perception of response efficacy about condom use was between the agreement and disagreement. More males (mean=3.3±1.02) than females (mean=2.9± 1.14) agreed to the statement that condom prevent HIV/AIDS. Response efficacy towards prevention methods is similar with other studies elsewhere (4, 8, 21).

Comparing males and females on perceived self-efficacy towards HIV/AIDS prevention methods (abstinence, and condom use), they differed significantly with females scoring significantly higher than males on abstinence and males scoring significantly higher than

females on condom use. Since using condom for males is different than asking the partner to use condom for females. While no significant difference was observed on monogamy. Similar result was also found in summative survey (21).

The findings of this study suggest that the perceptions of threat item scores are lower (2.8± 1.05) than the perception of efficacy item scores (3.5± 1.28). Hence, when the threat levels are low, there is little or no message acceptance in response efficacy and self-efficacy conditions. Message is not processed further (2, 13). In this study also in both efficacy items perception level for abstinences were strong, while for condom it was undecided. This could be probably due to their perception of threat particularly for female respondents as the majority of them reported that they were not sexually active before the survey and hence thus the issue of condom use might be irrelevant.

In contrast, the threat item perceptions and efficacy item perceptions for condom use were higher for males. Hence, more than half of them reported that they are sexually active. Thus, they are motivated to take an action to protect them from acquiring HIV/AIDS (danger control).

Similar to efficacy perceptions, the majority of the study participants claimed that they are currently protecting themselves against HIV infection by being abstinent (mean4.2 ±1.26). More females (mean=4.4± 1.10) than males reported (mean=4.1±1.35), that they were abstaining to prevent HIV infection. The social cognitive theory of Albert Bandura suggested that the more efficacious people feel about exerting control over sexual activity or decided to be abstinent the more likely they remained abstinent to prevent HIV infection (2). This study also showed that the higher self-efficacy among females about abstinence; the more likely they are remained to be abstinent. Abstinence for females might also be attributed to not only fear of

HIV but also fear of premarital conception and its consequences. By contrast, those with low perceived self- efficacy towards condom use may fail to negotiate or resist using condom and failed to practice a safe sex. In this study males scored significantly higher on condom use practice than did females. Hence, they had high-perceived efficacy towards condom than females. Participants also intended to follow their respective prevention methods in the next 12 months.

5.5 Attitudes

Attitudes towards prevention methods were generally positive. Both males and females had very positive attitude towards abstinence and monogamy. Attitudes towards condoms were between agreement and disagreement. Consistent with the perceived efficacy and current practice scores, males (mean=3.3±1.09) had significantly more favorable attitude towards condoms than females (mean= 2.8±1.18). How ever, an attitude of university students towards condom use was not different than other out of schools and this is similar with other studies elsewhere (22). An attitude towards knowing self-status with respect to HIV/AIDS was fairly high and no difference was noted between males and females. Though attitude scores found in the present study are consistent with several studies done elsewhere in the country (8, 9, 21), attitudes towards abstinence was found to be highest in this study. This could be probably due to the fact that these groups are bachelors who are concentrated to achieve their goals and dreaming to have a good future.

5.6 Beliefs

Almost half (48.7%) of the study subjects believed that God will protect them from acquiring HIV/AIDS and about 38.7% also agreed that AIDS is the curse from God. Males and females

were not significantly differed in this belief. Interestingly a considerable proportion of students (13.5%) more females (16.1%) than males (10.8%) still are harboring misconception about condoms. About 13% of the study participants felt that they defensively avoid thinking about HIV infection when they are having sex. About 9% also thought that they might not have capability to do something to prevent HIV infection. Thus, this group may likely engage in "fear control" rather than "danger control." The survey data showed that a noticeable number of respondent, 99(22.7%) tended to think that they might have been infected with HIV. In fact, it was not uncommon to hear this type of reasoning. A person in a focus group study in Uganda told that "Hence I might well be infected already." So why would I change the behavior now?" (14, 23, 24, 25) and this sort of thinking or reasoning could be an obstacle to practice safe sex.

5.7 Examination of Predictor Variables

Comparisons of risk communication variables in the prediction of outcome or response variables indicated that with every one increase of perceived efficacy towards abstinence, students are 3 times more likely to practice abstinence. On the other hand, perceived susceptibility (B=-O.456; OR=0.63; P=0.01) was negatively related with abstaining. If perceived susceptibility increases by one unit, there may be a decrease of practicing abstinence by 0.63 times (Table 11(a)). Hence, they perceived that they are abstinent thus might not felt that they are at risk of acquiring HIV. On condom use as perception of capability to use condom increases by one unit, students may be 2.28 times more likely to use condoms and with every one unit increase in perception of condom efficacy study subjects were 1.82 times more likely practice condom use. In separate analysis by gender, perception of susceptibility also predicted for males to use condom, but not for females. An increase in one unit of perceived susceptibility for male students may increases 1.5 times more likely to use condoms. This

could be because of that male condoms are widely used and available and they might tend to use when they felt that they are susceptible.

In this study, perceived self-efficacy predicted abstinence and perception of susceptibility, condom efficacy and self- efficacy were predictors of condom practices. However, perceived severity was not related with outcome variables. This is consistent with base line study among urban use in Ethiopia and other fear appeal messages researches elsewhere (2,8)

5.8 Opinions and Impact of Messages

The opinion of the respondents about HIV prevention messages was fair. However, it is good to note that about one-quarter of the study subjects were disagreeing to the clarity and consistency of the message and about similar number thought that, messages are at times misleading. The study done in Addis Ababa high schools students also documented that HIV prevention messages are not appealing and persuasive (12)

Regarding the TV spot nearly 80% answered that they recalled or saw the spot via TV. The spot campaign seemed positively shift to behavioral change among University students. In general, more than three-forth of the respondents agreed that the TV spot made them to believe that AIDS is sever; they have to protect themselves, and to be determined in achieving their goal. Hence, this message seems fulfill the basic rules of message design (1). However, the impact of the spot in increasing perception of vulnerability was undecided (mean=3.1 ± 1.19). Females were less likely agreeing than males to the statement "The spot made me to believe that I am susceptible to HIV." This is consistent with low perception of vulnerability in this study.

Concerning message characteristics, the results showed that most students preferred messages with real experiences from persons living with HIV/AIDS. It is clear that experience is more persuasive than jargons of facts. They also ranked religious persons as important in teaching

including the moral code of spirituality. In a rapid assessment study on Knowledge, attitude and practices related to reproductive health in Ethiopia, the most accepted method recommended by community was utilization of religious persons (6). Health professional were rated as the third important sources of facts about HIV/AIDS with reasons and arguments since they are knowledgeable on the issue. Females preferred to seek advice from their parents. As most participants value religion, religious places were also preferred to receive information about HIV. As youth have fond of entertaining messages peer education and enter-educate approach are also preferred ways.

6. STRENGTH AND LIMITATIONS OF THE STUDY

The basis for this research design and analysis is the EPPM. The study used empirically tested Extended Parallel Process Model to guide the assessment of the constructs, thus the findings of the study are reliable. The reliability of the items is also checked and some results were measured as scales than a single item.

This model works best in an experimenting an intervention of fear appeal messages (when severity, susceptibility to disease, response and self-efficacy messages are promoted for sometime). In this cross-sectional survey, it is difficult to conclude that the risk communication variables are perfectly linearly predicting the relationship with behavioral response.

As one model/ theory may not explain all factors that determine the behavioral change, this study examines only proximal individual factors and risk communication variables. Therefore, it might not be absolutely sure that all relevant variables are included. The findings of the study are also specific to the study group. Qualitative research also provides greater understanding. As it was self administrative data collection there were some missed item. However, precautions were made to reduce the missed item effect. Besides, the lack of adequate literature in the country for comparing the model variables should be considered and this study is hoped to be an input to this regard.

7 CONCLUSIONS

The purpose of this study was to assess the perception level of HIV/AIDS infection and its prevention methods and examine whether risk health communication variables linearly associated with behavioral response, particularly abstinence and condom use based on EPPM theoretical variables. The findings suggested the following conclusions.

Four hundred and fifty six students responded for self-administrative questionnaire. Age of sexual commencement was a bit higher among university students compared to other adolescents and out of school youth. Of those who had sex in the last 12 months, only slightly more than half claimed to use condom regularly therefore, there seems still the gap in consistent use of condom.

The study subjects had favourable attitudes towards gender view, they valued themselves, and the majorities were future oriented. Females were more confident than males and they had positive view on gender than did males.

The study suggested that perceived susceptibility to getting HIV/AIDS was low. Females felt low risk of getting HIV/AIDS than did males. Perceived severity was fairly high and males perceived the severity more likely than females. The results showed that perceived threat is lower compared to other studies and women perceived less threat of HIV/AIDS. Generally the study revealed that perceptions of efficacy items are higher than perception of threat items.

Perceived efficacy towards abstinence was high while, perception of efficacy for condom as HIV prevention means was between the mid points. Perception of self- efficacy towards abstinence was higher for females while condom use was higher for males.

Perception of self-efficacy was predictor to practice abstinence and perception of susceptibility; condom efficacy and self-efficacy towards condom use were predictors of condom use. Perceived severity was not related with response variables.

Consistent with theory, the results seem to indicate that there are three distinct groups in this study:

- Those with low perception of threat (more females than males) perceived not susceptible to HIV e.g. who never had sex are categorized as the "No response group"
- Those respondents who have high efficacy towards prevention methods and positive attitudes e.g. towards condom use protecting themselves against HIV could be grouped as "danger control" group
- The other small proportion group with low efficacy and low behavioral control are e.g. those who don't want to think about sex when having sex can considered to be as "fear control groups"

Misconceptions about condom still existed among study subjects. Opinions about messages were fair. The results suggested that the TV spot had a positive impact on increasing awareness of severity, to protect them against HIV and influenced towards achieving the goal.

Persons living with HIV/AIDS, religious leaders and health personal were ranked as believable sources of HIV/AIDS prevention messages.

Preferred types of messages for University students were messages with real experiences, with reasons and many facts and preferred to learn with peers.

8. RECOMMENDATIONS

Based on the findings, the strength and limitations of the study the following points were recommended:

- HIV/AIDS prevention messages should emphasis personal susceptibility to AIDS and efficacy of prevention methods, abstinence should be more emphasized, and all should be promoted in any HIV/AIDS prevention campaign.
- Response efficacy and self efficacy towards condom use needs to be encouraged among youth
- Behavioral change communication (BCC) strategies need to address misconceptions about condom and mythical beliefs.
- Hence persuasive communication depends on trust as well as expertise thus persons living with HIV/AIDS, religious persons, health professionals and parents must be involved in persuading young people
- Messages that express real experience, with reasons, facts and entertaining messages should be promoted for this target group.
- Religious places, families, peers and recreation places such as theaters and dram shows should be centers for convincing the students.
- Qualitative study should be conducted to design tailored messages for this target group.
- Models/ theories need to be used to assess design pre-test, develop and produce messages and to broadcast.
- As the TV spot has positive impact on target groups, it needs to be continuing with additional season and similar message need to be developed and produced.

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APPENDIX I

Addis Ababa University, Faculty of Medicine,
Department of Community Health

Students' self-reporting questionnaire on the response to HIV/AIDS messages: Based on the Extended Parallel Process Model

To be filled by students of Bahir Dar University

Dear student!

In promoting the health of young educated people understanding, whether the gap exist between Knowledge and actual practice is important. In line with this a study is proposed to assess the perception level of University students towards HIV/AIDS prevention and infection and you are chosen to participate in this study. The choice is made randomly using a lottery method. The questions include various private life and your perceptions and preferences.

In order to attain effectively the goal, we are asking you for your generous help. Here is a format for you to complete. There is no need to put your name or ID number on the format. No individual response will be reported. It is your full right to refuse or participate in the study. If you do not want to participate in the study, you can put the format on the table upside down. But your honest participation will have contribution to generate the information that can be used for message design. So please take a few minutes to answer these questions. If there are things that require clarification please don't hesitate to ask the facilitators for clarification.

Do you wish to participate in the study?

Yes, I want to participate ☐

No I don't want to participate ☐

Thank you

Section 1 Identification and Background

We would like to know just a little about your background so we can see how different people feel about the topics, which we are investigating. The following are general questions for which you are kindly asked to indicate your honest responses.

No	Question & filter	Coding category	Skip to
101	Your Faculty	Education----------1 Business& Economics-------2 Technology----------3 Law----------4	
102	Your department	_____	
103	Year of the study	Year II----------1 Year III----------2 Year IV----------3 Year V ----------4	
104	Program	Degree----------1 Diploma----------2	
105	Sex	Male----------1 Female----------2	
106	Your age in years	_____**Years**	
107	What is your Religion?	Orthodox----------1 Islam----------2 Protestant----------3 Catholic----------4 Traditional----------5 Other----------6 (Specify)_____	
108	What is your ethnicity?	Amhara----------1 Oromo----------2 Tigre----------3 Agew----------4 Gurage----------5 Wolita----------6 Sidama----------7 Others----------8 (Specify)_____	
109	What is your current marital status?	Single----------1 Married &live together---2 Married but not live together-3 Divorced----------4	

Section 2. Miscellaneous scales, Gender role, self-esteem & impulsivity

The following are statements about different individual characteristics. Please mark (✔) according to your agreement in the statement. E.g. if your views and /or opinions are sure say **81-100%** you can mark **strongly agree.** If your agreement is somewhat between **61-80%** mark **agree** or if your view/opinion is between **41-60%** mark **neutral** If you don't totally agree or your agreement scale is between **0 & 20%,** you can mark on the **strongly disagree** and for **21-40%** mark on the **disagree** column.

No.	Statements	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
2.1	**Views on Gender role**					
211	Women should be Virgins when they are married.					
212	Males can have more than one partners					
213	It is difficult for a woman to be faithful to one partner.					
214	Men should be virgins when they are married					
215	Women generally cannot make good decisions on important matters.					
216	Females can perform as equal as males in education.					
2.2	**Self-Esteem**					
217	On the whole, I am satisfied on my self					
218	At times, I think I am not good at all					
219	I feel that I have good qualities					
220	I like most things about my self					
221	I wish I were somebody else					
2.3	**Impulsivity/self control**					
222	I think things step by step before doing					
223	I do the first thing that comes to my mind					
224	I don't even think it I just do it					
225	I some times like to break rules					
226	I do whatever feels good at the moment					
227	I think about all my choices carefully					
2.4	**Future orientation**					
228	I Enjoy for today for tomorrow I may die					
229	I try not to think about my future much					
230	I try to save money for other days rather than spent it as soon as I get it					
231	I prefer to enjoy the present rather than plan ahead					

Section3. Sexual Behaviors

Now the following questions are about sexual experiences. Any information you give us is completely confidential and your responses will be assigned a code number. No one will ever be able to link your response with you. It is really important that we get honest answers so that we can better understand as to how we develop effective health education messages.

No	Question & filter	Coding category	Skip to
301	Have you ever had sexual intercourse?	Yes----------1 No----------2⟶	Q401
302	How old were you when you started sexual intercourse?	Age in years_____	
303	Do you currently have sexual partner?	No, ----------1 Yes, regular sexual partner------2 Yes, occasional sexual partner--3	
304	Have you had sexual intercourse during the last 12 months?	Yes----------1 No----------2	
305	How many different sexual partners do you have in your lifetime?	Number_____ I can't remember____	
306	What is the frequency that a person like you will have sex with the same partner in a single night? Please guess honestly	_____times	
307	How frequently were you using condom in the last 12 months?	Had no sex in the last 12 months--1 Never used----------2 Sometimes----------3 Most of the times----------4 Always----------5	
308	If you were not using condoms every time what was /were the reasons	Condom not available----------1 I dislike it----------2 My partner refused----------3 I have trust on my partner----------4 Condoms reduce pleasure----------5 I didn`t think of it----------6 Condoms may have virus----------7 Condoms are expensive----------8 I am in love with my partner------9 Others----------10 (please specify)_____	

Section 4. Perceptions about HIV/AIDS infection &infection.

The following are statements about your perception of HIV/AIDS infection and prevention methods. Please mark (✓) in the space provided according to your agreement to the statements according to the scale below.

1. Strongly disagree **4. Agree**

2. Disagree **5. Strongly agree**

3. Neutral

Just please give your honest opinion.

No.	Statements	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
4.1	**Perceived threat**					
401	I am at risk of getting HIV/AIDS					
402	It is possible that I will get HIV/AIDS					
403	It is likely that I will get HIV/AIDS					
404	Getting HIV/AIDS is the worst thing that could happen to my life					
405	If I get HIV/AIDS it will destroy my future					
406	Getting HIV/AIDS is a sure death sentence					
4.2	**Perceived Efficacy**					
407	Using condom is effective in preventing HIV					
408	Condoms prevent HIV/AIDS					
409	If I use condom consistently I am less likely to get HIV					
410	Using condom is convenient					
411	I am able to use condom					
412	Using condom is easy for me					
413	Abstinence is effective in preventing HIV					
414	I am able to be abstinent to prevent HIV					
415	Abstinence is easy for me to prevent HIV					
416	Being stick to only one partner is effective to prevent HIV					
417	I am able to be stick to only one partner to prevent HIV/AIDS					
418	Being stick to only one partner is easy for me to prevent HIV/AIDS					
4.3	**Currently I am protecting my self by**					
419	By being abstinent					
420	By being faithful to only one partner.					
421	By using condoms consistently					

No.	Statements	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
4.4	**In the next 12 months I intend to prevent my self from HIV/AIDS infection**					
422	By being abstinent					
423	By being Faithful to only one partner					
424	By using condoms consistently					
425	I decided to be tested					
4.5	**Other Responses**					
426	I don't think I can do any thing to prevent HIV					
427	God will protect me from getting AIDS					
428	I try not to think getting HIV/AIDS when having sex					
429	I might have infected with HIV/AIDS					
420	AIDS is the **curse** from God (yegzaber qutta)					
431	Condoms are just to disseminate HIV virus					
4.6	**Opinions on prevention activities**					
432	Current campaigns on HIV/AIDS prevention are exaggerated					
433	Current HIV/AIDS prevention messages are misleading.					
434	Current campaigns on HIV are trustworthy					
435	HIV/AIDS prevention messages are clear & consistent.					
4.7	**Attitudes to wards Prevention methods**					
436	Using condom would be good					
437	Being abstinence is good					
438	Being exclusive monogamous will be good					
439	Knowing sero-status is (would) be good					
4.8	**TV. Spot impact**					
440	Have you watched the TV.Spot *Astwelo yemiramed bezu erqet yegoazele*	Yes--1 No--2 →				Skip Q501
441	If Yes, The TV. Spot made me believe that HIV/AIDS has no mercy(mehret yelsh)					
442	The TV. Spot made me believe that I myself might be susceptible to getting HIV/AIDS					
443	The TV. Spot influenced me to protect myself against HIV/AIDS					
444	The TV spot made me to have a future vision.					

Section 5. Preference of Source, Message and channel

501. Please place in rank order the person you would believe the most to the least, if you received the message about HIV/AIDS from him or her to with "1" representing the most believable person and "13" the least believable.

_____ Health personnel _____ Parents

_____ Friends _____ Religious person

_____ Teacher _____ Person living with HIV/AIDS

_____Known person _____Spouse(girl friend/boy friend)

_____Others (please specify)_____

502 Please place in rank order the type of message you would like to receive for HIV prevention with "1" your most preferred message type and "10" representing your least preferred message type

_____ Message with lots of facts _____Message that influence emotion

_____ Entertaining messages _____ Message using real experience and stories

_____ Comic type message _____Message with reasons

____ Message with good arguments _____ Message with detailed process

Other types please specify _____

503. Please place in rank order the way you prefer to learn about HIV/AIDS infection and prevention methods with "1" representing your most preferred way of learning about HIV and 14 representing least favored way.

_____ Religious place _____ discussion with family

_____ Drama /theater _____ Radio

_____ Leaflet/ poster _____ lecture

_____one to one _____ Television

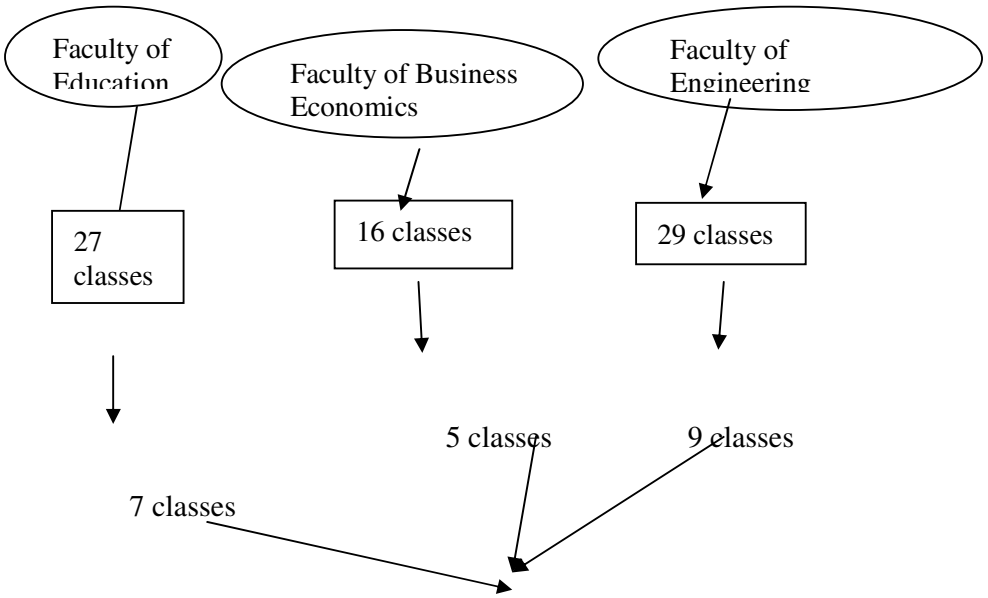
_____Group dialogs with peers

_____ Others specific _____

Thank you very much!!

We appreciate your participation

Fig3 Schematic presentation of sampling male students



21 classes were selected from all departments.

APPENDIX II

Table 3.1HIV/AIDS Prevention measures and Reliabilities

Constructs of Variables	**Example ITEM 1 2, 3 4 5 Strongly Disagree Strongly agree**	**# of Items creating scale**	**Chronobach's alpha**
Views on Virginity	Women should be virgins until married	2	.81
Gender view	Female can perform as equal as males in education	2	-0.71
Self esteem	On the whole I am satisfied on myself	3	0.66
Self control	I think about all my choices carefully	2	0.57
Future orientation	I enjoy to day tomorrow I may die	3	0.64
Susceptibility	I am at risk of getting HIV/AIDS	4	0.72
Severity	Getting AIDS is the Worst thing in my life	3	0.73
Response efficacy About condom	➢ Using condom is effective in preventing HIV/AIDS ➢ Condoms prevent HIV/AIDS ➢ If use condom consistently I am less likely to get HIV/AIDS	3	0.80
Self efficacy About condom use	➢ Using condom is convenient ➢ I am able to use condom ➢ Using condom is easy for me	3	0.82
Response efficacy (Abstinence)	Abstinence is effective in preventing HIV	1	-
Self efficacy abstinence	➢ I am able to be abstinent ➢ Abstinence is easy for me	2	0.90
Response efficacy monogamy	Being stick to only one partner effective to prevent HIV/AIDS	1	-
Self –efficacy Monogamy	➢ I am able to stick to only one panther ➢ Being stick to only one partner is easy for me	2	0.77
Current practice	Abstinent, monogamous and condom	Each 1	
Future Intention	Abstinent, monogamous, condom	Each 1	
TV. Spot impact	TV. Spot influenced me to protect myself	2	0.70

Cronobach's alpha is the most common internal consistency method formed by measuring the average correlation of the items in the scale. Alpha varies from 1 to 0, with higher values indicating more reliability.(W.Thomas,2002)

Table 12 Source, type of message and ways of learning

Preferred source of message	Males No (%)	Females No (%)	Total No (%)
Persons living with HIV/AIDS	89(37.6)	66(38.6)	155(38)
Religious person	74(31.2)	62(37.3)	136(33.7)
Health personnel	57(24.4)	52(30.2)	109(26.8)
Parents	43(18.4)	49(29.3)	92(22.9)
Spouse	36(15.8)	22(13.5)	58(14.8)
Preferred message type			
Messages with real experience	105(45.3)	109(60.2)	214(51.8)
Message with reasons	57(25.4)	43(27.9)	100(26.5)
With lots of facts	60(27.4)	38(24.4)	98(26.1)
Entertaining messages	33(15.1)	35(22.7)	68(18.3)
With arguments	38(17.3)	28(18.2)	66(17.6)
Messages that influence emotion	34(15.3)	31(19)	65(16.9)
Preferred way of learning			
At religious places	83(37.7)	61(39.6)	144(38.5)
Discussion with family	53(24.1)	55(33.5)	108(28.1)
Group dialogue	49(22.5)	56(35.2)	105(27.9)
Drama/theater	60(27.4)	43(27.2)	103(27.3)
One to one	44(20.7)	34(21.8)	78(21.2)
TV	35(16.3)	34(21.4)	69(18.4)
Radio	19(8.9)	28(17.9)	47(12.1
Lecturing	17(8)	13(8.5)	30(8.2)