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Correlates of Risk Perception to Hiv Infection, Abstinence and Condom use among Madawalabu University Students, Southeast Ethiopia: Using Health Belief Model (HBM)

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Result : Forty two percent of the respondents were sexually active and 60.6% of them had used condom in their last sexual intercourse. Forty five percent (45.4%) of the respondents have low risk perception HIV towards infection. Perceived self-efficacy and abstinence for sexual intercourse were statistically significant (OR=0.38[CI (95.0%):0.24– 0.59]) and perceived benefits of HIV infection risk prevention and control method utilization showed significant association with perceived behavioral control among sexually active students (OR=0.46[CI (95.0%):0.27 – 0.83]).

Conclusion : Nearly half of study participants have low risk perception to HIV infection. Perceived behavioral controls (abstinence for sexual intercourse and condom use) were statistically associated with perceived barriers and benefits of HIV infection risk prevention and control measures utilization. Perceived self-efficacy is the important predictor of perceived behavioral control utilization. Therefore, university based HIV risk reduction intervention should be geared towards the identified factors.

I. Background

Millions of young people around the world face a high risk of HIV infection and other negative sexual and reproductive health outcomes as a result of behaviors that they adopt, or are forced to adopt. Those who have sex with someone who is or is likely to be HIV-infected are at risk of acquiring HIV if they do not use a condom. Using condoms consistently reduces the risk of HIV infection among exposed groups. But the young people who most need such protection often have difficulty of accessing appropriate services and adopting behaviors that protect them from HIV infection. The behaviors that put them at risk are usually heavily stigmatized and take place secretly, often illegally [1,2].

Two-thirds of the world's total number of people living with HIV resides in Sub-Saharan Africa of which 60% of all AIDS cases and majority of the new infections are seen among youth (15-24 years) population both nationally and internationally. Since, majority of tertiary level (university) students belong to this age group and they have been among the high risk groups to HIV infection [2-6].

Despite this fact, many young adults undermine their level of risk and susceptibility for HIV infection. Youths do not perceive the seriousness of the pandemic and are not motivated to alter their risky behavior. Experimental behaviors, the need to get social and peers approval and sense of non-vulnerability have been enumerated as reasons for youths to stay with their risky behaviors. People need to have recommended level of HIV risk perception and preventive activities. Because, the actual risk perception matters the decision making process to stay risk free. Individuals or groups who do not understand that they are at high risk of HIV infection would take less protective measures. On the contrary, those who perceived that they are at risk for HIV infection were more likely to comply with HIV infection prevention actions. [7, 8, 9, 10].

Ethiopia is one of the most heavily affected countries by HIV epidemic. Young people are at the center of the HIV/ AIDS epidemic. An estimated 10 million young people aged 15-24 years are living with HIV/AIDS and more than 6000 contract the virus every day. The college environment offers great chance

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for HIV high-risk behaviors, including unsafe sex and multiple sexual partnerships. [11,12,13].

A study conducted in Addis Ababa indicated that (23.6%) of youth participants did not perceive that they are at risk of HIV infection, (43.3 %) claimed to have low risk, (6.7%) medium and only (2.4%) perceived that they have high chance of acquiring the virus [14].

Realizing the socio-economic and development impacts of HIV/AIDS, the government of Ethiopia committed itself to strengthen prevention and control activities for many years through designing a road map for accelerated access to HIV prevention, treatment and care (2007-2010), plan of action for universal access to HIV prevention, treatment, care and support, strategic plan for intensified multi-sectoral response and instituting workplace and school-based IEC/BCC activities (20, 21). Special intervention strategies are in place to ensure equal access for different subpopulation groups including youths. Creating awareness to increase risk perception among youth through information and communication is an important strategy. But university youths evidenced while practicing risky behaviors which probably indicate that interventions might have been done without adequate research on perceived behavioral control of university youths [8]. This suggest that there is a need for more sustained effort and designing targeted and innovative approaches to increase risk perception, especially among in school youths (20).

Therefore, this study has assessed factors associated with perceived behavioral control among Madawalabu University students using Health Believe Model (HBM).

II. Health Belief Model (HBM)

The Health Belief Model (HBM) was developed in the 1950's to explain the public's failure to participate in screening programs to detect tuberculosis in many setups. But few individuals actually took advantage of these opportunities. The HBM was the resulting theory that helped explain this lack of participation in preventive behaviors. The public's reaction to the TB health crisis during the 1950's is alarming in its resemblance to the HIV/AIDS epidemic today. Individuals who were at risk for TB were able to explain lack of participation in prevention via perceptions about the disease and personal susceptibility, time constraints, finances, fear of the procedure, or other barriers to the behavior. Today, there are many opportunities for individuals to participate in HIV preventive behaviors, specifically abstinence and condom use.

Consequently, the creed of HBM is well suited to assess HIV infection preventive. The HBM theorizes that in order for a behavior change to occur, three factors regarding health related action must be present. An individual must feel threatened by his/her current behavior, believe that a specific change in behavior will be beneficial by resulting in a valued outcome at an acceptable cost, and must feel that she or he is competent to implement the recommended change. These components are particularly salient when dealing with HIV infection. Specifically, a person must feel that there is a realistic, not just statistical, probability of contracting HIV infection as a result of his or her current behavior.

Thus, the HBM takes an individual's past experience and characteristics into account as a pre-existing component of the model. An individual's perceptions of a specific disease are founded in an individual's background and allow for assessment of issues salient to an individual (Fig 1).

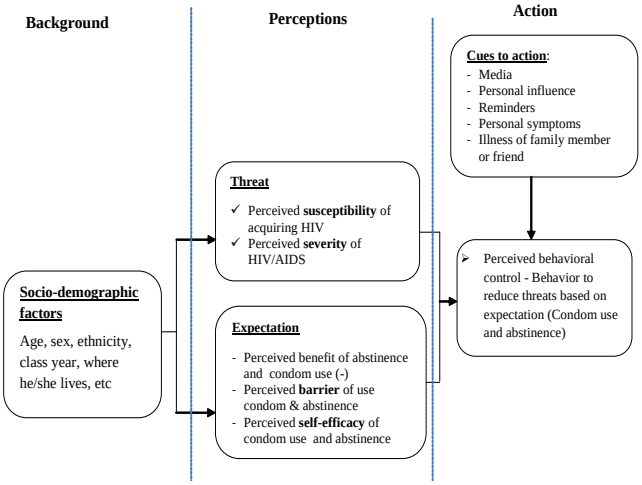

Figure 1. Schematic representation of the components of the Health Belief Model (HBM), Southeast Ethiopia, 2012

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Perceived susceptibility refers to a person's perception of his or her risk of becoming infected with HIV. Perceived severity refers to feelings about the seriousness of HI infection. Perceived benefit indicates a person's beliefs regarding the efficacy of the self-protective behavior. Perceived barriers refer to an individual's perception of the negative aspects of the self-protective behaviors. Cues to action account for internal and external events that trigger performance of the behavior in this case staying abstinence and use of condom. Finally, self-efficacy refers to a person's beliefs regarding his or her ability to successfully staying abstinence and use of condom (*Fig 1*).

III. Methods

a) Study Settings and Sample

A cross sectional study design was conducted in Madawalabu University located in Bale Zone, 430 KM from Addis Ababa, to Southeast of Ethiopia. Madawalabu University is one of the newly established public

higher educational institutions established in 2007. It has two campuses consisting of 10, 317 students of which 5,275 are regular students. The study was conducted from May to June 2012.

The total sample size was determined using single population proportion formula assuming 50% expected prevalence of perceived behavioral control from HIV infection and 10% non-response rate making the final sample size 422 students. Stratified sampling technique was used using health and non-health students as strata. Six (6) non-health schools and a college (College of Medicine and health sciences) totally seven faculties were selected using simple random sampling technique. The total sample size 422 was allocated proportionally to each of the randomly selected schools/college and then to each department. Finally, simple random sampling was employed to select students from each department.

b) Instrument and Measurement

The study instrument was originally prepared in English language then translated to the local language and then translated back into English to check its consistency. The questionnaire contains variables like socio-demographic variables, sexual history and risks to HIV infection, perception (perceived severity, perceived susceptibility, perceived benefits, perceived barrier, perceived self-efficacy and cues to action), abstinence for sexual intercourse and condom use. The internal consistency of items to measure perception was checked by Cronbach's alpha and it was in the range 0.61 to 0.79. Then the data were collected by self-administered questionnaire.

IV. Data Analysis

The data were entered into SPSS version 16.0. Descriptive and binary logistic regressions analyses were carried out to characterize the study participants and identify factors associated with risk perception for HIV infection. Finally multivariable logistic regression was modeled to identify the independent associated factors and a corresponding p-value <0.05(two tailed) was considered to decide statistical significance.

Letter of Ethical approval was received from Madawalabu University, Research and Community service directorate office ethical clearance committee. Official letter of co-operation was also obtained from research and community service directorate office. Informed verbal consent was secured from study participants in their own language explaining the purpose of the study, potential risk and benefits of participating in the study and the right to refuse filling the questionnaire. The participants were also assured about the confidentiality of the information they provided and it will kept anonymously.

V. Result

a) Socio-demographic characteristics

Of the total of 422 study participants, 390of them making response rate 92.4%. The mean (SD) age of the respondents was 21.3(±1.5) years with the range of 18-28 years. The most of the respondents were males by sex with 4:1 male to female ratio. Majority (63.7%) of the respondents were Oromo by ethnic group. More than half of the respondents were Orthodox Christian and 2.2% of the respondents were married currently

Table 1 : Socio-demographic characteristics of Madawalabu University students, Southeast Ethiopia, 2012 (n=390)

Variables	Number	Percent
Age		
15-19	23	5.9
20-24	352	90.3
25-29	15	3.8
Mean age (±SD) years (21.3±1.5)		
Class year		
II	279	71.5
III	111	28.5
Ethnicity		
Oromo	230	63.7
Amhara	74	20.5
Tigre	31	8.6
Others	26	7.2
Religion		
Orthodox Christian	185	52.6
Muslim	80	22.7
Protestant Christian	87	24.7
Marital Status		
Never married	307	95.3
Married	7	2.2

Have constant sexual partner	6	1.9
Monthly allowance from family		
Yes	325	83.8
No	63	16.2

* Siltie, berta, some other ethnic groups from southern nations and nationalities

b) Sexual History and Risks to HIV Infection

In our study, 42.3% of students were sexually active. The mean (±SD) age at first sexual debut was 18.6(±2.2) years. Sixty five percent (65.3%) of sexually active students have initiated sex before they joined university. Participants reported that fall in love (47.5%), had sexual desire (33.8%), marriage (5.6%), to get money and other gifts (8.1%), peer pressure (12.5%) and alcohol (7.5%) were the provided reasons to be engaged in their first sexual intercourse. Thirty percent (30%) of sexually active students practiced casual sexual (Table 2).

Table 2 : Distribution of risk sexual behaviors for HIV infections among sexually active Students, Madawalabu University, Southeast Ethiopia, 2012

Variables	Frequency	Percentage
Place for first sexual activity		
Before joining campus	94	65.3
After joining campus	50	34.7
Relation with first sexual partner		
Casual	40	27.6
Permanent sexual partner	84	57.9
Benefit based relationship	14	9.7
Spouse	7	4.8
Number of life time sexual partners		
One	84	52.5
Two	18	11.2
Three	21	13.1
More than three	37	23.1
Condom use for firs sexual activity		
Yes	63	43.8
No	81	56.2
Number of sexual partners in the last 12months		
One	94	69.6
Two	20	14.8
Three	12	8.9
Four and above	9	6.7
Condom use for last sexual activity		
Yes	75	56.0
No	59	44.0
History of sex with CSW*		
Yes	30	24.0
No	95	76.0
Knowledge level of respondent (mean score = 7.56)**		
Poor knowledge (below mean score)	92	57.5
Knowledgeable(above mean score)	68	42.5

**Commercial sex worker (assessed for only male students), ** Cronbach's alpha 61.6% (internal consistency measure for knowledge items)*

c) *Perceptions and Behavioral Control to HIV Infection*

Of the total study participants, 177 (45.4%) of them reported low perceived risk to contract HIV infection while the rest 213 (54.6%) of the respondents reported high perceived risk to acquire HIV infection. Forty four percent 173 (44.4%) of the respondents perceived that complications related to HIV infection are serious. Majority, 267(68.5%) of the respondents have high perceived benefit towards the prevention and control methods of HIV infection. On the contrary, 123 (31.5%) of the students have reported low perceived benefits of the recommended HIV infection prevention and control methods. Fifty percent, 197 (50.5%) of the respondents reported high perceived barriers to use HIV infection prevention and control methods mainly abstinence, be faithful for one sexual friend and condom use. One hundred fifty two (39.0)of the respondents had reported low rated self-efficacy to use recommended HIV infection prevention and control methods. Only 157 (39.2%) of the respondents were knowledgeable on the mode of transmission and preventive methods while the rest 237 (60.8%) of them had poor knowledge on the mode of transmission and preventive measures of HIV infection (Table 3).

Table 3 : Reliability of perception and knowledge items used to assess students' perception toward risks for HIV infection; Madawalabu University, Southeast Ethiopia, 2012

Variables		*No(%)*	*Cronbach's alpha*
Perceived severity – 11 variables	Low	177 (45.4)	0.67
	High	213 (54.6)	
Perceived susceptibility – 6 variables	Low	173 (44.4)	0.79
	High	217 (55.6)	
Perceived benefits – 5 variables	Low	123 (31.5)	0.65
	High	267 (68.5)	
Perceived barrier – 6 variables	Low	193 (49.5)	0.61
	High	197 (50.5)	
Perceived self effficacy -11 variables	Low	152 (39.0)	0.74
	High	238 (61.0)	
Knowledge – 6 variables	Low	237 (60.8)	0.61
	High	153 (39.2)	

d) *Factors Associated With Perceived Behavioral Controls*

The statistical association of knowledge of students and risk perception to HIV infection and abstinence was checked by Binary logistic regression analysis. In this analysis, perceived severity of HIV infection was statistically associated with abstinence for sexual intercourse (OR=0.61, CI [95.0%):0.40 – 0.92]). Perceived benefits (OR=0.60, [CI (95.0%):0.38 – 0.94]) and perceived barriers (OR=0.53, [CI (95.0%):0.35 – 0.80]) to HIV infection prevention and control measures, showed statistically significant association with abstinence for sexual intercourse Similarly perceived self-efficacy showed statistically significant association with abstinence from sexual intercourse (OR=0.38, [CI (95.0%):0.24 – 0.59]) (Table 4).

Table 4 : Factors associated with abstinence for sexual intercourse among Madawalabu University students, Southeast Ethiopia, 2012

Variables		History of sexual intercoure		COR (95% CI)	AOR (95% CI)
		Yes	No		
Knowledge	Poor	92	138	1.28(0.84 – 1.94)	
	Good	68	80	1.0	
Perceived susceptibility	Low	69	105	1.22(0.84-1.81)	
	High	91	113	1.0	
Perceived severity	Low	60	108	0.61(0.40-0.92)*	0.85(0.54-1.33)
	High	100	110	1.0	1.0
Perceived benefits	Low	40	78	0.60(0.38-0.94)*	0.97(0.58-1.61)
	High	120	140	1.0	1.0
Perceived	Low	66	124	0.53(0.35-0.80)*	0.53(0.34-

barriers					0.81)*
	High	94	94	1.0	1.0
Perceived self- efficacy	Low	42	105	0.38(0.25-0.60)*	0.38(0.24-0.59)*
	High	118	113	1.0	1.0

** Significant at p < 0.01, COR= Crude Odds Ratio, AOR= Adjusted Odds Ratio*

Perceiving condom can prevent HIV transmission showed statistically significant association with condom use (OR=8.05,[CI (95.0%):0.08 – 21.04]). From the health belief model (HBM) constructs perceived benefits of HIV infection prevention and control measures by sexually active students showed statistical significant association with condom use (OR=0.46,[CI (95.0%):0.27 – 0.83]). Similarly, there was statistically significant association between perceived self-efficacy and condom use among sexually active students (OR=0.38, [CI (95.0%):0.17 – 0.82]) (Table 5).

Table 5 : Factors associated with condom use among sexually active students, Madawalabu University, Southeast Ethiopia, 2012

Variables		Ever use condom		COR (95% CI)	AOR(95%CI)
		Yes	No		
Condom can prevent HIV transmission ?	Yes	90	30	8.05(3.08-21.04)*	6.3(2.26-13.7)*
	No	7	19	1.0	1
Knowledge	Yes	59	28	1.22(0.61-2.44)	-
	No	38	22	1.0	-
Perceived susceptibility	Low	38	24	0.7(0.35-1.38)	-
	High	59	26	1.0	-
Perceived severity	Low	32	20	0.74(0.36-1.50)	-
	High	65	30	1.0	-
Perceived benefits	Low	20	15	0.46(0.27-0.83)*	0.47(0.25-0.9)**
	High	77	35	1.0	1
Perceived barriers	Low	44	17	1.61(0.79-3.27)	-
	High	53	33	1.0	-
Perceived self- efficacy	Low	17	18	0.38(0.17-0.82)*	0.72(0.35-1.47)
	High	80	32	1.0	1

**Statistically significant at p<0.01, **Significant at p<0.05 and adjusted for variables that are significant under crude odd ratio*

Multivariable logistic regression analysis was carried out to identify the independently associated factors with condom use among sexually active students during their sexual intercourse. Perceived benefits (OR=0.47, [CI (95.0%):0.25-0.89]) and thinking that condom can prevent HIV transmission (OR=6.3, [CI (95.0%):2.26-13.68]) remained the independent factors for condom use (Table 5).

VI. Discussion

In this study, Health Belief Model was used to assess perception toward HIV infection and utilization of HIV infection prevention and control methods (abstinence and condom use). Therefore, in this study 177 (45.4%) of the respondents have reported low perceived risk of contracting HIV infection. Similarly, a study conducted in African American commuter urban university, USA showed that 57.9% of students aged <19 years and 48.1% of students aged 20-19 years have reported no perceived chances of getting HIV infection[12]. A study done in Tanzania showed that only 25% of students felt that they had a very low risk to HIV, while 53.1% felt that they were not at risk at all [18,19]. A similar study done in Cape Town, South Africa showed that only 24% of youths involved in concurrent sexual relationships consider themselves to be at risk of HIV [16]. On the other hand, a study conducted on Black African American University students, 79 % of students perceived to be at low risk for HIV infection [22].

Forty four percent (44.4%) of the respondents perceived complications related to HIV infection are severe. But 160 (41%) of the respondents were sexually active and 39.4% of them did not use condom for their past sexual intercourse. Study done on Black American University students showed that 64% of those who had at least two or more sex partners had not used a condom at last sex encounter [22]. A study done in

Nigerian students did not use HIV infection preventive measures during their sexual intercourse [10, 17].

In this study, perceived severity of contracting HIV infection, perceived benefits of behavioral control, perceived barriers to HIV infection prevention, control measures and self_efficacy to use HIV infection prevention measures were statistically significant with abstinence. Perceived barriers to HIV infection prevention and control method utilization and perceived self_efficacy were the independent predictors of sexual abstinence. Those individuals who have low perceived barriers were less likely to practice sexual intercourse (OR=0.53, [CI (95.0%):0.34 _ 0.81]) when compared with those who have high perceived barriers. Similarly those of students who had low perceived self_efficacy were also less likely to practice sexual intercourse (OR=0.38, [CI (95.0%):0.24 _ 0.59]).

This study also revealed that perceived benefits of HIV/AIDS prevention and control method utilization showed significant association with past condom use among sexually active students. Students who had low perceived benefits were less likely to utilize condom during sexual intercourse when compared with those who had high perceived benefits of using condom (OR=0.46, [CI (95.0%):0.27 _ 0.83]).

Perceived self-efficacy and condom utilization among sexually active students were found to have statistically significant association. Students who had low perceived self_efficacy were less likely to use condom in their last sexual practice (OR=0.38, [CI (95.0%):0.17_0.82]). Other study also showed statistically significant association between perceived self_efficacy of HIV/AIDS prevention and control method and past condom usage [3, 8, 14].

This study is based on the health belief model (HBM) along with perceived behavioral control; these variables which would provide a better specific gaps and strength and quality information for intervention. But this study is limited to establish temporal relationship because of its cross-sectional nature.

VII. Conclusions

In this study, two out of every five students were sexually active. The knowledge of students towards the mode of transmission of HIV infection found to be unsatisfactory. Significant proportion of students reported low risk perception to HIV infection. Although majority of the respondents have high perceived benefit of HIV infection prevention and control measures, more than half of the students reported high perceived barriers to use behavioral controls. Students have reported low rated self_efficacy to use recommended HIV infection behavioral controls measures. Participants with low perceived barriers and low perceived self_efficacy were less likely to practice sexual intercourse. Similarly, students with low perceived benefits and low perceived self-efficacy of condoms were less likely to use condom. In this study, perceived severity of HIV infection showed statistically significant association with sexual abstinence and condom use. Similarly, perceived benefits of behavioral controls, perceived barriers to HIV infection prevention and perceived self-efficacy were statistically associated with sexual abstinence and condom use. But perceived benefit of condom remained the independent factors for condom use. Therefore, university based HIV risk reduction intervention should be geared towards the identified factors.

VIII. Competing Interests

None of the authors and other organizations has competing interest.

IX. Authors' Contributions

TS and AT conceptualized and designed the study. ND and BT assisted in designing the study. ND conceptualized and refined the concept, analyzed and interpreted the data, drafted the manuscript. TS assisted preparation and critically reviewed the manuscript. AT & BT critically reviewed the manuscript. All authors have re in data analysis and interpretation, manuscript ad and approved the final manuscript.

X. Acknowledgements

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References Références Referencias

1. Young People Most at Risk of HIV: A Meeting Report and Discussion Paper from the Interagency Youth Worsking Group, U.S. Agency for International Development, the Joint United Nations Program on HIV/AIDS (UNAIDS) Inter-Agency Task Team on HIV and Young People, and FHI. Research Triangle Park, NC: FHI, 2010.
2. Joint United Nation Program on HIV/AIDS, UNAIDS/WHO. AIDS epidemic update. 2005. World Health Organization (WHO), Geneva, 2005.
3. UNAIDS. Status of the global HIV epidemic: report of the global AIDS epidemic. 2005.
4. UNAIDS Global HIV/AIDS and STD surveillance. Report on the global HIV/AIDS.WHO Geneva December 2000.
5. United Nations Program on HIV/AIDS. Report Update on the Global HIV/AIDS Epidemic, 2005. http://www.org /Bangkook2005/ report.html.
6. Center for Disease Control (CDC) and Prevention. HIV/AIDS Surveillance Report: U.S. HIV and AIDS cases reported through. December, 1993.

7. Mac Donald NE, Wells, GA, Fisher WA, et. al: High-risk STD/HIV Behavior among College Students, Journal of the American Medical Association, 1990, 263(23): PP 3155-3159.
8. Beyan N. Predictors of condom use by using Health Belief Model. Master thesis, 2005.
9. Peltzer K. Factors affecting condom use among South African university students. East African Medical Journal 2000: 77(1).
10. Ojikutu R, Adeleke I, Yusuf T, et.al. Knowledge, risk perception and behavior on HIV/AIDS among students of tertiary institutions in Lagos state, Nigeria. E-Leader Budapest 2010.
11. FMOH. Guideline for implementation of antiretroviral therapy in Ethiopia. January 2005.
12. Adefuye AS, Abiona TC, Balogun JA, et.al. HIV sexual risk behaviors and perception of risk among college students: implications for planning interventions. BMC Public Health 2009, 9:28.
13. UNAIDS. Report on the global HIV/AIDS epidemic, 2004.
14. Gashawbeza K. Risk Perception and Condom Use among Married in Addis Ababa: The Case of KolfeKeranyo Sub City, M.Sc. Thesis, 2008.
15. Abebe A, Mitikie G. Perception of High School Students towards Voluntary HIV Counseling and Testing, using Health Belief Model in Butajira, SNNPR. Ethiopia Journal Health Development. 2009;23(2).
16. Kenyon C, Zondo S, Badri M. Determinants of Self-Perceived HIV Risk in Young South Africans Engaged in Concurrent Sexual Relationships. African Journal of Reproductive Health [Afr J Reprod Health] 2010; Vol. 14 (3), pp. 171-81.
17. Harding A. Anadu, E. Gray, L. A., &Champeau, D. Nigerian university student's knowledge, perceptions, and behaviors about HIV/AIDS: Are these students at risk? Journal of the Royal Society of Health, 1999; 119 (1), 23-31.
18. Masulanya E, Moji K,Hariguchi I, et.al. Knowledge, risk perception of AIDS and reported AIDS and reported sexual behavior among students in secondary schools and colleges in Tanzania. Health education research theory and practice 1999; 14(2): 185 –196.
19. Ikamba L, Ovedraogo B. High-risk sexual behavior: knowledge, attitudes and practice among youth at kichangan ward, Tanga, Tanzania. Action research reports.
20. Federal Democratic Republic of Ethiopia (FDRE) HIV Prevention and Control Office (HAPCO). Country Progress Report on HIV/AIDS Response, 2012.
21. Federal HIV/AIDS Prevention and Control Office (FHAPCO), Federal Ministry of Health(FMH) Strategic Plan II For Intensifying Multi-sectoral HIV and AIDS Response in Ethiopia2010/11 – 2014/15. Addis Ababa, Ethiopia, 2010.
22. Sutton MY, Hardnett FP, Wright P, Wahi S et al. HIV/AIDS Knowledge Scores and Perceptions of Risk among African American Students Attending Historically Black Colleges and Universities. Public Health Reports /September–October 2011/Volume 126: pp 653-663.