



Ethiopian Public Health Association (EPHA)

EPHA Sponsored Master's Theses Extracts on
HIV/AIDS

Extract N0.15

September, 2011

Addis Ababa, Ethiopia



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This publication is sponsored by the US Centers for Disease Control and Prevention (CDC), in accordance to the EPHA-CDC Cooperative Agreement N0.1U2GPS001229

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Acknowledgement

The Ethiopian Public Health Association (EPHA) is greatly indebted to the US Centers for Disease Control and Prevention (CDC) for both technical and financial supports provide to undertake the Master's Theses study and publish the 15th Extract.

EPHA is also grateful to the College of Public Health and Medical Sciences of Jimma University and Oromia National Regional State for their unreserved supports throughout the execution of the studies.

Likewise, EPHA extends its sincere thanks to all professionals and organizations for providing the necessary inputs, devoting; time, expertise and facilities to make it possible to successfully accomplish the studies.

Finally, EPHA would like to express its gratitude to the data collectors, supervisors, principal investigators and advisors from universities, who have participated in these studies.

Hailegnaw Eshete
Executive Director, EPHA

Disclaimer:

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Acronyms

AAC	Anti-AIDS Clubs
ABC	Abstinence, Be faithful and Condom use
AIDS	Acquired Immunodeficiency Syndrome
AOR	Adjusted Odds Ratio
ART	Antiretroviral Therapy
BCC	Behavior Change Communication
BSS	Behavioral Surveillance Survey
CDC	Center for Disease Control and prevention
COR	Crude Odds Ratio
DPCD	Disease Prevention and Control Department
ECA	Economic Commission of Africa
EDHS	Ethiopian Demographic and Health Survey
EMSAP	Ethiopian Multi-Sectoral HIV/AIDS Prevention and Control Project
EPHA	Ethiopian Public Health Association
EPPM	Extended Parallel Process Model
FCs:	Female Condoms
FDRE	Federal Democratic Republic of Ethiopia
FGAE:	Family Guidance Association of Ethiopia
FGD	Focus Group Discussion
FP	Family Planning
HAART	Highly Active Antiretroviral Therapy
HAD	Hospital Anxiety Depression
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and Development
IEC	Information Communication and Education

KAP	Knowledge, Attitude and Practice
MOH	Ministry of Health
MSPSS	Multidimensional Scale of Perceive Social Support
NGO	Non- Governmental Organizations
NVP	Neverapin
OR	Odds Ratio
OSY	Out of school youth
PBC	Perceived Behavioral Control
PLWHA	People Living With HIV/AIDS
PMTCT	Prevention of Mother To Child Transmission
RH	Reproductive Health
SD	Standard Deviation
SPSS	Statistical Package for Social science Studies
STI	Sexually Transmitted Infections
STD	Sexually Transmitted Diseases
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
UN	United Nation
UNAIDS	Joint United Nations program on HIV/AIDS
UNICEF	United Nations Children's Fund
US	United States
VCT	Voluntary Counseling and Testing
WHO	World Health Organization

Message from the EPHA President

Combating HIV/AIDS and other diseases is obviously one of the UN Millennium Development Goals to be reached by the year 2015. As a result, large amounts of money have been and continue to be poured into programs that educate people on how they can protect themselves against HIV infection. The media, researchers, development agents, the government and all the concerned bodies have been at the forefront, creating evidence based information, documentaries, talk shows and advertising campaigns geared toward encouraging those at risk to alter their behavior and adopt safer sexual practices.

Some of the campaigns push the message to wider condom use, get tested and abstain. However, while education is vital, no education campaign is useful unless it obtains the desired effect of altering the behavior of the target audience.

Majority of the studies compiled in this extract, are not only to discover the effectiveness of HIV prevention means but a vital part of it was to find out from the target audience, the youth, more effective strategies at reaching them and bring about the required behavior modification that lead to HIV infection and AIDS prevention.

In view of facilitating the aforementioned concern and documenting lessons learned from program implementations in the fight against the epidemic, EPHA through the technical and financial assistance of CDC-Ethiopia has continued to be engaged in generating such evidence based information. More importantly, findings of the operational researches are disseminated to a wider

public health audience using the different publications of the Association and in its webpage (www.ethpa.org).

This document is one of the publications released as the 15th Master's Thesis Extract from a series of publications on EPHA-CDC project research awards implemented in areas of HIV/AIDS. In this document, summary of findings incorporate issues such as predictors of HIV risk prevention behaviors among youth, psychological disaster and its predictors in non-AIDS orphan adolescents, the relationship between substance use, sexual orientation and risky sexual Behaviors and other related issues.

At this moment, I would like to thank and congratulate the authors as well as all participants who engaged in the research activities for their important contribution without which the information for this extract could not be gained.

As a final point, I call upon all readers to use the findings and recommendations of those studies exhaustively in the implementation of programs which are aimed at curbing the problem of HIV/AIDS in Ethiopia and beyond.

Dr. Wakgari Deressa
V/President, Ethiopian Public Health Association (EPHA)

Introduction

The EPHA-CDC Project commenced generating strategic information through MPH theses, since 2003. The major actors of the MPH Theses are the postgraduates, their advisors, data collectors and their supervisors. The role of EPHA is to sponsor and publish the Master's theses summaries in the form of such EXTRACTS, in collaboration with CDC. So far, we have disseminated 4000 copies each to the health professionals and health related organizations in all over the country, publishing 14 Extracts in the form of booklets.

This is the 15th MPH theses Extract published encompassing summaries of seven theses sponsored by the EPHA-CDC Project for their partial fulfillment of (Masters of Public Health) MPH from the School of Public Health, Jimma University.

The objective of the Extract publication was to provide evidence based information to the health sector on HIV/AIDS program which helps to improve decision making. The study summaries are presented in this booklet with brief abstracts, background, objectives, study design, results, conclusions and recommendations.

The Extract contains important results on ART outcomes, reproductive health care needs including fertility desire among people living with HIV/AIDS. In addition, factors contributing to tuberculosis case detection to see practical implications are included as part of the Extract. It also assesses public health implications of alcohol advertising practices in Ethiopia.

The EPHA –CDC Project trusts that such studies are most useful to program implementers and policy makers to take measures for improving service delivery in areas of HIV/AIDS prevention, treatment and care.

Therefore, EPHA would like to invite readers of the Extract to apply the recommendations forwarded by the respective principal investigators in order to improve HIV/AIDS program implementations.

EPHA-CDC Project

Thesis One

The Response of out of School Youth to HIV Prevention Message Based on the Extended Parallel Process Model (EPPM): a Cross Sectional Study in Hawassa Town, SNNPRS, Ethiopia

Hiwot Woldyesus

Abstract

Background: Youths feel less susceptible to adverse outcomes associated with risk behaviors and are therefore at greater risk even if higher level of knowledge on HIV/AIDS exists. Thus the Extended Parallel Process theoretical model helps to identify the motivational factors to address the recommended HIV preventive behavior among the study participants.

Objective: To describe the response of Out of School Youth to HIV prevention message and factors affecting their current practice based on the Extended Parallel Process theoretical model at Hawassa town.

Method: A Community based cross sectional study was conducted on a sample of 450 Out of School Youths from 15 to 25 Feb, 2010. A stratified sampling technique followed by systematic random sampling of the households was done to identify the study subjects. A pretested interviewer administered questionnaire was used for data collection. Data was coded, entered into a database, cleaned and edited then univariate, and multivariate analysis were done using SPSS.

Results: Four hundred and thirty eight respondents were included in the study, 66% of the respondents were males. All the study participants were single and 224 (51.1%) were sexually active. The mean age of sexual debut among the sexually actives were found to be (17.28 ± 1.99) and only 46(24.9%) respondents who had sex in the last 12 months were used condom consistently.

Among the respondents 190(43.3%) had low score and 248 (56.6%) high perceived threat score. On the other hand, 221 (50.5%) of the respondents had high and 217(49.5%) low score of perceived efficacy on the HIV preventive methods. Based on the EPPM, 190 (43.3%) of the respondents were in no response group, 130(29.7%) in fear control response and 119(27.2%) in danger control response, where as the 62.1% of the no response group were not sexually active. Attitude towards the preventive methods was generally positive, attitude towards being faithful was stronger and attitude towards consistent condom use was low. The bivariate and multivariate analysis showed that attitude and intension towards the HIV preventive methods were correlated with current practice of abstinence, being faithful and consistent condom use. Additionally from the EPPM constructs, the self efficacy on the HIV preventive methods was the predictors of current practice.

Conclusion and Recommendation: The construct of EPPM theoretical model with the external variables is a good predictor to the current practice being abstinence and consistent condom use and message that increase self efficacy of the respondents on the HIV preventive methods should be addressed.

Introduction: Half of all new HIV infections in the world occur in people aged 15–24; more than 7,000 young people become infected with HIV every day; nearly 12 million young people are living with HIV/AIDS (1). In Sub Saharan Africa, more than half of all new HIV infections occur in 15 to 24 years-old and greater than a third of all people living with HIV/AIDS were under the age of 25 (1, 2, 3). In Ethiopia the transmission of HIV/AIDS is more of heterosexual (99%) so, preventive behaviors are the only choices to protect youths from the epidemic in the absence of effective

medical cure (7). Different stakeholders including MOH have conducted different IEC/BCC interventions. However, behavioral change was not yet attained in a level that reduces transmission and reverses the epidemic. Besides, studies found out low IEC interventions as perceived barriers to behavioral change (8).

The 2005- Behavioral Surveillance Survey (BSS) of Ethiopia found that significant proportion of the population particularly youth, are at high risk of HIV infection despite the high level of knowledge about HIV/AIDS (9). The perception of own risk is less than the perception of others at risk. Knowledge may be necessary but not sufficient to reduce high-risk activities (12). In the era of HIV/AIDS, several evidences showed that people want to know more about HIV/AIDS transmission, severity, prevention and treatment; from friends, family, mass media and health professionals. Then they are willing to respond/change their behavior if HIV/AIDS messages are helping them to make the change (13). In Ethiopia even though access to the radio is very low (23%), peoples did get more information from radio (72.3%) (7). However the role of the mass media in raising public awareness about HIV/AIDS is said to be insufficient (17).

Besides identifying the existing problems and gaps, behavioral models and theories help to better understand individual behavioral change as they exchange information and help to guide appropriate intervention activities (21). In this study, the communication model called the Extended Parallel Process Model (EPPM) was used to study predictors of the current practice among out-of-school-youths in Hawassa town.

The Extended Parallel Process Model:

The Extended Parallel Process Model (EPPM) is the most recent fear appeal theory that attempts to explain when and why the persuasive messages may work or fail and is a model for motivating action through both cognition (thoughts) and feelings (primarily fear). The model offers a dual/parallel approach to explain how individuals process and respond to threatening messages. The EPPM infers that after exposure to a fear appeal, individuals will first appraise the threat component of the message then the efficacy. If the threat is perceived to be high (high susceptibility and/or high severity), then fear is elicited, and there is motivation to begin the second appraisal, the evaluation of the efficacy of the recommended response. If the threat is perceived as irrelevant/low, or insignificant/trivial, then there is no motivation to process the message/ efficacy is not evaluated, and there is no response to the appeal. When perceived threat and efficacy are high, individuals will follow the course of danger control, meaning they will focus cognitively on dealing with the threat and possible solutions to avert the threat. When perceived threat is high, but efficacy (self and/or response) is low, individuals will follow the course of fear control (10, 37, 38).

Methods and Materials

Study Design: Cross-sectional, descriptive community based study was employed.

Study Area and Period: This study was in Hawassa town, the Capital of the Southern Nations, Nationalities and Peoples Regional State conducted from Feb15-25/2010 G.C at. Hawassa town has seven urban sub city comprising twenty administrative kebeles where 46,142 youths of age 15-24 years live (7). The prevalence of HIV based on the ANC surveillance report of 2003 and 2005, in

Hawassa town was 8.2% and 9% respectively. . Whereas; the regional HIV prevalence rate was 2.3% (4).

Study Population - A household with eligible youth was taken as sampling unit. Out of school youth who was unmarried and not engage in formal education (drop out /never learn) during the study period were included in the study.

Sample Size- The sample size was calculated by assuming the risk communication variables (perceived threat and efficacy) were the predictors to the current practice (A,B,C) and if the mean score difference with the two variables is positive, result in behavioral change(38)

The difference between the mean score of risk communication variables (0.25) and the average standard deviation 1.25(10) Z-score based on 95% Confidence Interval (CI) and 80% power where 15% non response rate and a design effect were considered the calculated sample size was 450.

Sampling Method -Hawassa town was stratified into seven sub cities. A stratum was selected by lottery method from each sub city and samples were distributed to each sub-city using probability proportional to size allocation technique. Systematic random sampling was used to select study subjects household. If two or more study subjects were present in a household lottery method was applied to select a respondent.

Data Collection Instruments - structured questionnaire was used to collect data. The questionnaire were adapted from similar studies based on EPPM theoretical model (10, 11). The questionnaire consisted of socio-demographic, personality factors (self-esteem, locus of control, future oriented, sexual experiences

(sexual début, number of partner), substance use, perceived threat, perceived efficacy towards HIV infection and preventive methods. It also includes current practice, attitudes, misconceptions, and opinion about the message, source of information, type of message and channels. Most of the questions were prepared on a Likert scale. Cronbach's Alpha Coefficient for each measure was calculated to assess the reliability. The perceived threat and efficacy of HIV preventive methods scale contains six and fourteen items where highly correlated item in the component matrix was used to represent the construct. The mean score of each item were used and above the mean score was taken as high score for perceived threat and efficacy. In the case of the current practice, intension and attitude towards the preventive methods single items were used to measure the individual response on the likert scale. 8th and 10th grades completed students were trained for two days and participated in the pre-testing of the questionnaire and data collection. The data collectors interviewed the study subjects using pre-tested and structured questionnaires. The principal investigator and four public health nurses supervised the data collection. Incomplete and inconsistent data were identified and the necessary corrections were made on the field.

Data Analysis- Data was coded and entered into a database using SPSS version 16 and cleaned as well as edited before analysis. The Pearson's and Kendal's tau correlation was used to see the association between the independent and intermediate variables with the outcome variable. At the multivariate analysis level principal component analysis was done for the perception level of HIV infection and the HIV preventive methods and

multiple regression analysis was done to see the predictors of current practice.

Ethical Issues - The study proposal got ethical clearance from the ethical committee of Jimma University. Written consent was obtained from the study participants and confidentiality was assured for all the information provided. In cases where the study participant was less than 18 years (15-18yr) verbal consent was asked from families.

Results

A sample of 438 youths were involved in the study and this makes a response rate of 97.3%. The mean (\pm SD) age of the participants was 20.17 ± 2.59 with median age of 20 years. Male constituted 66% of the respondents and female 34%. All the participants were single. With respect to ethnic group, 37.7% were Wolayta and 27.2% Sidama. Around fifty percent were protestant Christians by religion. Forty five percent of the respondents were educated up to grade eight, 11% can read and write where as 6.2% were illiterate. At household level, 57.9% had only radio, 36.5% had both radio and television (table 1).

Sexual Behavior

Among the respondents 224 (51.1%) were sexually active with mean age of sexual initiation of 17.3 (SD=1.99) . Among the sexually actives, 48.2% had regular partner, 43.3% had non regular partner. The mean life time sexual partner was 3.46 with SD=1.89). Among the sexually active Out of School Youth (OSY) who had sex in the last 12 months, only 24.9% used condom always. The commonest reason for not using condom always were responded as reduces sexual pleasure (55%), didn't think of

it (27.7%), partner refuse (22.3%) and partner trust (19.2%). Among sexually active youths 42.4% used condom for the first sexual experience and 52.2% used the last time they had sex. Concerning the last time they had sex, 26.7% chewed chat and 27.6% drunk alcohol. There was no statistically significant association with sexual initiation and frequency of condom use with smoker and alcohol drinking status ($p>0.05$).

Table1- Socio-demographic Characteristic of Out of School Youth (OSY), Hawassa town, SNNPRs, Ethiopia, April 2010

Socio-demographic characteristics	No.	%
Sex		
- Male	289	66
- Female	149	34
Age		
- Age15-19	186	42.5
- Age20-24	252	57.5
Marital status		
- Single	438	100
Religion		
Protestant	217	49.5
Orthodox	160	36.5
Muslim	30	6.8
Catholic	24	5.5
Adventist	7	1.6
Ethnicity		
Wollita	165	37.7
Sidama	119	27.2

Amhara	55	12.6
Gurage	51	11.6
Oromo	38	8.7
Kenbata	10	2.3
Highest Educational level		
Grade 1- 8	197	45
Grade 9-10	123	28.1
Read and write	48	11
Above TVET	43	9.8
Illiterate	27	6.2
Income per month		
less than500 birr	339	77.4
500-1549 birr	96	21.9
> 1500birr	3	0.7
Occupation		
Daily laborer	170	38.8
Private org. employee	158	36.1
Merchant	67	15.3
House cleaner	30	6.8
Farmer	13	3
Access to electronics		
Only radio	254	57.9
Both radio and TV	160	36.5
Only Television	24	5.5

Perception of Threat towards HIV Infection

PCA of the perceived threat shows that 73 % of the variance was explained by two components extracted from six items (cronbach's $\alpha=0.8$). The perception level of threat items were found to be low (items mean score 2.93 $SD=0.4$) among the

respondents and 248 (56.6%) had high score of the perceived threat scale (mean score 17.61, $SD=5.95$). The level of perceived susceptibility among the OSY was low (mean score 2.61, $SD=0.41$) and the perception level of severity was moderate (mean score 3.26, $SD=0.2$).

Perceive Efficacy towards the HIV Preventive Methods

The level of Perceived efficacy regarding HIV/AIDS prevention methods were high (mean score 3.43, $SD=0.36$). Two hundred twenty one (50.5%) of the respondents had high score and 217 (49.5%) perceived low score of perceived efficacy on the HIV preventive methods where the mean score of the perceived efficacy scales was 41.16, $SD=8.58$.

Perceived Response Efficacy

PCA of the perceived response efficacy explained 69% of the variance, where three components were extracted from the six items. The response efficacy towards abstinence was strong (mean 4.0, $SD=1.247$). The response efficacy of being faithful was moderate (mean score 3.69, $SD=1.24$). The response efficacy towards consistent condom use was low (mean score 2.73, $SD=1.41$).

Self Efficacy of OSY resolution

PCA of the perceived self efficacy, three components were extracted from eight items. The total variance explained was 71%. Self-efficacy on abstinence was moderate (mean score 3.46, $SD=1.51$). Self-efficacy on being faithful was moderately high (mean score 3.70, $SD=1.31$) but self-efficacy on consistent condom use was low (Mean score 2.9, $SD=1.09$).

Behavioral Response

According to the EPPM theoretical model, three behavioral (cognitive) responses (processes) among the study subjects. No response groups were respondents who have low score of the

perceived threat scale. Hundred ninety (43.3%) of the respondents were no response group and 118(62.1%) of the non response groups claimed to be not sexually active.

Those who scored high on the perceived threat towards HIV infection had low score on the perceived efficacy on HIV preventive methods. These accounted for 129(29.5%) of the total respondents. Danger control response groups were those respondents who process high perceived threat towards HIV infection and high perceived efficacy on the preventive methods that accounted for 119(27.2%) of the respondents.

Attitude towards the HIV Prevention Methods

Generally, attitude towards HIV preventive methods became positive indicated by positive attitude towards abstinence, 336 (77.6%), with mean score 3.93, SD=1.26, being faithful, 365 (83.3%), with mean score 4.13, SD=1.13, and consistent condom, 254 (58%), with mean score 3.37, SD=1.41).

Intension towards HIV Preventive Methods

Intension towards abstinence was high among 283 (64.6%) with mean score of 3.64, SD=1.46. In addition, 290(66.2%) of the study subjects had high intension towards being faithful (mean score of 3.65, SD=1.38), and consistent condom use, 218(49.8%), with mean score 3.09, Sd=1.55 with 116(26.5%) strongly disagreed.

Current Practice

Majority of the respondents, 288 (65.8%), claimed that they protect themselves against HIV/AIDS infection by being abstinent (Mean score 3.63, SD=1.52). Respondents less strongly agreed (Mean score 3.6 , SD=1.25) that they were protecting themselves

by being faithful. However, the response about current consistent condom use suggested low practice with the mean score falling below the mid (Mean 2.32 ± 1.35) where 270(61.6%) disagreed and 65(14.8%) were neutral.

Factors Associated with Current Practice of OSY

Being abstinence currently was associated with age ($r = -.197$, $p < 0.001$) and sexual initiation ($r = 0.413$, $p < 0.001$). Currently being faithful was significantly associated with income ($r = 0.204$, $p < 0.001$) age ($r = 0.180$, $p < 0.001$) and current type of sexual partner (regular) ($r = 0.365$, $p < 0.001$) and sexual initiation ($r = -0.254$, $p = 0.001$). Current practice of consistent condom use was associated with access to electronics ($r = 0.098$, $p = 0.04$), always condom user ($r = 0.372$, $p < 0.001$), having sex for first time ($r = -0.188$, $p = 0.005$) and had sex with condom last time ($r = 0.326$, $p < 0.001$), and sexual initiation ($r = -0.354$, $p < 0.001$). (table 2).

Table 2 The correlation of the independent variables with the current practice of OSY at Hawassa, April 2010
SNNPRs

Variables		Age	Income	Access electronic	sexual initiation	First sex condom use	last sex use condom	Always condom	Regular partner
Current practice of being abstinent	r	-.197**			.413**				
	p-value	.000			.000				
Current practice of being faithful.	r	.180**	.204**		-.254**				.365**
	p-value	.000	.000		.000				.000
Current practice of consistent condom use	r	.193**	.094*	.098*	-.354**	-.188**	-.326**	.372**	
	p-value	.000	.049	.040	.000	.005	.000	.000	
**. Correlation is significant at the 0.01 level (2-tailed).									

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

Kendall's tau correlation coefficient was used to examine the relationship between perceptions of attitude, intention and practice towards HIV prevention methods with the risk communication variables, thus perceived self efficacy on abstinence ($r=0.073$; $p=0.033$), attitude ($r=0.166$; $p<0.001$) and intension ($r=0.421$; $p<0.001$) were correlated to current practice of abstinence.(table3)

Table 3 . The Correlation of the current practice, Intension, Attitude of being abstinence with the perceived threat and efficacy of being abstinence among OSY at Hawassa, April 2010, SNNPRs.

variables		Attitude Abs	Intension Abs	Practice Abs
Intension Abstinence	r	.241**		
	p-value	.000		
Practice Abstinence	r	.166**	0.421**	
	p-value	.000	0.00	
Response efficacy of abstinence	r	.266**	.323**	.119**
	p-value	.000	.000	.001
Self efficacy abstinence	r	.274**	.351**	.073*
	p-value	.000	.000	.033
**. Correlation is significant at the 0.01 level (1-tailed).				
*. Correlation is significant at the 0.05 level (1-tailed).				

The response efficacy ($r=0.091, p<0.001$) and self efficacy of being faithful ($r=0.215, p<0.001$) were significantly associated with current practice of being faithful. Attitude towards being faithful ($r=0.129; p=0.001$) and intension towards being faithful $r=0.215; p<0.001$) were significantly correlated to the current practice (table4).

Table 4. The correlation of the current practice, Intension, Attitude of being faithful with the perceived threat and efficacy of being faithful among OSY at Hawassa SNNPRs, 2010 .

variable s		Perceive d severity	Respon se faithful.	Self efficac y Being faithful	Practic e of faithful	Attitud e faithful
Self efficacy Being faithful	r		.271**			
	p-value		.000	.		
Practice of being faithful	r		.091*	.215**		
	p-value		.021	.000	.	
Attitude on being faithful	r		.205**	.274**	.129**	
	p-value		.000	.000	.001	
Intensio n faithful	r	-.111**	.153**	.351**	.215**	.241**
	p-value	.005	.000	.000	.000	.000

e					
**. Correlation is significant at the 0.01 level (1-tailed).					
*. Correlation is significant at the 0.05 level (1-tailed).					

Self efficacy ($r=0.365$; $p<0.001$) and response efficacy ($r=.160$; $p<0.001$) of consistent condom use were significantly associated with current practice of consistent condom use. Attitude ($r=.365$; $p<0.001$) and intension ($r=.331$; $p<0.001$) towards consistent condom use were also significantly correlated to the practice of consistent condom use (table5).

Table.5. The Correlations of the current practice, Intension, Attitude of consistent condom use with the perceived threat and efficacy among OSY Hawassa 2010 , SNNPRs

Variables		Perceived severity	Response efficacy of co	Self efficacy consisten	Attitude on consisten	Intension Consisten
Self efficacy of consistent condom use	r	-.106**	.254**			
	p-value	.007	.000	.		
Attitude towards consistent condom	r			.287**		
	p-value			.000	.	

use						
Intensio n consiste nt condom use	r	-.160**	.136**	.292**	.308**	
	p- valu e	.000	.000	.000	.000	.
Practice consiste nt condom use	r	- .0095*	.160**	.365**	.209**	.331**
	p- valu e	.017	.000	.000	.000	.000

Age of the respondent was the only predictors of the current practice of abstinent (adjR²=0.08,). Having regular sexual partner (adjR²=0.13) significantly predicted current practice of being faithful. Always condom user, condom use at the last sex and access to the media material predicted current practice of consistent condom use (adjR²=0.22) (table 6).

Table 6. The Multiple Regression Analysis of the Independent Variables in Predicting the Current Practice of OSY at Hawassa, April 2010, SNNPR.

Model		Unstandardized		Standard Beta	t	Sig.	95% CI for B	
		B	SE				Lower	Upper
Currently Abstinent AdjR²=0.08 R=0.32	Constant	3.898	1.090		3.577	.000	1.750	6.046
	Age	-.116	.029	-.196	-4.066	.000	-.172	-.060
Currently being faithful Adj R²=0.13 R=0.378	Had regular sexual partner	.985	.171	.360	5.766	.000	.648	1.322
Currently consistent Condom use AdjR²=0.22 R=0.49	Access to electronics	.251	.092	.162	2.722	.007	.069	.434
	Condom used during last sex	-.493	.191	-.177	-2.577	.011	-.870	-.116
	Always	.98	.23	.286	4.2	.00	.524	1.44

	use condom	3	3		23	0		2
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Of the intermediate variables, intension and attitude towards HIV preventive methods were the significant predictors ($adjR^2=0.245$) of current practice of being abstinence, ($adjR^2=0.16$) for current practice of consistent condom use (table 7).

Table.7. The Multiple Regression Analysis of the Intermediate Variables in Predicting the Current Practice of OSY at Hawassa SNNPR, April2010.

Model		Unstand. Coeffi		Stand Coef f	t	Sig .	95% CI for B	
		B	SE				Beta	Lower
Current Abstinence AdjR²=0.245 R=.502	Constant	.776	.206		3.765	.000	.371	1.181
	Intension of Abstinence	.250	.054	.207	4.663	.000	.144	.355
	Attitude of Abstinence	.406	.046	.389	8.786	.000	.315	.497
Current Being faithful	Intension of	.239	.050	.229	4.814	.000	.141	.336

AdjR²=0.06 R=0.261	Being faithful							
Current Consistent condom	Attitude of condom	.127	.045	.132	2.815	.005	.038	.215
AdjR²=0.164 R=0.415	Intension of condom	.298	.041	.341	7.279	.000	.217	.378

EPPM, Model in Predicting the Current Practice of OSY.

Significant predictors for current practice of consistent condom use, being faithful and being abstinence were self efficacy items - being abstinence ($adjR^2=0.26$), being faithful ($adjR^2=0.058$) and being consistent condom user ($adjR^2= 0.187$) (table 8.). Over all the external variables with the EPPM constructs on current practice of being abstinence explained $adjR^2=0.585$ and on the current practice of being faithful explain $adjR^2 =0.245$. On current practice of consistent condom use over all the external variables with the EPPM construct explained 57% of the variation ($adjR^2 =0.571$).

Message Types and Preferences, the Source of Information about HIV/AIDS among OSY.

On source of information on HIV prevention methods and HIV infection, majority, 78.5%, preferred health personnel, 30.8% persons living with HIV and 17.4% religious persons.

Concerning the types of message that respondents would like to receive about HIV infection and prevention methods, 55.9%

preferred message using the real experience and stories, 48.9% message with lots of facts, 25.8% message that influence the emotion and only 8.9% preferred scare message. The respondent's source preferences on the HIV infection and prevention methods, 42% prefer dramas/theater, from the inter personnel communication 26% prefer peer education and 28% counseling, from mass media communication 40% radio and 26.7% Television.]

Table 8- The Multiple Regression Analysis of the EPPM Constructs in Predicting the Current Practice of OSY at Hawassa April 2010, Ethiopia.

Model	Un. Coefficients		S. Coefficient	t	Sig.	95% CI for B	
	B	Std. Error	Beta			Lower	Upper
(Constant)	1.673	.280		5.97	.000	1.122	2.223
Self efficacy abstinence.	.500	.044	.494	11.44	.000	.414	.586
Self efficacy of faithful	.240	.053	.220	4.54	.000	.136	.343
Self efficacy consistent condom use.	.389	.042	.414	9.23	.000	.306	.472

Discussion

In Ethiopia one of the communication strategies on HIV/AIDS prevention focuses on addressing preventive methods to vulnerable group using different IEC/BCC materials to increase the level of awareness and knowledge but not the risk perception of the individuals. In cases where the study participants have higher level of knowledge but low practice the extended parallel process model helps to identify the motivational factors to bring behavioral change (37, 38). In our study 51.1% of the respondents were engaged in sex and 132 (30.1%) agreed that there could be possibility of getting HIV/AIDS, this is much higher than other studies where most of the respondents didn't perceive risk of HIV infection (9, 23). The level of perceived susceptibility of the OSY in this study (mean score 2.61) is higher than the baseline study 2.23 (10). The possible reasons that contributed to increased perceived susceptibility could be the HIV prevention campaigns done so far might sensitize people and deaths of family members and friends due to HIV infection (9). On the other hand, the perception level of severity was low among this group ($M=3.26\pm 0.2$) when compared with baseline (4.8 ± 0.72) and KAP gap-study (4.3 ± 0.72) (10, 11). The administration of ART drug, the decrease stigma and discrimination among PLWHA's and the reduction of scare message (posters) introduction to the community might have a contribution in the decrease perceived severity of HIV/AIDS. The level of self and response efficacy of the respondents on HIV preventive methods were less than the baseline survey result which was explained by the lack of consistency in our message on increasing the effectiveness of the preventive methods and the presence of misconception about condom among the respondents (9,10, 14).

The respondents perceived that abstinence and monogamy as preferred way of HIV preventive method but the choice to use consistent condom use as a preventive method is very low. The response towards abstinence was highly strong (mean score 4.0 , SD=1.247) and more than two third of the respondents (78.1%) agreed that abstinence is effective in preventing HIV infection. In contrast the perceived response efficacy towards consistent condom use found to be low (mean score of 2.73 ± 1.41) and almost half of the respondents either disagreed or strongly disagreed to the item. Some of the reasons that might have contributed to the low perceived effectiveness of condom, most messages that entertains condom might not explain the effectiveness of condom as well to bring behavioral change and might not be pretested in the community (16). The level of perception on self efficacy of abstinence and being faithful was higher than the perception level on consistent condom use. The commonest reasons explained by sexually active respondents were didn't think of using condom as a preventive method and consistent condom use might need long term behavioral change and message processing. Access to electronics and frequency of condom use (always user of condom) were significant predictors from the external variables consistent with the study in India (42) and for the current practice of being faithful the type of sexual partner (regular partner) is the significant predictor which consistent with another study (32). On the other hand the attitude and intension towards HIV preventive methods are significantly predicting their current practices which is consistent with the theory of planned behavior where attitude and intension are the basis for behavioral change (40). From the EPPM constructs the current practice of abstinence, being faithful and consistent

condom use is predicted by the self efficacy items of the HIV preventive methods. This result is consistent with the Bandura's SLT that the self efficacy is the core for behavioral change in the HIV/AIDS prevention (42) and other studies found similar predictors for the current practice of abstinence, being faithful, and condom use (36,40). In the KAP study, self efficacy, response efficacy and perceived susceptibility were the strongest predictors of why youths use or not use condom.

The three major sources of information health personnel, person living with HIV and religious person were consistent with other similar studies in this group (24,25).

Conclusion - The current practice of OSY was predicted by attitude and intention as well the self efficacy of the HIV preventive method which are the core concepts stated in different models/theories for behavioral change. Thus, message that increase the self efficacy of the respondents on HIV preventive methods should be addressed and health personnel as well as PLWHA's should be encouraged to teach.

Acknowledgment – the principal investigator acknowledges the EPHA-CDC project for sponsoring this research and DR Fabio Manenti, CAUM Director, Italy who supported financially and morally during my stay in Jimma University.

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Thesis Two
Communication of School Youth with their Parents on
Sexual and Reproductive Health Issues and Influencing
Factors in Bahir Dar Special Zone Amhara Region, March
2010.
Yeshi Belay

Abstract

Introduction: most people agree that parents should talk to their children about human reproduction and should discuss both biological facts of life and moral standards for sexual behavior. Yet in practice parent-child communication on sexual matters is often minimal or non-existent.

Objectives: to assess communication status of school youth with their parents on Sexual and reproductive health issues and influencing factors in Bahir Dar special zone, Amhara Regional state, 2010.

Methodology: a cross sectional institution based descriptive study design utilizing both quantitative and qualitative approaches was conducted in Bahir Dar special zone secondary schools from 12 to 16 march 2010.

Result: From sample of 773 students, 467(60.4%) had communication with parents in at least two of SRH communication variables. Out of those who communicated on SRH Sexual Reproductive Health issues, only four (0.9%) students communicated on all of the seven communication variables. Youth who had a family size of less or equal to five were 1.5(95% CI; 1.02-2.08) times more likely to discuss with parents than those who have family size greater than five. Female youth were more likely to discuss than males (OR=1.54, [95% CI; 1.09-2.20]).

Conclusion: More than 60% of students had communication with parents on SRH issues. Age, sex, father's educational status, occupation of father and mother, family size and students' adherence to culture have showed a significant association with communication status of students.

Recommendation: Different programmes should be developed to help parents to have adequate knowledge on content, context, timing & frequency of communication on SRH issues with youth.

Introduction

The lives of youth today present a wide range of educational, employment, health and family experiences that depart in major ways from those of youth who lived one or two generations ago. These experiences can be attributed to the effects of globalization, technological advances, and wide spread economic development. More than one in four persons in the world is youth and are concentrated in developing countries (1). Sexuality and Reproductive Health Education (SRHE) is an area that generates misconceptions, confusion, fear & unwarranted caution to say the least. This may be due to Policy makers, community members, parents and teachers are reluctant to confront issues of Sexual and Reproductive Health (SRH). Teen-agers often get their information from their peers who may be ignorant of the topic, or the mass media which may provide sensational and inaccurate information (2).

Too often, the widening world exposes youth to serious risks before they have adequate information, skills and experience to avoid or counteract them. Their level of maturity and social status do not match for some challenges, unless they are provided with support, information and access to resources(3).Most people agree that parents should talk to their children about reproduction

and should discuss both biological facts of life and moral standards for sexual behavior. Yet in practice, parent-child communication on sexual matters is often minimal. Thus, children are left to grow on their own without much parental guidance (4).

A study conducted in Ambo, Ethiopia showed that avoiding pre marital sex was associated with discussion of sex related issues with their fathers. Those who discuss sex related issues with their father less practiced pre marital sexual intercourse than those who were not (5). But another study in Southern Ethiopia showed that Parents hold a strong taboo against talking about sexual matters with their children (6).

Very few studies specifically address the issue of parent child communication on sexual matters in Ethiopia. This study provides policy makers, program implementers, curriculum designers & advocates with important information to design and implement curriculums, programs and interventions to alleviate the problems. Therefore, the objective of this study is to assess communication status of school youth with their parents on SRH issues and influencing factors in Bahir Dar special zone.

Methods and Materials

This study was conducted in Amhara Regional State, Bahir-Dar Special zone from 12 to 16 March 2010. There were a total of 220,344 people in the zone, from which 180,094 (81.7%) live in urban & 40,250 (18.3%) in rural areas (7). There were seven governmental secondary schools in the zone. There were a total of 13,098 students from which 6774 (51.7%) were males and 6324 (48.3%) were females and majority, 12,190 (93.1%) of the students were in government schools.

Institution based descriptive cross sectional study design utilizing both quantitative and qualitative approaches was conducted. For the quantitative, the study population was randomly selected students in Bahir Dar special zone secondary schools enrolled during the 2009/2010 academic year. Whereas, for the qualitative study, students and their respective parents were selected purposely in the sample.

Sample size for the quantitative study was determined by assuming a confidence level of 95%, a design effect of 2, and 10% allowance for non-response, Margin of error of 5% & proportion of school youth who communicated on sexual intercourse (P) which was 42.2% applied from a study done in Bullen woreda (8). Thus, the required sample size was 825 students. For the qualitative data, eight Focus Group Discussion (FGDs) were carried out.

Multi stage stratified sampling technique was applied. There were twelve secondary schools in Bahir Dar special zone. These schools were first stratified into government (7) & private (5) schools. Again governmental schools were stratified into urban (4) & rural (3), and all the private schools in Bahir Dar town were included. Three schools from each category were selected randomly. Accordingly, Ghion from urban, Meshenti from rural and Bahir Dar academy from private schools were included in the study. Those rural schools were newly established ones, which had grade nine only. Each selected school again stratified by grade (Grade 9, 10, 11, 12). To select the study unit, students list was used as a frame. Then after generating random numbers with the help of computer package, the sample size of 825 was allocated to each grade using probability proportional to size allocation technique.

Self administered interviews were used to collect data from sampled students supported by 12 trained teachers from the respective schools supervised by trained supervisors. For the FGD; topic guides with semi-structured questions were developed separately for students & parents. A total of eight FGDs were conducted to supplement the quantitative data. FGDs were conducted separately for female & male parents & students categorized with urban & rural schools at the same time where the quantitative data was collected.

For the FGDs of students, club members, Ethiopian Orthodox Church members, Muslims & other students were selected through unit leaders purposively. Parents were conveniently selected by school directors and were contacted through students. Six to eight participants were involved in each FGD & the discussion took one to two hours. The discussions were moderated by principal investigator and a trained teacher. The discussions were tape recorded in addition to the notes taken.

The items in the questionnaire were adopted from existing literatures & modified to the local situation & research objective (8). The questionnaire was prepared in English and translated into Amharic and back translated into English. Data collectors and supervisors were those who can speak the local language in order to control information contamination, data was collected in each school on the same day and For the qualitative information was transcribed word by word on daily basis.

Socio demographic variables of students (Age, Sex, Ethnicity, Religion, Grade, Residence) socio economic and culture variables of parents (Marital and Educational status, Occupation, family size, family income, socio cultural variable; cultural taboo on communication), attitude of students on communicating SRH issues, living arrangements of the students; were independent variables. Communication status of school youth and parents on SRH issues is the outcome variable.

After data collection the questionnaire was checked for completeness, consistency and coded by the principal investigator. Then it was entered into SPSS version 16.0. Relevant analytical techniques; descriptive statistics, Chi square, and multiple logistic regressions were applied. The qualitative data first transcribed, then thematic analysis was done & findings were triangulated with the quantitative finding.

Definition of terms

Communication on SRH issues was defined as exchange of ideas, information about SRH issues; puberty, contraception, STI/HIV/AIDS, Sexual intercourse, pre marital sex, condom use & unsafe abortion among youth and parents.

Communication status indicated whether youth are communicated (i.e. if youth discussed at least two of the seven communication issues on SRH variables) within the past one year with both parents /single parent or not communicated on SRH issues (i.e. if youth didn't discuss completely or discussed in only one from the total seven SRH communication variables) (8). All those who can provide significant primary care for youth within the past one year, which include biological parent or guardian (adoptive,

grandparent, other relative and fictive kinship) considered as parent.

The proposal was approved by Ethical Review Committee of Jimma University, college of public health and medical sciences. Letters were obtained from population & Family Health department and from Bahir Dar special zone Education desk to the respective schools. All the study participants were informed about the purpose of the study, and privacy & confidentiality was also kept.

The results of this study will be disseminated to Jimma university scientific community. EPHA, Jimma Chapter, to Bahir Dar special zone Education office, Health office, Youth, culture & sports office, and other concerned bodies through reports. Possible publication in journal will also be attempted.

Result

From 825 sampled students, 773 completed the questionnaire making a response rate of 93.7%.

Out of the total 773 respondents, 463 (59.9%) were males and 306 (40.1%) were females. Majority of them, 625 (80.9%) live in Bahir Dar town. The mean age of respondents was 17.32, SD=1.69 ranged from 15 to 22 years. Most of the students were grade nine and grade ten 290(37.5) & 161 (20.8%) respectively. The Amhara ethnicity group constituted 686 (88.7%), 671 of the respondents (86.8%) were Orthodox Christians and 619 (80.1%) of the students were living with both parents.

With respect to parental marital status and education, majority, 691 (89.4%), were married, 269 (34.8%) had illiterate mothers whereas 192 (24.8%) graduated from colleges & universities. Two

hundred seventy seven (35.8%) of the fathers were graduated from colleges & universities. In terms of parental occupation, 284 (36.7%) of the students' mothers were housewives & 216 (27.9%) were government/private organization employees. Two hundred seventy six (35.7%) of the participants' fathers were Government/private organizations employees followed by merchant 201 (26%).

Four hundred ninety seven (64.3%) of the families had size less than or equal to five with mean family size of 5.03 (SD=1.6).

Majority of the students, 700 (90.6%) preferred to discuss with health professionals. Fathers & Religious leaders were the least preferred ones (23.1%, 20.5% respectively). Four hundred fifty five (58.9%) preferred to discuss with same sex followed by 248 (32.1%) both sexes. Males preferred to discuss with their fathers, OR=2.63, CI=1.79-3.85, & brothers, OR=1.73, CI=1.25-2.40. than females . Likewise, females preferred to discuss with their sisters, OR=1.41 & CI= 1.04 - 1.91, than males.

There is a difference in preferred & actual source of information, especially at home, religious institutions & health facilities. Home is used as source of information for SRH issues. (Table 1).

**Table 1. Actual & Preferred Sources of SRH Information,
Bahir Dar Special Zone, March 2010.**

Source of SRH information	Preferred source		Actual source	
	n	%	n	%
Media	556	71.9	661	86.4
School	532	68.8	590	77.1
Home	415	53.7	180	23.5
Health facilities	511	66.1	348	45.5
Religious institutions	334	43.2	217	28.4
Other sources	12	1.6	14	1.8

The most frequently mentioned sources of information for SRH issues were school 661(86.4%) followed by media 590 (77.1%). Female respondents were more likely to get SRH information from their home than males (OR=1.8, 95% [CI=1.25_2.44]). And students who had parents enrolled in colleges & universities were more likely to get information from home than those who had illiterate parents (OR=10.85, [95%CI; 5.879_20.038] & OR=7.31, [95%CI; 4.371-12.25] respectively).

Majority, 713 (92.2%) agreed that communication on SRH issues is necessary for youth. Five hundred fifty two (71.41%) students believed that it is important to discuss SRH issues with parents. As to the findings of the FGDs about importance of discussion of SRH issues with youth; Majority of the rural parents said that, it is not advisable to discuss SRH issues with youth, because they don't have enough knowledge to discuss about the issue. Whereas about half of the urban parents expressed that parents are responsible to discuss SRH issues with children, but the problem is that the current youth did not take what is said by their parents & do not accept their ideas, they prefer to everything by their own.

Attitude of students in communicating with their parents about SRH issues showed statistically significant association with place of residence, $p=0.002$, & student's living arrangement, $p = 0.03$.

Communication status of students with their parents differs with each SRH issues. Condom use & unsafe abortion were the least communicated (Table 2). This was supported in the FGD discussions; the majority of parents said that they don't discuss on condom use because such discussions with parents on how to use condom, will lead them to commercial sex workers or others to practice it. The other reason explained by majority of the parents indicated that even they do not have the skill on how to use condom. As to the unsafe abortion majority of the parents & students said that abortion is not acceptable weather it is safe or unsafe in their religions or culture, so no need even to start discussion on abortion.

Table 2. Communication Status of School Youth on each SRH Issues, Bahir Dar Special zone, March 2010.

Variables	Communication status			
	communicated		not communicated	
	n	%	n	%
Adolescence	222	28.7	551	71.3
Love relation ship	307	39.7	466	60.3
Avoiding pre marital sex	415	53.7	358	46.3
Contraception	183	23.7	590	76.3
STI/HIV/AIDS	315	40.8	458	59.2
Condom use	114	14.7	659	85.3
Unsafe abortion	177	22.9	596	77.1

Different reasons were given by those students who didn't discuss on each SRH issues (Table 3)

Table 3. Reasons Mentioned for not Discussing about SRH Issues with Parents, Bahir Dar special zone, March 2010

Variables	Discussed (no)	Reasons for not discussing						
		Culturally unacceptable	shame	Less knowledge of parents	Parents fear, the discussion may engage child in Sexual activity	I know it, no need to discuss	Parents are busy	others
Adolescence	551 (71.3)	225 (40.8)	375 (68.1)	277 (50.3)	266(48.3)	289(52.5)	175 (31.8)	183 (3.3)
Sexual intercourse	466 (60.3)	194 (41.6)	187 (40.1)	223 (47.9)	332(71.2)	254(54.5)	157 (33.7)	203 (4.3)
Not	358	160	192	166	114(147(12	17

having sex until marriage	(46.3)	(44.7)	(53.6)	(46.4)	31.8)	41.1)	7 (35.5)	(4.7)
contraception	590 (76.3)	260 (44.1)	408 (69.2)	250 (42.4)	334(56.6)	329(55.8)	17 (29)	18 (3.1)
STIs/HIV/AIDS	458 (59.2)	79 (17.2)	249 (54.4)	199 (43.4)	143(31.2)	281(61.4)	14 (30.8)	14 (3.1)
Condom use	659 (85.3)	321 (48.7)	464 (70.4)	290(44)	411(62.4)	384(58.3)	18 (27.8)	21 (3.2)
Unsafe abortion	596 (77.1)	320 (53.7)	414 (69.5)	250 (41.9)	387(64.9)	166(27.9)	16 (27.9)	22 (3.7)

Among those students who discussed on SRH issues, the discussions were held in different conditions as presented in table 4.

Table 4. The condition of discussions held on SRH issues, Bahir Dar special zone, March 2010.

Variables	students discussed	Condition in which the discussion was held		
		Formal discussion arranged by parents	Not planned, Raised related to other discussions	Discussed in offensive manner as a kind of insult
Adolescence	222(28.7)	49(22.1)	96(43.2)	77(34.7)
Love relationship	307(39.7)	71(23.1)	146(47.6)	90(29.3)
Avoiding pre marital sex	415(53.7)	101(24.4)	186(44.8)	128(30.8)
Contraception	183(23.7)	33(18)	96(52.5)	54(29.5)
STI/HIV/AIDS	315(40.8)	57(18.1)	135(42.9)	123(39)
Condom use	114(14.7)	10(8.8)	57(50)	47(41.2)
Unsafe abortion	177(22.9)	10(5.6)	93(52.5)	74(41.8)

Factors affecting Communication of School Youth with their Parents about SRH Issues

With multiple logistic regression; age, sex, father's educational status, occupation of father & mother, family size & students' adherence to culture has statistically significant association.

Table 5: Bivariate & multi variate analysis of Independent Variables & Communicated on SRH among Students & their Parents in Bahir Dar Special zone, March 2010.

Variable	Communication status		Crude OR (95%CI)	Adjusted OR (95%)
	Yes	No		
Age				
<=19	394(57.4)	292(42.6)	1	1
>19	73(83.9)	14(16.1)	3.9(2.139-6.982) *	4.560(2.342-8.880)*
Sex				
Male	249(53.8)	214(46.2)	1	1
Female	218(70.3)	92(29.7)	2.0(1.50-2.76) *	1.54(1.09_2.20)
Place of residence				
Bahir Dar	390(62.4)	235(37.6)	1.53(1.07-2.20)*	0.86(0.41_1.80)
Rural area	77(52)	71(48)	1	1
Family size				
<=5	322(64.8)	175(35.2)	1.66(1.23-2.24)*	1.46(1.02-2.08) *
>5	145(52.5)	131(47.5)	1	1
Mother educational status				

Illiterate	130(48.3)	139(51.7)	1	
Read & write	61(44.9)	75(55.1)	0.87(0.58-1.32)	0..95(0.555-1.633)
Primary school (1-8)	82(70.7)	34(29.3)	2.58(1.62-4.12) *	1.94(0.95-3.98)
Secondary school (9-12)	32(74.4)	11(25.6)	3.11(1.51-6.44) *	1.08(0.38-_3.036)
12+	149(77.6)	43(22.4)	3.71(2.45-5.62) *	0.91(0.34_2.43)
Father educational status				
Illiterate	82(48.8)	86(51.2)	1	1
Read & write	73(44)	93(56)	0.835(0.543-1.285)	1.288(0.724_2.291)
Primary school (1-8)	32(38.6)	51(61.4)	0.646(0.378-1.103)	0.948(0.440_2.039)
Secondary school(9-12)	10(50)	10(50)	1.049(0.415-2.654)	1.664(0.518-5.346)
12+	230(83)	47(17)	5.156(3.322-8.001)*	11.773(4.349-31.866)*
Mother occupation				
House wife	166(58.5)	118(41.5)	2.325(1.327-4.075) *	3.201(1.594_6.428)*
Gov employer	160(74.1)	56(25.9)	4.643(2.567-8.397)*	2.728(0.993-7.492)
Merchant	46(55(54.5	1.335(0.703-	1.862(0.803_

	45.5))	2.534)	4.321)
Self employee	43(63.2)	25(36.8)	2.795(1.337-5.675) *	4.762(1.944_11.667)*
Farmer	25(39.7)	38(60.3)	1	1
Others	16(66.7)	8(33.3)	2.641(0.955-7.301)	3.540(1.052-11.917) *
Father occupation				
Gov't employer	209(75.7)	67(24.3)	2.529(1.644-3.890)*	2.246(1.953-4.326) *
Merchant	90(44.3)	113(55.7)	0.652(0.424-1.003)	0.875(0.704_0.1.846)
Self employer	33(54.1)	28(45.9)	0.897(0.488-1.648)	1.357(0.841_2.432)
Farmer	79(54.9)	65(45.1)	1	
Others	16(53.3)	14(46.7)	0.926(0.420-2.039)	1.246(0.785_2.645)
Culture adherence				
yes	323(55.5)	259(44.5)	1	1
no	144(75.4)	47(24.6)	2.457(1.701-3.548) *	2.385(1.565_3.633) *

Discussions

The most frequently mentioned sources of information for SRH issues were school followed by media. This is similar with studies done in Bullen (8), Nekemtie (9), and Nigeria (10).

The proportion (60.4%) of students, who had communicated on SRH issues with parents, was about twice that of Bullen's study, 28.9%. The proportions of students who discussed in each communication variables were also greater than that of Bullen school study (8). These differences could be due to the differences in socio demographic characteristics of students & parents. Bullen is a rural town. Whereas, the participants of this study (80%) of the respondents live in Bahir Dar town, which is the capital town of the region, & there is also difference in the educational status of parents.

Except with that of age, the associated factors differ from that of the Bullen's (8). Students whose age were > 19 were more likely to discuss, 4.6(95%CI; 2.34-8.88), than those ≤ 19 . This is different from a finding from Bullen in which those ≤ 19 discussed more than those above nineteen (8). Female students were more likely to discuss than males. (OR=1.54, [95% CI; 1.09_2.20]). This finding is similar to a study done in Ghana, in which; females were more likely to discuss sex-related matters with their parents compared to males (4).

Students came from families with family size less or equal to five were 1.46(95% CI; 1.02-2.08) times more likely to discuss with their parents than those with family size above five. This may be due to as the family size decreases, care given to a child increases in many aspects. Students adherence to cultural values has also association with communication of students with their parents (2.39 [95% CI; 1.57_3.63]). This is similar with the finding from Latino families (11). Youths whose fathers are graduated from

universities & colleges were 11.77(95%CI; 4.35-31.87) times more likely to discuss than those youths who are having illiterate fathers. Students whose fathers are government /private organizations employee were 2.25(1.953-4.326) times more likely to discuss on SRH issues than those whose students whose have farmer fathers were farmers.

Limitation of the study

The measure of parental communication was based on young people's responses, which may not reflect what parents were actually doing. The possibility of social desirability & recall bias cannot be ruled out in this instance. Since it is cross-sectional design, it is difficult to determine causal relationships between the proposed predictors and the outcomes of interest.

Conclusion

Majority of the students have good attitude towards communication with parents on SRH issues. More than 60% of students had communicated with parents on SRH issues. The commonly mentioned reasons in those who did not discuss on SRH issues with parents were; shame to discuss, parents fear of the discussion will engage their child in to sexual activity, parents' lacking knowledge.

Age, sex, father's educational status, occupation of father and mother, family size and students' adherence to culture has statistically significant association with communication status of youth with parents.

Recommendations

Based on the findings, therefore, the following recommendations are forwarded;

It is necessary to develop continued IEC programme that can sensitize parents and students through schools, community,

religious institutions, and health institutions for open discussion and to create awareness about importance of communication.

-Different BCC programmes should be developed to help parents to have adequate knowledge on content, context, timing & frequency of communication on SRH issues with youth to develop communication skills.

-Comprehensive family life education (FLE) should be initiated for students and parents in schools, homes, churches, mosques, and health facilities.

Acknowledgement

To Ethiopian Public Health Association, EPHA, and CDC for sponsoring my research paper.

Ghion, Bahir Dar academy & Meshenti school staffs & respondents for their cooperation.

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Thesis Three
Predictors of Adherence to Isoniazid Preventive Therapy
(IPT) and Associated Factors among HIV Positive Adults in
Ethiopia, March 2010.
Mesele Mindachew

Abstract

Background: TB preventive therapy is given to individuals with latent infection of mycobacterium tuberculosis in order to prevent the progression to active disease. One of the primary reasons for failure of TB preventive therapy is poor adherence. The Objective of this study is to assess adherence to isoniazid preventive therapy and factors associated among HIV positive adults in public hospitals in Addis Ababa.

Methods: A cross sectional study was conducted in four hospitals in Addis Ababa. The study population consisted of 327 people living with HIV/AIDS and who were taking Isoniazide (INH) preventive therapy. Data were collected using a pre-tested interviewer-administered structured questionnaire from February to March 2010. Univariate and multivariate analysis were conducted to identify factors associated with treatment adherence.

Results: A total of 319 (97.5%) individual participated in this study, of which, 124(38.9 %) were males. With seven days recall period, the aggregated self-reported dose adherence was 86.5%. In the final adjusted multivariate analysis, decreased level of adherence to isoniazid preventive therapy was observed among those individual who hadn't got explanation about IPT [AOR=0.085, 95 % (CI: 0.031, 0.233)], developed IPT related side effect [AOR=0.021, 95%CI (0.005, 0.083)], unstable pattern of emotional life [AOR=0.096, 95%CI (0.018, 0.517)], who had no

good feeling to take IPT in front of other people [AOR=0.035, 95%CI(0.004, 0.288)], who didn't use memory aid [AOR=0.068, 95%CI (0.014, 0.332)] and who didn't convinced before starting IPT [AOR=0.007, 95%CI (0.001, 0.047)] were less likely to be adherent as compared to their counterparts.

Conclusion: the prevalence of self reported dose adherence over the past seven days was found to be higher. Non-adherence was observed among the respondents who were not provided with sufficient information about the isoniazid preventive therapy and who didn't use memory aid. The health care providers need to strengthen their motives to convince the patient before putting them on IPT, including details of the regimen, the importance of using memory aid to comply with the medication schedule, emotional support to their patient, medical care and advise when the patients develop side effect to enhance their adherence to IPT is recommended.

Background

Tuberculosis is among the top 10 causes of morbidity and mortality globally. Recently 32% of the world's population has tuberculosis infection. Over 95 % of new tuberculosis cases and deaths occur in developing countries where the highest incidence and number of deaths occur in Asia and sub-Saharan Africa **(1)**. A number of factors have contributed to the global TB crisis, among these Human Immunodeficiency Virus (HIV) infection is the greatest known risk factor for the development of active tuberculosis (TB) in individuals latently infected with Mycobacterium tuberculosis. In this regard WHO had proposed a framework of strategic actions for HIV care programs to optimally integrate TB into their service. The core activities of this framework include isoniazid preventive therapy (IPT) as a key

component among other measures to control latent tuberculosis **(2)**.

Cognizant of this fact the national TB/HIV collaboration in Ethiopia adopted the twelve, WHO recommended collaborative activities of which Isoniazid Preventive Therapy (IPT) was one. The national TB and HIV prevention and control programs designed and implemented a collaborative strategy in May 2004 that aimed at preventing and controlling of HIV, and Tuberculosis TB **(3)**. The collaborative work was initiated as a pilot project in six hospitals and three health centers to expand it to more than 330 health facilities by 2008 **(4)**.

The risk of reactivation of latent infection is low in healthy individuals but is greatly increased in individuals with immune-suppression, most notably due to HIV infection **(5)**. The greatest burden of latent TB infection is found in South-east Asia (46%), the Western Pacific region (32%), Africa (31%), and the Eastern Mediterranean region (27%) **(6)**. HIV infection is the major risk factor contributing to the growing burden of TB globally, particularly in sub-Saharan African countries **(7, 8)**.

There is now strong evidence from several randomized controlled trials for the efficacy of preventive therapy in the prevention of tuberculosis in persons infected with HIV. However, one of the primary reasons for failure of isoniazid preventive therapy is poor adherence. Defining the strategies to maintain good adherence underlies these issues, both to ensure that individuals benefit from the intervention and to minimize the potential public health risks. In line with these, number of studies have indicated the importance of adherence to TB preventive therapy and also emphasized that patient adherence to the treatment is the key issue to maximize drug efficacy. Accurately assessing adherence and its associated factor is the necessary first step towards

improving adherence to IPT **(9)**. So far in Ethiopia no sufficient studies have been conducted to assess the rate of adherence to isoniazid preventive therapy and associated factors for adherence. Therefore, the objective of this study was to assess adherence to isoniazid preventive therapy and associated factors among people living with HIV/AIDS in public hospitals of the Addis Ababa, Ethiopia.

Methods

Study Setting and Period

The study was conducted in Yekatit 12, Zewditu, Gandhi and Minilik Hospitals, of the Addis Ababa city. Among the study hospitals, the Minilik Hospital is a central generalized referral hospital and is under the Federal Ministry of Health. The Yekatit 12 and Zewditu Hospitals are under Addis Ababa Regional Health Bureau, known to provide service to serve most of the patients on IPT follow up. According to the reports obtained from the registration record of the ART unit in the respective hospitals, 1303 adults were on IPT and on follow-up during the study period.

The study design was cross-sectional and covered the period from February 1 to March 30, 2010.

The source populations were PLWHA attending in the ART clinics of the study hospitals without active TB and who were on IPT follow up during the study period. The study population was sampled adults who were receiving IPT, attending follow up visit and full-filling the inclusion criteria, during the study period:

Inclusion and exclusion criteria: Adults aged 18 years and above, HIV positive and receiving INH for prevention of tuberculosis for at

least one month before the initiation of the study were included in the study: Patients who were seriously ill, and unable to respond, on IPT for less than one month and age is < 18 years were excluded from the study.

Sample Size and Sampling Technique

A sample size that accounted for 10% non-response rate, of 327 was calculated using Epi-Info 6.04 statistical software, assuming adherence prevalence rate of 50 with 5% margin of error and 95% confidence interval. Then, this sample size was distributed to the selected hospitals proportionally according to the number of patients. All HIV positive individuals attending the TB/ART Clinic in the selected hospitals and receiving IPT for at least one month who were identified from clinics using ART unique number as a sampling frame. The study participants were selected from the patients list using random sampling technique.

Measurement

The dependent variable was adherence to IPT. The independent variables include: socio-demographic variables, medication adverse effect, emotional and practical support, convenience of regimen (the duration, dose, and frequency.), knowledge about IPT and understanding the importance of adherence, belief in efficacy of medication, substance use, patient and physician relationship and respecting clinical appointment and perception of susceptibility to TB disease.

Data was collected using pretested structured questionnaire for the quantitative survey. The questionnaire was originally developed in English; and then translated into Amharic and back translated to English by another person who was blind to the original questionnaire to check its consistency. Face-to-face

interview techniques were employed to collect data. The data was collected by public health officers and, adherence counselors supervised the data collection, after two day training on the instrument. In assessing treatment and adherence status, participants were interviewed to identify the TB preventive therapy they have been taking, and the doses taken during the last three days, the last seven days and in the last one month. The data was edited, cleaned, entered into a database and analyzed using SPSS version 16.0. The data analysis consisted of basic summaries of patient characteristics, univariate and multivariate analysis of the relation between adherence and various factors. All explanatory variables that were significantly associated with the outcome variable in the univariate analyses ($P < 0.05$) were entered in stepwise logistic regression model to identify independent predictors of adherence.

Self reported adherence rate, was calculated for each drug by dividing the number of pills taken by the number of pills prescribed. Then, the rate of adherence to the IPT was estimated by the average of adherence to the drugs. Patients who report an intake of 85% or more of the prescribed medication were considered to be adherent **(10)**. For this study, adherence was measured as more than 85% of doses taken of prescribed treatment, over the past three and seven days. Whereas, non-Adherence was defined as a patient who were not able to take more than 85% of doses out of the prescribed treatment over the past three and seven days. Adverse effect was also defined as an unwanted effect caused by the administration of treatment that included neurological, sign of liver toxicity and seizure.

Ethical Clearance was obtained from the Ethical Clearance Committees of Jimma University and the Addis Ababa Health Bureau.

Results

Characteristics of the Study Subjects.

Of the expected sample, 319 (97.5%) individuals participated in this study, where 124(38.9 %) were males and the rest 195 (61.1%) were females with their age ranged from 22 to 71 years with the mean (SD) of 38(10.6) years. Orthodox was the dominant religion (84.3%) followed by protestant (10.3%). With respect to marital status, 125 (39.2%) were married and 89(27.9%) were widow. Almost half 172(53.9%) of the respondents were Amhara followed by Oromo 71 (22.3%). Concerning their monthly income, more than half of the respondent 203(63%) have had average monthly income of less than five hundred birr. In terms of educational status, 94(29.5%) were grade 1-8, and 29% grade10+ and as far as occupational status is concerned, 114(35.7%) were private institution employees followed by unemployed 71(22.3%).

Patient Report on Adherence to IPT.

According to patient recall of the previous three days, seven days, and the past one month, the aggregated self-reported adherence rate was found to be 281 (88.1%), 276 (86.5%), and 255 (79.9%), respectively (table 5). Of the participants, 66 (20.7%) had history of missed days (missed one or more doses of INH in the past three days, seven days , in the last one month and since enrollment). The most frequently mentioned reasons for missing pills were side effect (24.2%, n=16), too busy to take the drug

(31.8%, n=21), forgetfulness (33.3%, n=22), the duration was too long (16.7%, n=11), being away from residential area (18.2%, n=12) and not advised by doctors (9.1%, n=6).

Factors Independently Associated with Adherence

Those patients who hadn't got explanation about IPT [AOR=0.085, 95% CI: 0.031-0.233], who developed IPT related side effects [AOR=0.021, 95%CI (0.005, 0.083)] and those with unstable pattern of emotional life [AOR=0.096, 95%CI (0.018, 0.517)] were less likely to be adherent as compared to their counterparts. Uncomfortable feeling to take the medication in front of other people had also significant impact on adherence. Accordingly, those who had no good feeling to take IPT in front of other people were less likely adhere to the prescribed medication [AOR=0.035, 95%CI(0.004, 0.288)]. Use of memory aid had also significant effect on adherence. Those who didn't use memory aid were less likely to adhere to the scheduled medication as compared to those who used [AOR=0.068, 95%CI(0.014, 0.332)].

Discussion

This study tried to examine the different factors associated with adherence to isoniazid preventive therapy among HIV positive adults in Ethiopia. The study used self reported dose adherence as a measurement of adherence. As self-reporting could overestimate the rate of satisfactory adherence to medication, some authors have suggested that self-report has the potential to be one of the most accurate measures of behavioural adherence because only the patient can report actual behaviour, particularly when collected using carefully constructed, administered and customized measures. This method has frequently been employed

in medical research, due to its practicality, low cost, readiness to obtain the desired information, and to identify patients at risk for non-adherence **(11)**.

The IPT adherence rate was found to be higher than the findings of other studies conducted in most developing countries. Inconsistence findings have been revealed in a number of studies on the rate of adherence to TB preventive therapy. In the operational assessment of adherence among HIV infected individual in Uganda, adherence rate of 38% was obtained **(12)**. A facility based cross-sectional study in rural South Africa also found that only 47.1% were adherent to isoniazid preventive therapy **(13)**. In a prospective cohort conducted study in Thailand, using daily isoniazid for 6 months, 31% failed to complete the 9-month regimen. In contrast to these, a cross-sectional study among South African miners (72%) revealed relatively similar finding with the present study. **(14)**, and a randomized control trail of adherence to IPT among HIV patient in Uganda also showed similar finding with adherence rate of 88% **(15)**. This might be due to the fact that majority of the respondents have got information about isonaizid preventive therapy and perceived benefit of the medication. In addition, it might also be due to the great emphasis given to the TB-HIV collaborative activity by the government and partners.

Different self reported reasons for missing pills were reported from the respondents included; being too busy with other things, simply forgotten, being away from home for some social reasons and associated side effects which is supported by other finding, patients offer a range of reasons for non-adherence, but the most frequently cited ones are simply; that they forget, being busy,

being away from home**(16,17)**. In our study, socio demographic variables, like; sex, age, educational status were not significantly associated with adherence which is also consistent with a study done in the United States **(16, 18)**, But a study done in Uganda showed that men were twice at risk of non adherence than women **(15)**.

Knowledge about the regimen and the disease has no statistical association with adherence which was consistent with the study conducted in Uganda **(15)**. A cross-sectional study in South Africa also showed no significant association between patient's knowledge about the treatment and the disease with adherence **(14)**. Inconsistence with this finding, another study conducted in united states showed positive association between patient related factors and adherence behavior, like; recent exposure to TB, high perceived benefits of treatment, or expectations of positive outcomes of treatment **(19)** .This may be due to difference on educational status, health service coverage, access to health related information between the two countries. A number of randomized trial also reported inconsistent findings with the current study on patient-related variables like level of knowledge with adherence behavior. These include poor knowledge about treatment regimens and patient perception of benefits derived from therapy was significantly associated with non adherence **(20-25)**. This might be due to differences in the study design. In the current study, we found that regimen related factors had significance association with adherence behavior. Those individuals who missed their drug and who developed side effect were less likely to adhere to medication. In this regard there are a number of studies which support this finding. A systematic review of randomized trial showed that adherence has been shown to

decrease with increased concerns about the toxicity of LTBI medications and fear of side effects **(15)**.

A randomized trial in Brazil showed that clinic facilities influence treatment completion and adherence to the extent that they adequately address patient needs: Inaccessible or inconvenient care locations discouraged treatment completion **(18)**. Inconsistent to the above finding, this study revealed no significant association between environmental factors like clinic facilities with adherence status of the patient. According to this study, patient- provider relationship had significant effect on adherence. Those individuals who claimed that the health care providers were not cooperative and negligent on their job were less likely to be adherent. On the other hand, those who had regular attendance at clinical and follow up appointment were more likely to adhere to the prescribed medication and also those respondent who said I feel comfortable with the hospital staff were more likely to be adherent. The setting in which counseling was conducted also affect adherence; this study also showed that those individuals who got counseling with enough privacy were more likely to adhere to treatment. In line with this, high level of association was also obtained with adherence among those who reported that they got sufficient information from health care provider. Other studies which were conducted in similar setting in developing countries also showed similar finding. According to a study conducted in Kenya and Zambia, the poor quality of physicians' interpersonal skills has been shown to negatively affect adherence **(26, 27)**. Four cross-sectional studies done to assess the impact of patient physician relation on adherence in different settings showed significant association with adherence when physicians make efforts to explain treatment regimens and

address patient concerns **(28-31)** . A case control study conducted in Ghana showed that regular visits by liaison staff and voluntary workers improved adherence **(32)** In line with the current study two randomized trial showed increased non adherence in situations where doctors appear insensitive, use medical jargon, view patients as complainers, or do not provide clear messages about the cause of illness or reasons for treatment **(33, 34)**.

Limitations

This study had some limitations and strengths. A “gold standard” for assessment of adherence does not exist. The cross sectional nature of the study design itself cannot depict cause-effect relationship. Recall bias may affect the validity of the study. Despite the above limitations, the study had several strengths, including; using a relatively large sample size, inclusion of several sites, and review of available medical charts.

Conclusions and Recommendation

In conclusion, the prevalence of self reported adherence among adults in Addis Ababa was found to be higher than findings in other countries. Among those who were non adherent; being busy due to different reason, forgetfulness, being away from the residential area (from home) and side effect of the regimen were the most frequently mentioned reason for missing the doses, which in turn have significance influence on their treatment adherence. Based on the finding, the FMOH and its partners should consider IPT training to health care providers working in ART clinic. Counseling should be provided to each patient at setting where patient’s privacy is maintained by trained professionals. Health care providers need to strengthen their motives to convince the patient before putting them on IPT, including; details of the regimen, the importance of using memory aid to comply with the medication schedule,

emotional support to their patients. Besides, the existing social support they obtain from their family, the community and other parties, immediate medical care and advise should be provided when a patient develops side effect to enhance their adherence to IPT. Finally, further researches are encouraged to assess; other potential gaps, the implementation status of IPT in Ethiopian context and also studies to assess adherence with strong study design.

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Thesis Four

Psychological Disaster and its Predictors in Non-AIDS Orphan Adolescents of Addis Ababa City, May 2010

Hiwot Getachew Kelemu

Abstract

Back ground:-Children who have been orphaned by the AIDS pandemic is increasing rampantly especially in developing countries. As of 2008, in Ethiopia it was estimated that 16.2% of orphans have lost their parents due to AIDS. They were facing multi-dimensional problems and currently there is increasing concern, regarding their psychological well-being in Africa.

Objectives:-The objective of the study was to assess the psychological distress of the AIDS orphans as compared to non-AIDS orphan adolescents and factors related to it, in Addis Ababa.

Methods: -Institution based, comparative cross sectional design combining both quantitative and qualitative method was used. A total of 438 AIDS and 438 non -AIDS orphan adolescents between 11-18 years age groups were included in the study. Structured interviewer-administered questionnaire and scales including Hospital Anxiety Depression (HAD), Rosenberg's and MSPSS were used to measure orphans depression, anxiety, self esteem and their perceived social support, respectively. Both descriptive and logistic regression was used to analyze the quantitative data and thematic approach manually was also applied for qualitative data which was collected by in-depth interview. Moreover, triangulation of both qualitative and quantitative data was done.

Result:-About 35% (39% for AIDS and 30% for non-AIDS) orphan adolescents were depressed and 37.4% (40.8% of AIDS and 34.1% of non-AIDS) orphan adolescents were anxious.

Comparing the two groups, there was no statistically significant difference in depression and anxiety [OR (95% CI) =1.164(0.733, 1.754) & 0.88(0.57, 1.33)], respectively. The major predictor variable of depression and anxiety in both groups were their perceived social support and their self-esteem. Discrimination, school enrollment, physical abuse, child labor were also identified as predictors. However, age, sex, sexual abuse, providing care for parents were not identified as predictors in both groups.

Conclusion & Recommendation:-Large proportions of orphan adolescents are having psychological problem which will have an effect for their current and future life. Therefore, an effort has to be done to improve their mental health, especially focusing on the identified predictors.

Introduction

HIV remains a global health problem of unprecedented dimensions though the epidemic has stabilized with the global scale (1). The epidemic can be depicted as a succession of three waves .The first wave of HIV infections was followed by the second wave of AIDS illness and death which intern followed by a wave of children who have been orphaned by HIV/AIDS (2). In 2007, globally there were officially 15 million AIDS orphans (3). In 2008, the number of orphan in Ethiopia was estimated to be 5,459,139 where by the 16.2% of the orphans have lost their parents due to HIV/AIDS (4, 3). In Addis Ababa as of 2007, there were 112,617 AIDS orphans (5).

Orphan hood is frequently accompanied by prejudice and increased poverty, which are factors that can further jeopardize children's chances of completing school education (1). Moreover; AIDS orphans experience profound loss, grief, anxiety, fear, and hopelessness (2). A comparative study done in Uganda in 2005

using Beck Youth Inventory scale, found out that AIDS orphans were more likely to be anxious, depressed and display anger, as compared to children with both parents alive. Currently, there is little available research, but increasing concern, regarding the psychological well-being of orphans in Africa (6). Therefore, the objective of this study was to assess the level of depression and anxiety of AIDS orphans as compared to non-AIDS orphan adolescents. The study was believed to have great importance in identifying of the major intervention areas to improve the psychological health of orphaned adolescents.

Methods & Materials

Study area & Samples

The study was conducted in Addis Ababa, the capital city of Ethiopia from March 5 to April 4, 2010. Institution based comparative cross sectional study design with both quantitative and qualitative studies was employed. As of 2008, there were thirty nine organizations providing care and support for orphans in Addis Ababa city (7).

For the qualitative study, AIDS and non-AIDS orphans adolescents between 11 and 18 years were identified from orphan adolescents who were registered in the selected organizations. Sample size was determined by using two population proportions formula (8). The parameters used to calculate the sample size were: proportion of depression among AIDS orphans in Addis Ababa 20.1% (9), proportion for non-AIDS orphans was hypothesized based on P1 and assumed to be 10.1% [It was assumed to have a 10% difference], 1:1 ratio for both study and comparison group, confidence level of 95%, a power of 80%, non-response rate of 10% & design effect of two. The total sample size was 876 (438

for AIDS orphan adolescents & 438 for non-AIDS orphan adolescents).

A multi stage cluster sampling technique was employed to reach the study subjects. First, following WHO recommendation a maximum of 50 respondents per PSU a total of sixteen organizations were randomly selected to satisfy the sample size (10). Then, proportional allocation to size technique was used to decide the number of AIDS and non-AIDS orphans to be included in the study for each organization and finally simple random sampling technique was applied to select the study subject. Moreover, registration book or files of the organizations were used to separate AIDS orphan adolescents from non-AIDS orphan adolescents. Orphan adolescents whose parents' died within the last six month before the study, who were diagnosed as HIV positive, mentally retarded and were apparently sick children during data collection were excluded from the study. For the qualitative data five in-depth interviews with purposively selected personnel working in the organization were conducted on three females & two males.

Measurements :- The quantitative data were collected using pretested structured interviewer administered questionnaire by trained twelve grades complete individuals.

Anxiety and Depression: - Hospital Anxiety and Depression Scale (HADS) was used to measure depression and anxiety in both groups. It consists of a 14-item scale comprising of 7 anxiety and 7 depression items from which separate anxiety and depression sub-scale scores are calculated. Each item score ranges from zero to three. It can be used within community settings for all age groups from adolescence upwards in developing countries. Score equal or above eight in both subscale were diagnosed as having

depression and anxiety (11, 12,13). The reliability of the HAD scale in this study subject was Cronbach's alpha = 0.865 (HAD-A=0.805, HAD-D=0.763).

Self- esteem:-Rosenberg's scale was used to measure the self-esteem of orphan adolescents. The scale has been internationally used for over thirty years, translated into many language and has been consistently shown to be reliable and valid. Moreover, the scale was used in Ethiopia (14,9). It has 10 item scale from strongly agree to strongly disagree (0-30). Reliability of the scale measured with Cronbach's Alpha was = 0.65 and after removal of item #8 it became 0.73. Furthermore the score of the items were distributed normally for both study groups.

Perceived Social Support:-Multidimensional Scale of Perceived Social Support (MSPSS) was used to measure their perceived social support. It consists of 12 items which ranges from strongly agree to strongly disagree (12-60) (15). The scale was having adequate reliability and validity across a variety of population (16). In this study the reliability as measured by Cronbach's alphawas 0.89. The scores were also distributed normally.

Socio demographic and Other Variables that may be Related to Psychological Stress:-The socio- demographic variables and other factors including changing living places, providing care for sick parents & social factors, discriminations ,violence, child labor were assessed using questionnaire that were developed through reviewing different literatures. The questionnaire was prepared first in English and translated into Amharic (local language) and back translated to English to check for consistency.

The qualitative data was collected using interviewer guided checklist. The major focus of the in- depth interview was identification of the type of support provided for the orphaned adolescents & major challenges that they were facing in provision of the psychological support.

Data Analysis

For the quantitative data, the completeness and consistency of the collected data was checked manually and entered into a database. Both descriptive and logistic regression methods were applied. Descriptive statistics like mean, frequency were used for describing the socio-demographic factor. Independent t-test was used to compare the means of continuous variables like mean value of self- esteem between the two groups. Moreover, logistic regression was used to identify the significant predictor variables using SPSS version 16. P-Values less than 0.05 were considered as significant. The qualitative data was analyzed by thematic approach manually.

Ethical Clearance:-Ethical clearance was obtained from Jimma University Ethical clearance committee and Addis Ababa Health Bureau. Oral consent was obtained from surviving parents or care takers of the orphans and written consent from the orphan adolescents. For any child who developed a distress counseling service was planned to be given however there was no case like that. Furthermore, the confidentiality was assured for all the information provided.

Result

A sample of 804 (92%) out of the total sample of 876 participated in the study. Among the participants 240(59.7%) of AIDS and

102(25.4%) non-AIDS orphans were double orphaned. The majority of the orphans 368(91.5%) AIDS and 383(95.3) non-AIDS orphans were in school during the survey time. The reasons for not enrolling in school were to get money, losing hope and home chores. One hundred sixty seven (41.5%) of AIDS orphans had provided care for their parents (Table 1).

The mean score of AIDS orphans self esteem & perceived social support were lower than mean score of non-AIDS orphan adolescents (Table 2). Only 16.2% & 8.1% of AIDS and non-AIDS orphan adolescents were provided counseling services by the organizations and the community respectively.

With respect to depression, 157(39.1%) of AIDS orphans and 122(30.3%) of non-AIDS orphans were depressed within the last week before the survey. In addition to these, 164(40.8%), 137(34.1%) of AIDS and non-AIDS orphan adolescents respectively had anxiety. There was no statistical significant difference in depression and anxiety [OR (95% CI) =1.164(0.733, 1.754) & 0.88(0.57, 1.33)] between the two groups, respectively (table 3).

Tables 4 a & b shows statistically significant predictors of depression and anxiety in AIDS orphan adolescents. Those AIDS orphans adolescents who were not enrolled in schools, living with non-relatives, engaged in income generating activities and experience discrimination from friends were more likely to be depressed as compared to their counterparts. In addition to this , community discrimination, engaging in income generating activities, not enrolling in schools & living with father, brothers/sisters and with non-relatives were found out as risk factors for developing anxiety. A man whose age was 35 years

also said that “..... *there is nothing like seeing a mother live longer not only for her children psychological health but also for their well-being.*”

In non-AIDS orphan adolescents, those who were discriminated with their friends, changed living place for more than two times after parental death, engaged in home chores and witnessed death of parents were more likely to be anxious as compared to those who haven't. Furthermore, changing a living place and living with fathers & brothers/sister were found out as risk factors for depression (tables 5 a & b). For both study groups material support only didn't show any kind of association with any of the mental health outcomes. However, getting a counseling service was found out as protecting factors from depression in AIDS orphan adolescents [OR (95% CI) = 2.25(1.024, 4.97)].

The common statistically significant predictors of depression and anxiety in both groups were score of self esteem and perceived social support. Per unit increase in score of both self-esteem and perceived social support, the probability of being depressed and anxious reduced in both study groups. Furthermore, both variables were explaining the largest percent of variation as compared to other predictor variables. A man with age 35 said “*I believe that fulfilling all material that they need didn't mean anything for them, what they really need is to be loved and cared by their care givers*”

Discussion

Currently, as a result of HIV/AIDS children and adolescents are facing psychological problems which will have an impact for their future life (2). In this study, it was also found that both AIDS and non-AIDS orphan adolescents were having a psychological

problems. However, there was no significant difference in the prevalence of Depression and anxiety between AIDS and non-AIDS orphan adolescents. This finding was similar to the study conducted in South Africa which compared AIDS, non-AIDS and non-orphaned adolescents (17). However, a study conducted in Uganda showed that AIDS orphan adolescents were more depressed and anxious as compared to non orphaned adolescents (18). The possible explanation for no difference in depression and anxiety could be losing a parent irrespective of the cause of the parent death may be enough to expose the orphans equally to depression and anxiety. In most of the family parent's cause of death is not communicated to children especially if the parent died due to HIV/AIDS, which result in no difference, however it needs further research.

Similar to the studies conducted in Uganda, South African and China (19,20,21), the higher the self esteem and the perceived social support the lower was the probability of being anxious and depressed in both AIDS and non-AIDS orphan adolescents. Moreover, both variables explained the largest variation in both groups indicating that their internal state or their attitude that they have for themselves and for the community do really affect the mental health of the orphan adolescents.

Factors like discrimination, engaging in income generating activities, home chores, changing living places, living with relatives and school enrolment were found to be predictors of psychological distress. Similarly, a study in South Africa found that stigma and discrimination affects the mental health of the orphans (22). Moreover, moving to a new area leaving behind friends and school compounding, is highly likely to result in major emotional problems in orphans (23). It was also found that living with father,

brothers/sisters and with non-relatives were found to be risk factors for developing anxiety. This finding contradicts with a report from South Africa. Grand-parent care givers reported high level of anxiety and depression (17). These might be due to Ethiopian males culturally taking a little role in providing care for their children even after death of mothers. Furthermore, though it has no association with the psychological health, 41% of AIDS orphan adolescents have provided care for sick parents. This indicates that these children were also at high risk of acquiring HIV from their parents if they hadn't taken the appropriate care though the types of care itself matters to that effect.

Limitations:

This study has a number of methodological limitations. First orphans not registered by the organization were not included. Therefore, the findings could not be generalized to all orphan adolescents living in Addis Ababa city. Second, the study didn't include non-orphaned adolescents which will make difficult to infer orphan adolescents have psychological problem.

Conclusion:

In conclusion, large proportions of orphan adolescents were having psychological problems which will effect current and their future life. All care givers of orphan adolescents, instead of only focusing on material support, a great attention need to be given to psychological support of the orphan adolescents, focusing on the identified predicators. Further study needs to be conducted to compare psychological health of AIDS, non-AIDS and non-orphan adolescents. Evaluation of the effect of care and support programs on the mental health of the orphan adolescents and assessment of risk factors for adolescents' acquiring HIV while providing care for their sick parents should be measured.

Acknowledgement: - The authors acknowledge the study participants & organizations for their cooperation and EPHA –CDC for the financial support for the research.

Table 1: The Socio-demographic Characteristics of both AIDS and Non-AIDS Orphan Adolescents in Addis Ababa, Ethiopia, May, 2010 (N₁=402 & N₂=402)

Socio -Demographic Variables (Characteristics)	AIDS orphans N (%)	Non –AIDS orphans N (%)		
Sex				
Male	158(39.3)	192(47.8)		
Female	244(60.7)	210(52.2)		
Age, Mean age(SD)	14.50(1.974)	14.27(2.048)		
Religion				
Orthodox	358(89.1)	361(89.8)		
Catholic	2(0.5)	4(1.0)		
Protestant	20(5.0)	20(5.0)		
Muslim	22(5.5)	16(4.0)		
Death of parents				
Father only	121(30.1)	217(54.0)		
Mother only	41(10.2)	83(20.6)		
Both	240(59.7)	102(25.4)		
Head of the household				
Adult male	95(23.6)	95(23.6)		
Adult Female	279(69.4)	296(73.6)		
Child	26(6.5)	11(2.7)		
current school enrolment				

Yes	368(91.5)	383(95.3)	
No	34(8.5)	19(4.7)	
Reason for not enrolling in school			
Losing hope	9(26.4)	2(10.5)	
To get money	13(38.2)	9(47.3)	
To work in home	2(5.9)	2(10.5)	
Lose of interest in education	2(5.9)	1(5.3)	
To care for my sisters and brothers	4(11.8)	2(10.5)	
Others	4(11.8)	3(15.9)	

Table 2 : Comparison of the score of self –esteem and perceived social support between AIDS and non-AIDS Orphan Adolescents, Addis Ababa, Ethiopia,2010(N₁=402 & N₂=402)

Variables	phan type	M(±SD)	- te st	p-value
Self-esteem score	AIDS orphans	18.9 (±5.35)	- 3. 9 0	=0.002
	Non-AIDS orphans	19.9 (±4.52)		
Perceived social support score	AIDS orphans	42.9(, SD=11.8)	- 1. 4 8	P=0.138
	Non-AIDS orphans	44.1(±11.54)		

Table3: Proportion of AIDS and Non-AIDS Orphan Adolescents who were Anxious and Depressed within the Last week before the Survey, In Addis Ababa, Ethiopia, 2010

Depression	Orphan type	
	AIDS	Non-AIDS
Depressed	157(39.1%)	122(30.3%)
Non-Depressed	254(60.9)	280(69.7)
Crud OR(95%CI)	1.47(1.09,1.97)	
Adjusted OR	1.16(0.77,1.75)	

Table 4a: Final Logistic Regression Model to Predict Probability of depression in AIDS orphan Adolescents, Addis Ababa, Ethiopia,2010 (N=402)

Anxiety	Anxious	Non-Anxious	Crud OR(95%CI)	Adjusted OR
AIDS orphans	164(40.8%)	238(59.2)	1.33(1.001,1.77)	0.88(0.58,1.33)
Non-AIDS Orp. Adol	137(34.1%)	265(65.9)	1.00	1.00

	Depressed	Non-Depressed	Crude OR (95%CI)	Adjusted OR (95%CI)
School enrolment				
Yes	130(35.3)	238(64.7)	1.00	1.00
No	27(79.4)	7(20.6)	7.06(2.9,16.6)	3.29(1.01,10.67)
Living with relatives				
Yes	138(37.3)	232(62.7)	1.00	1.00
No	19(59.4)	13(40.6)	2.45(1.17,5.13)	2.89(1.09,7.66)
Engaging in income generating activities				
Yes	40(62.5)	24(37.5)	3.05(1.75,5.3)	2.99(1.44,6.22)
No	117(35.3)	214(64.7)	1.00	1.00
Friends discrimination				
Yes	22(81.5)	5(18.5)	7.79 (2.88,21.0)	5.05(1.37,18.57)
No	135(36.1)	239(63.9)	1.00	1.00
Counseling service				
Yes	14(21.5)	51(78.5)	1.00	1.00
No	143(42.4)	194(57.6)	2.68(1.43,5.04)	2.25(1.024,4.97)
Self-esteem			0.84(0.8,0.88)	0.86(0.81,0.91)
Perceived support			0.90(0.88,0.92)	0.93(0.91,0.95)

Table 4b: Final logistic regression to Predict the probability of Anxiety in AIDS Orphan Adolescents in Addis Ababa, Ethiopia, 2010 ((N1=402 & N2=402))

	Anxiou s	Non- Anxiou s	Crud OR (95%CI)	Adjusted OR(95%CI)
School Enrolment				
Yes	137(37.2)	231(62.8)	1.00	1.00
No	27(79.4)	7(20.6)	6.5(2.76,15.33)	3.78(1.03,13.75)
Marital status				
Single	141(37.7)	233(62.3)	1.00	1.00
Boy/Girl Friend	21(80.8)	5(19.2)	3.89(1.65,9.19)	4.8(1.15,19.91)
Engaging in income generating activities				
Yes	46(71.9)	18(28.1)	4.7(2.62,8.54)	4.18(1.84,9.47)
No	116(35)	215(65)	1.00	1.00
Community discrimination				
Yes	25(92.6)	2(7.4)	21.2(4.95,90.9)	16.85(3.1,91.74)
No	139(37.1)	236(62.2)	1.00	1.00
Type of care provider				
Father	12(70.6)	5(29.4)	1.00	1.00

Mother	34(32.1)	72(67.9)	0.19(0.06,0. 60)	0.2(0.04,0.85)
Brother/sis ter	49(53.8)	42(46.2)	0.49(0.16,1. 49)	0.24(0.04,1.4 8)
Grandparen ts	32(33.7)	63(66.3)	0.21(0.07,0. 65)	0.15 (0.02,0.86)
Uncle/ aunt	19(31.1)	42(68.9)	0.19(0.07,0. 61)	0.09 (0.01,0.63)
Non- relatives	17(68)	8(32)	0.88(0.23,3. 38)	0.33(0.04, 2.28)
Self-esteem			0.82(0.7,0.8 6)	0.82(0.76,0.8 6)
Perceived support			0.90(0.88,0. 92)	0.95(0.92, 0.96)

Table 5a: Final Logistic Regression Model to Predict Probability of Depression in Non-AIDS Orphan Adolescents, Addis Ababa Ethiopia 2010 (N=402).

	Depressed	Non-Depressed	Crud OR (95%CI)	Adjusted OR(95%CI)
Changed living place				
Yes	49(39.5)	75(60.5)	1.83(1.17,2.87)	3.00(1.53, 5.88)
No	73(26.3)	205(73.7)	1.00	1.00
Type of care giver				
Father	2(53.7)	19(46.3)	1.00	1.00
Mother	46(26)	131(74)	0.3(0.15,0.61)	0.26(0.10,0.69)
uncle/aunt	13(22.8)	44(77.2)	0.25(0.1,0.61)	0.21(0.062,0.69)
non-relatives	1(33.3)	2(66.7)	0.43(.03,5.14)	0.103(0.01,0.60)
Self-esteem			0.78(0.73,0.82)	0.81(0.75,0.87)
Perceived support			0.90(0.88,0.92)	0.92(0.90, 0.95)

Table 5b: Final Logistic Regression Model to Predict the Probability of Anxiety in Non-AIDS Orphan Adolescent

	Anxious	Non-Anxious	Crude OR(95%CI)	Adjusted OR(95%CI)
Friends' Discrimination				
Yes	18(90)	2(10)	19.9(4.5,87.1)	16.21(2.6,102.2)
No	119(31.2)	263(68.8)	1.00	1.00
Changed living place				
Yes	53(42.7)	71(57.3)	1.72(1.11,2.67)	2.27(1.23,4.20)
No	84(30.2)	194(69.8)	1.00	1.00
HHs chores				
Yes	49(59)	34(41)	3.78(2.29,6.25)	3.26(1.68,6.34)
No	88(27.6)	231(72.4)	1.00	1.00
Witnessing death of parents				
Yes	45(41.3)	64(58.7)	1.93(1.11,3.92)	1.96(1.03,3.73)
No	92(31.4)	201(68.6)	1.00	1.00
Self-esteem			0.77(0.73,0.82)	0.80(0.74,0.86)
Perceived support			0.90(0.88,0.92)	0.92(0.89,0.97)

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Thesis Five

Awareness, Attitude and Willingness to Use Female Condom among College Female Students in Harar Town, Harari Regional State, Eastern Ethiopia, 2010

Dayan Aragu

Abstract

Background: Condoms are an integral part of STD and HIV/AIDS prevention. Until recently, the only condom available to women in the world has been the male condom. Currently available method of dual protection that woman can initiate, female condoms offer an important alternative to male condoms.

Objective: To assess awareness, attitude and willingness to use female condom among college female students in Harar town.

Methods: Institution based cross-sectional quantitative study complemented with a qualitative study was conducted among a sample of 844 college female students in Harar town in 2010. A multistage sampling technique was used to select study subjects from eight colleges. Logistic regression was used to analyze the data.

Result: A total of 663 (83.5%) students had heard about female condom (FC) and only 3.3% of students had experience of having used. Almost half of the students had positive attitude towards FC and 40.9% of students were willing to use. Place of residence, sexual experience, knowledge about modes of transmission of HIV/AIDS and attitude towards FC were found to be significant predictors of willingness to use FC.

Conclusion: FC seems to be an option for prevention and control of HIV/AIDS especially for females and youths. Increasing awareness about positive aspects of the FC and its use to both

individuals and the larger community will serve to increase intentions to use the method.

1. Introduction

In many regions of the world, new Human Immunodeficiency Virus (HIV) infections are heavily concentrated among young people (15–24 years of age). Among adults 15 years and older, young people accounted for 45% of new HIV infections and women accounted for nearly half of all people living with HIV. Sub-Saharan Africa is heavily affected by HIV than any other region of the world and two thirds (67%) of all adults and children with HIV globally live in sub-Saharan Africa and 60% of HIV infected adults are women (1).

In Ethiopia, 1.4 percent of adults age 15-49 are infected with HIV. It is estimated that a large proportion of new infections occur in people aged 25 years or younger. As is the case elsewhere in Africa, transmission is almost exclusively through heterosexual contact (2, 3).

Gender inequity is an important driver of the HIV epidemic, 76% of the HIV-positive youth in sub-Sahara Africa were females (4). According to the 2005 Ethiopian demographic health survey (EDHS) HIV prevalence among women is twice higher than among men (1.9% compared with 0.9%) (2).

Currently, the methods available to curb the rapid spread of Human Immunodeficiency Virus /Acquired Immunodeficiency Syndrome (HIV/AIDS) are abstinence, faithfulness between uninfected partners and consistent condom use. While, youth is a life stage characterized by sexual exploration, risk taking and a sense of invulnerability. Whereas, abstinence and faithfulness may not be easily attainable prevention options for many young

people. Thus, the promotion of consistent condom use should be a critical element of a comprehensive HIV/AIDS prevention program for youth (5).

Until recently, the only condom available to women in the world has been the male condom, currently available method of dual protection that woman can initiate; female condom offers an important alternative to male condom (6).

The female condom is a contraceptive device developed in the 1980s as an alternative strategy aimed at ensuring a female controlled safe sex method. It protects pregnancy and STDs including HIV infection (7). Interventional studies have shown that female condom is an effective barrier against HIV and other STDs. The contraceptive efficacy of the female condom is also equivalent to that of other barrier methods for women (6). So this female-initiated prevention is particularly important in sub-Saharan Africa where prevalence of HIV infection is very high and the transmission is mainly through sexual contact (8). However, despite the availability of female condoms and theoretically based interventions to promote their use, studies have indicated low levels of female condom use and acceptability among sexually active women aged 15 to 25 years (9). Thus, it is critical to examine why female condom use is not popular. Unfortunately, in Ethiopia only few studies have attempted to explore the determinants of acceptability and utilization of female condom. Therefore, the objective of this study was to assess the awareness, attitude and willingness to use female condom among female college students.

4. Methods and Materials

4.1. Study Area and Period

The study was carried out in private and government colleges found in Harar town from March 1-10, 2010. In the town, there were three government and five private colleges. Currently, these colleges run certificate, diploma and bachelor degree programs in their regular and extension programs and a total of 7,276 students were enrolled in their regular programs with female students enrollment was 38%. Only one college serves dormitory for some of their students, while students in the other colleges live out-of-campus.

4.2. Study Design

Institution based cross-sectional quantitative study complemented with a qualitative study (in-depth interviews).

4.3.1. Source Population

The source population consists of all college female students attending their education during the study period and all service providers of family planning on delivery points of Harar town.

4.3.2. Study Population

The study population was sampled regular college female students attending their education during the study period in Harar town.

For in-depth interview, the study population were service providers in those selected institutions and availed during data collection time.

4.4. Sample Size Determination

Sample size was determined using single population proportion formula by assuming the proportion of students who are willing to use female condom to be 50%, non-response rate of 10% and a design effect of 2 the required sample was 844.

For the in-depth interview, two government hospitals, two health centers, three private clinics and one NGO clinic (Harar FGAE)

were included in the study and 10 service providers were interviewed.

4.5. Sampling Procedure

Multistage sampling technique was employed to select the study subjects. First, the required sample was allocated among eight colleges proportional to the size of the female students enrolled in their regular programs in the 2009/2010 academic year.

Second, simple random sampling method was used to select representative departments and then departments were stratified by year.

Third, the allocated sample for each college was proportionally distributed to the selected departments and years of studies based on the size of female students in the departments and years of studies. Finally, individual study subjects were selected using simple random sampling method.

Purposive sampling technique was employed for the in-depth interview, to select the institutions. Then services providers in those selected health institution were interviewed until the required data was obtained.

4.6. Data Collection

Self administered structured questionnaire was used to collect the data. The questionnaire contained five parts which included students' socio-demographic status, sexual experience, knowledge and perception towards HIV/AIDS, awareness and practice towards female condom and attitude and willingness to use female condom.

For in-depth interview, semi structured interview guide was prepared and interviews were tape recorded.

4.8. Data Processing & Analysis

Data were entered into a database, cleaned and analyzed using SPSS version 16.0. Forward stepwise regression method was used

to adjust for other variables. Those variables that showed significant association in the univariate analysis were then included in the logistic regression model.

Qualitative data were transcribed, analyzed manually and summarized by theme.

4.11. Ethical Consideration

The study protocol obtained ethical clearance from Jimma University. Permission papers were also obtained from concerned authorities and offices of Harar. Similarly written and verbal informed consent was obtained from each study subjects. The confidentiality of the study subject's responses was assured.

Result

5.1. Socio-Demographic Status of the Students

A sample of 794 students was participated in the study making the response rate 94%. The age of the students ranged from 16 to 31 years and the mean age (SD) was 20.2 (2.07) years. Majority of the students 415 (52.3%) were Orthodox Christian followed by Muslim 259 (32.6%). 726 (91.9%) were single and 64 (8.1%) were married. Only 41(5.1%) of students had more than one child. Most, 766 (96.5%), of the students were living outside college campus. Concerning to their field of study, 481(60.6%) were attending health fields. With respect of class year, 255 (32.1%) were first, 294 (37%) were second and 245 (30.9%) were third year students.

5.2. Sexual Characteristics of Students

A total of 288 (36.3%) students had an experience of sexual intercourse. The mean age (SD) at first sexual intercourse was 18.6(1.7) years ranged from 14 to 24 years. Of sexually active students, 195 (67.7%) had one sexual partner in their life time.

Concerning current experience of the students, 233(80.9%) had one sexual partner in the past 12 months. Most sexually experienced students, 197(68.4%), used condom during sexual intercourse in the past, from those; about 171(86.8%) used male condom, 3 (1.5%) used female condom and 23 (11.7%) used both types of condoms. Of those who used condom in the past, 97(33.7%) used always, 49(17%) used most of the time and 51(17.7%) used sometimes.

5.3. Knowledge and Perception of Students towards HIV/AIDS

All students have awareness about HIV/AIDS. A total of 378(47.6%) students had good knowledge about mode of transmission who mentioned all major modes of transmission and 416 (52.8%) of students good knowledge about HIV prevention methods, mentioned the three primary HIV prevention methods. Students were asked about their chance of acquiring HIV and the result showed that 391(49.2%) of the students replied that they have no chance of acquiring HIV and 18(2.3%) replied that high chance of acquiring the virus. On the other hand, 70 (8.8%) reported that their partner had another sexual partner.

5.4. Awareness and Practice of Female Condom

Majority of students 663 (83.5%) had heard about female condom. Of those who had heard about female condom, the main sources of information were health workers, 348(52.5%) and clubs, 271(40.9%) and only 26 (3.3%) of students used before. Most 19 (73.1%) of the female condom users sexual partners had approved to use female condom. The main reasons reported for not using female condom were abstaining from sex until now, 506

(65.9%), far distance to get the service, 208 (27.1%) and in availability of female condom in the locality, 187 (24.3%).

5.5. Attitude and Willingness to Use Female Condom

Nine items were used to evaluate students' attitude towards female condom. Values greater than the mean score was considered as positive, and values less than the mean was taken as negative attitude towards female condom. Accordingly, 407(51.3%) students had positive attitude towards female condom.

On the other hand, 325(40.9%) of the students were willing to use female condom. Out of those students who had an intention to use female condom 184 (56.6%) of the students had a plan to use female condom, with regular sexual partner, 94(28.9%) with occasional sexual partner and the rest 47(14.5%) had a plan to use with both types of partners. The main reasons given by those students who weren't willing to use female condom were preferred to abstain from sex 250 (53.3%), preferred to be faithful to one partner, 133(28.4%), and due to religious affairs, 71 (15.1%).

With the univariate analysis, statistically significant differences in willingness to use female condom was observed between age, number of children, place of residence, field of study, sexual experience, knowledge about modes of transmission of HIV/AIDS, chance of acquiring HIV/AIDS, partner behavior, use of FC and attitude towards FC categories.

After adjusting all the above variables, the final model identified place of residence, experience of sexual intercourse, knowledge about modes of transmission of HIV and attitude towards female condom were remained significant and students who lived outside

campus were less likely to be willing to use female condom than those students who live in the campus (AOR 0.38, [95% CI 0.15 to 0.93]). Similarly, students who had no experience of sexual intercourse were less likely to be willing to use female condom than those students who had experience in sexual intercourse (AOR 0.36, [95% CI 0.26 to 0.50]). On the other hand, students who had poor knowledge about modes of transmission of HIV/AIDs were more likely to be willing to use female condom than those students who had good knowledge about modes of transmission of HIV/AIDs (AOR 1.43, [95% CI 1.04 to 1.98]). Students who had positive attitude towards female condom were more likely to be willing to use it than those students who had negative attitudes for female condom (AOR 5.99, [95% CI 4.31 to 8.34]) (Table 1).

Table 1. Final Predictors of Willingness to use Female Condom among College Female Students in Harar town, Eastern Ethiopia; 2010

Variables	Willingness to use FC		Crude OR (95% CI)	Adjusted OR (95% CI)
	Yes Number (%)	No Number (%)		
Area of residence				
In campus	19 (5.8)	9 (1.9)	1	1
Outside campus	306 (94.2)	460 (98.1)	0.31 (0.14, 0.71)	0.38 (0.15, 0.93)
Ever had sexual				

intercourse				
Yes	166 (51.1)	122 (26.0)	1	1
No	159 (48.9)	347 (74.0)	0.34 (0.25, 0.45)	0.36 (0.26, 0.50)
Modes of transmission of HIV/AIDS				
Good knowledge	134 (41.2)	244(52.0)	1	1
Poor knowledge	191 (58.8)	225 (48.0)	1.54 (1.16, 2.06)	1.43 (1.04, 1.98)
Attitude towards FC				
Positive	248 (76.3)	159 (33.9)	6.28 (4.56, 8.64)	5.99 (4.31, 8.34)
Negative	77 (23.7)	310 (66.1)	1	1

Findings of in-depth Interviews

The in-depth interview was focused mainly on assessing service related factors including providers' knowledge and attitude towards female condom.

Female Condom Availability:-Currently the hospitals, health centers and private clinic pharmacies provide (Family Planning) FP services except female condom. In those institutions female condom is not available at all. The reason given by most providers were the government didn't supply female condom, like other services. The other provider in private pharmacy said that "we

didn't sell female condom in our pharmacy even if it is available on the market by DKT Ethiopia, because the community doesn't accept it, so it isn't profitable for us." Only Harar FGAE provides the service freely for the past three years, through the three outlets of the clinics and peer educators.

Users of Female Condom and Reasons for Use:-Youths especially those who weren't married and sex workers were users of female condom. The motivations for use were for prevention of HIV/AIDS and for trial. Most of the users weren't complained about the condom and they want to continue to use the service.

Provider's knowledge and Attitude towards Female Condom: - Most of the providers didn't take any in service training or refreshment courses concerning female condom except those who were working in the NGO clinics. Majority of the service providers except those who were working in the NGO clinics perceive female condom as more disadvantageous/useless and technically difficult. But, one service provider from NGO clinic said that "whatever it is, new things are not accepted easily. So, the difficulty and other complaints about female condom will be reduced and adapted with experience through time."

IEC Activities Related to Female Condom:- Majority of institutions didn't give detail information about female condom for their clients. They inform only the availability/existence of female condom. One service provider in the health center replied that "for the clients who are coming to this institution, I gave the information about the availability of female condom only because I have still doubt to teach about female condom in detail due to my limited knowledge about it." There was no awareness creation

activity at the community level. But youth center of Harar FGAE gives health education for youths and commercial sex workers through peer educators. But none of them gives health education concerning female condom in schools or colleges found in the town.

According to FGAE, there is an adequate teaching aid material in their institution. On the other hand, in other institutions no adequate teaching aid materials about the method.

Concerns and Implications about Female Condom:-In general, the service providers agreed that low awareness (limited IEC activities, no advertisement in mass media...), cultural and religious affairs, no clear policy and less integration with other services and limited supply and provision were some of the barriers that affect the acceptability and utilization of female condom. Wider awareness creation/promotion activities, integration of the service and provision of the service at a low price in all health institutions are some of the improvements which are needed to change the perception of the community and pattern of service utilization.

Discussion

This study explored several factors concerning willingness to use female condom among college students in Ethiopia for the first time. About 84% of students had heard about female condom, which is consistent with studies done in Italy and Nigeria (10, 11). The use of female condom was 3.3%, which is lower as compared to the study done in Nigeria (11). The difference could be resulted from absence of IEC programs especially in colleges, limited advertisement and limited availability. About 73% of sexual partners of female condom users were approved to use female

condom which is higher than the study done among students in Nigeria (11).

Concerning intention/willingness to use female condom, about 41% of the students were willing to use female condom. The study which was done in Italy showed that 63% of women were agreed to use female condom (10). This difference could be due to the difference in age, knowledge, culture and religion in the two study populations.

Sexual experience had significant association with willingness to use female condom. Students who had an experience of sexual intercourse were more likely to be willing to use female condom than those students who had no experience. This could be due to those abstained students having low risk perception to HIV/AIDS and they might not consider the importance of condom at this time of their age.

The study finding which was more difficult to interpret is that, students who had poor knowledge about HIV/AIDS were more likely to be willing to use female condom than those who had good knowledge. This could be due to negative perception about female condom and having low risk perception by those students who had good knowledge about HIV/AIDS might have intended to ignore the prevention methods.

Attitude towards female condom was the most significant predictor of willingness to use female condom. The qualitative result also supports this finding. This is a very strong statement as it was mentioned earlier that much has not been done to promote the method and create awareness in the community.

Overall, these findings indicate that the need to promote, educate and support services for female condom helps to increase awareness/ knowledge and utilization of female condom as well as to avoid negative attitudes or perceptions about female condom,

given that attitude is the most significant predictor of willingness to use female condom.

Strength and Limitation of the Study

Strengths

All colleges in Harar town were included and relatively large sample size was used. Service related factors were assessed by using qualitative method of data collection which could have been equally important to identify the problems in addition to approaching clients.

Limitations

It is difficult to generalize the result of this study for all youths in the study area, since the data was collected from youths in colleges. Due to the fact that this study deals with personal and sensitive issues, there could have social desirability bias.

The reliability and validity of questionnaire could be affected since it was not standardized and adequate comparisons could not be made because there were no similar studies in Ethiopia on college students.

Conclusion and Recommendations

Health institutions and clubs were major venue for disseminating information about female condom, even though, most of the health professionals in the institutions were not trained and had negative attitude towards female condom

Only 3.3% of students used female condom in the past. The main reasons reported for not using were far to reach the service and unavailability of the service. The qualitative study also supports these findings; only one institution gave the service to the population of the town and IEC programs was almost none. Around half of the students were willing to use female condom.

Area of residence, sexual experience, knowledge about modes of transmission of HIV and attitude towards female condom were the most significant predictors for willingness to use female condom. Over-all, female condom seems to be an option for prevention and control of HIV/AIDS, especially for females and youths.

Based on the above findings, increasing awareness thorough IEC/BCC intervention about positive aspects of female condom and the method of its use to both individuals and the larger community will serve to increase intentions to use the method. Female condoms need to be made more available and accessible in all delivery points and should be integrated with both family planning and disease prevention programs of the country. On the other hand training and refreshment courses should be given for service providers to reduce their negative perceptions about female condom and to enhance their knowledge and skills for teaching about female condom. Health extension workers and peer educators should be used to introduce female condom to the community.

Acknowledgment

I would like to thank the Department of General Public Health, College of Public Health and Medical Science of Jimma University for giving me such educative opportunity.

My sincere and deepest gratitude goes to my advisor Dr Amare Deribew from the Department of Epidemiology, College of Public Health and Medical Sciences of Jimma University for his unreserved guidance and relevant comments throughout this study.

I would like also to acknowledge EPHA-CDC Project for sponsoring this research.

I would like to pass my deepest gratitude to my families and friends especially for Ato Solomon Abebe and W/o Hewan Birhanu for their moral & material support and encouragement throughout my study.

My deepest thanks also goes to Harari Health Bureau and Harar Family Guidance Association for providing information and materials for this study.

Finally, I would like to acknowledge the study team and all study participants including colleges and health institutions participated in this study for their cooperativeness and efforts to facilitate the data collection.

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Thesis Six

Substance Use, Sexual Orientation and Risky Sexual Behaviors for HIV Infection among Bahir Dar University Students, North- West Ethiopia, March 2010

Tigsit Astale

Abstract

Background: Young people are with high tendency for substance use and risky sexual behaviors. Though university students are substantially vulnerable young people, most studies undertaken on the young people have overlooked them. On top of that, prior studies didn't explore the possible relationship that may exist between substance use and different types of sexual behaviors.

Objective: To assess substance use, sexual orientation and risky sexual behaviors for HIV infection among Bahir Dar University students.

Methods: A cross sectional survey was conducted in March 2010 among sample of 696 Bahir Dar University students using a pre-tested self administered questionnaire as well as Focus Group Discussion and in-depth interviews also applied to collect quantitative and qualitative data. The quantitative data was entered into a database and analyzed using SPSS version 16. Descriptive statistics were calculated and logistic regression was used to identify independent factors and statistical significance was declared at $p < 0.05$. Qualitative data was analyzed manually and findings were triangulated with the quantitative data results.

Results: Of the sampled students 71% were males and the remaining 29% were females with mean age of 20 (SD=1.7)

years. Use of alcohol, chat, cigarette smoking shisha, hashish, and injection drug use was reported by 51.6%, 16.7%, 9.5%, 7.8%, 4.4% and 0.5% of students, respectively. Multiple sexual partners and unprotected sex were reported by 27.8% & 34.4% of the students. Over 94% of the students were heterosexuals, while 3.4% & 2.5% of students were bisexuals and homosexuals, respectively. Daily alcohol use was associated with both having multiple sexual partner (OR=3.2 and 95% CI 2.7- 4.1) and unprotected sex (OR =2.69 and 95% CI 2.33-3.54) compared to those who didn't drink. The use of hashish was also associated with multiple sexual partner (OR = 4.1 and 95% CI 2.78, 5.23) and unprotected sex: (OR=3.3 and 95% CI 2.75-3.44) compared to those who didn't use hashish.

Conclusion and recommendations: Use of alcohol and hashish were independently and significantly associated with risky sexual behavior. This study suggests a need for multi-faceted HIV intervention strategies for reducing levels of alcohol and hashish use, and enhancing protective sexual behaviors among alcohol and hashish users.

Introduction

Globally, the use of psychoactive substances and related problems has been posing more challenges to public health (1). In Ethiopia, substance use and misuse is a growing problem as in many developing countries, where alcohol and chat are the most frequent substances of use, followed by hashish and solvents. Hard drugs such as heroin and cocaine are rarely used (2).

Young people who persistently use substances often experience an array of problems, including risky behaviors like needle sharing

and unprotected sex. Such combinations greatly increase the likelihood of acquiring HIV infection (3).

Ethiopia, with an HIV prevalence of 2.1%, has one of the highest infection rates in the world. Today in Ethiopia, the HIV epidemic is at its significant stage since it involves the spread of the virus to and among young people. It is estimated that, at the present time, 2.9% of young people between 15-24 years of age are HIV positive (4).

Among those vulnerable young groups, university students take a significant segment. Although there are some anecdotal evidences suggesting widespread unsafe sexual practices among these populations, studies with particular spotlight to these groups are scarce. Even those few studies that do exist were predominantly focused on heterosexual practices exclusive of homosexual practices and anal sex which is known to be the most risky sexual practice. Besides, the relation of substance use with sexual orientation and risky sexual behaviors has not been described yet.

On the other hand, studies are providing evidences that HIV transmission in Africa which was previously attributed to heterosexual practices can also be due to mixed pattern of sexuality of the population including penile anal intercourses (5, 6). After many years of denial, evidence is also emerging about men who have sex with men (MSM) populations in East African countries including Ethiopia. Therefore, in order to have effective remedy to the epidemic, this and other forms of alternative sexualities need to be clearly identified and measured.

The findings of this study can usefully guide national policy and decision making on HIV/AIDS. Through identifying subgroups at greatest risk, such findings can also aid planners and implementers for developing of more effective prevention and intervention strategies.

Objectives

General Objective

- ❖ To assess substance use, risky sexual orientation and behaviors for HIV infection among Bahir Dar University students.

Specific Objectives

- ❖ To describe substance use such as alcohol, Chat, cigarette, cannabis resin (hashish), shisha and injection drugs among Bahir Dar University students.
- ❖ To describe the magnitude of risky sexual behaviors for HIV infection among Bahir Dar University students.
- ❖ To investigate sexual orientation of Bahir Dar University students.
- ❖ To identify factors associated with risky sexual orientation and behaviors for HIV infection among Bahir Dar University students.

Methods and Materials

Study Design: A cross sectional survey using both quantitative and qualitative methods of data collection was employed.

The Study Area and Period: The study was conducted in Bahir Dar University which is one of the public universities in Ethiopia. There were 15,435 undergraduate students and 47 departments in January; 2010. The study was conducted from Mar 1-3, 2010.

Source Population: All regular students enrolled in 2009/2010 academic year.

Study Population: All Sampled regular students enrolled in 2009/2010 academic year.

Sample Size Determination: The sample size was determined using the proportion of multiple sexual partners in Jimma University students, 28.9%, 95% confidence level and 5% margin of error, which results 350. The design effect is 2, and adding 10% non response rate, the final sample size became 770.

Sampling Technique and Sampling Procedure: A two stage random sampling technique was used with the following sampling procedure.

1. 14 out of 47 departments were randomly selected.
2. Stratification of each department by class year of students.
3. The total sample size was allocated to each year stratum in each department based on probability proportional to size.
4. Finally students were selected using simple random sampling method from the list of students.

For the FGD, students who can speak openly on sexual issues were purposively selected. The selected students were not included in the quantitative part of the study. Four FGDs consisting of on average 9 students per group were conducted.

Measurements: data was collected using structured self administered Amharic version questionnaire while the FGDs and in-depth interview was conducted by semi-structured discussion guide. Sexual orientation and risky sexual behaviors for HIV infection were dependent variables where substance use and socio-demographic variables were independent variables of the study.

Data collection: The quantitative data was collected by 15 facilitators who were representatives of each selected

departments. The questionnaire was given to the selected students when they were in a free period with an envelope. The FGD was conducted by the principal investigator and one note taker; notes were taken and recorded with the help of tape recorder. In depth interview was also conducted by the Principal Investigator (PI), and it was tape recorded after getting their permission.

Data Analysis and Processing: Data was entered into a database and analysis was done using SPSS version16. Data was cleaned and exploratory analysis was done before describing the data and then multivariate logistic regression analysis was conducted to identify independent predictors. The FGDs and the in-depth interviews were first transcribed and then combined into broader concepts in terms of key variables, finally triangulated with the quantitative results.

Data Quality Control: The content of the questionnaire was reviewed by experts, translation to Amharic and back translation of the questionnaire was done by people who were blind to the questionnaire. Pre-test, training of the facilitators, close supervision of the data collection procedures, creating comfortable environment and giving an envelope for students were the procurers followed to assure the quality of the data.

Ethical Considerations: Ethical approval was obtained from Jimma University and written informed consent was obtained from the respondents. Confidentiality was assured and no personal identifier was recorded.

Operational Definitions:

Substance: psychoactive stimulants such as alcohol, chat (*Catha edulis*), cigarette, shisha, and hashish (which is also known in its different name and form as ganja and cannabis resin).

Sexual Orientation: refers to homosexual, bisexual, or heterosexual practices exclusive of attraction and identity component.

Risky Sexual Behaviors: sex earlier than 18 years of age, or have sex with non-regular sexual partner or exchange sex for money (money for sex) or have more than one sexual partner or use condom inconsistently or anal sex. The sexual practices could be with same or opposite sex.

Unprotected Sex: sex without or with occasional use of condom.

Multiple Sexual Partners: having more than one sexual partner, the type of sex could be of any kind.

Results

Socio-demographic Characteristics

A total of 696 (90.4%) students completed the questionnaire but 56 responses were excluded due to gross incompleteness and inconsistency. Therefore, analysis was, done based on 640 completed questionnaires resulting in a response rate of 83.1%. With respect to sex, 455(71.1%) were males and the rest 185(28.9%) were females. The average age was 20 (SD=1.7) ranged between 17 and 26 years.

Substance Use

The most frequently used substances were alcohol and Chat. Accordingly, 91 (14.3%) of the students drunk alcohol and 107 (16.7%) Chew chat at least once a week. On the other hand, shisha was the other substance being used by students that accounted for 50(7.8%) of the students, while 28(4.4%) of the students indicated that they used hashish (Table 1).

During FGD, most of the participants indicated that alcohol, chat, hashish and shisha were being used by students. Most of the discussants have ever taken alcohol and two of them stated their use of hashish. Almost all of discussants mentioned that it is common to observe students drinking alcohol and chewing chat throughout the week. One discussant further stated his experience as:

"Chat chewing and alcohol isn't the activity of only few students in the campus, it is increasing from time to time"

Another discussant also stated his experience with sad expression on his faces as:

"The problem is not only limited to chat and alcohol, Hashish and shisha were also being used by students and even the numbers of users are increasing from time to time"

Risky sexual Behaviors

A total of 442 (69.1%) students reported that they ever had sex with 112 (25.3%) of them started sexual intercourse before the age of 18. Having multiple sexual partners and unprotected sex were reported by 58(27.8%) and 72(34.4%) respectively during 6-month period prior to the study. Eleven (7.8%) of males had sex with Commercial Sex workers CSWs in the past 6 months while having sex for grade and other benefits were indicated only by females (Table 2).

Predictors of Risky Sexual Behavior for HIV Infection

The risk of having multiple sexual partners was higher among females compared to males, AOR = 1.11 (95%CI 1.17-1.43) and attending night clubs for at least once weekly, AOR 3.12 (95% CI 2.61-3.56) compared with those who didn't. There was also a significant association between alcohol intake and multiple sexual partner and those who drank alcohol on daily basis had a threefold risk compared to those who didn't, AOR = 3.23 (95% CI 2.71-

4.12). Students who used hashish at least once a week had a fourfold increased risk compared to those who didn't, AOR = 4.13 (95%CI) 2.78, 5.23). (Table 3).

The risk of unprotected sex was 2.4 times more likely among at least once per week night club attendants compared to those who didn't attend, AOR = 2.35 (95% CI 1.59-3.87). Alcohol use was associated with unprotected sexual practice and those who drank alcohol at least once a week had two-fold increase, and daily users having 2.7 fold increased risk having unprotected sex compared those who didn't drink alcohol. At least once a week hashish use was also associated with unprotected sexual practice, AOR = 3.31 (95% CI 2.75-3.44). (Table 4).

Concerning risky sexual behaviors, all members of FGD agreed that risky sexual behaviors in the campus is too high, especially that of having multiple sexual partners and unprotected sex. Discussants mentioned that there is no persistence and faithfulness among partners and relationships become intact for some months only and sometimes even for some days. All participants uniformly explained the situation in the university as a home of having multiple sexual partners.

Female discussant explained that there are female students who practice sexual intercourse just for getting good grades and this is increasing from time to time and usually their friends are complaining about these issues. Members in male groups also uniformly agreed that there is "sex-for good grades" among females students. Most of the participants also mentioned the existence of having sex for money. Further in their discussion, one male student stated the situation of having sex for grade as: *"...double benefit at a time..."*

As to condom use all members, regardless of any preconditions, supported its high importance. However, all discussants

mentioned condom use in the campus isn't as it ought to be. The participants consistently remarked that there is no consistent condom use because 1) they practice occasional sex without getting prepared and they might not have condoms at that time 2) even if they might have condoms in their pockets, they just can't control themselves and being just ignorant 3) the responsibility of using condoms is only dominated by males 4) partners are still not open to discuss on the use of condoms 5) Buying condoms in public venues, such as pharmacies, remains stigmatized and embarrassing, even for experienced users. All participants urged that condom dispensers be available at universities.

As to the issue raised about substance use and attending clubs on the impact of sexual behaviors, majority of students explained that attending night clubs is becoming the prominent place where students spend their free time at night. Almost all of students remarked the impact of night clubs in having casual sex and multiple sexual partners. One female discussant stated the situation as follows:

"...night clubs are one of the main places where students enjoy casual sex and engaged in multiple sexual partnerships"

The use of substance particularly alcohol and hashish was also mentioned by all of the discussants as it has a great impact on unprotected sex. One interviewed student also stated as:

"Students usually drink alcohol and they get drunk, after that they even don't know clearly where they were let alone remembering to have protected sex"

Sexual Orientation and Types of Sexual Practices

As to sexual orientation, 416(94.1%), 15(93.4%) and 11(2.5%) of students were heterosexuals, bisexuals and homosexuals respectively. The commonly practiced sex type was vaginal sex accounted for 430(97.3%). However, oral sex and anal sex were also being practiced by 41(9.3%) and 8(1.8%) respectively.

Sexual orientation and types of sexual practices were raised when students were discussing on sexual behaviors though they were not as such free in discussing about homosexuality and bisexuality. Yet, some students mentioned that there was sexual behavior such as anal and oral sex mainly between opposite sex. In addition, two interviewed students from Anti HIV club members mentioned the existence of a place outside the campus where students practice homosexuality. The place is far from the campus and it is a house for hashish and shisha users.

Table1. Substance use among Bahir Dar University students, March 2010

Characteristics (n=640)	Number(per cent)		
	Male	Female	Total
Alcohol intake			
Never	219(48.1)	91(49.2)	310(48.4)
Only on holidays or post exams	175(38.5)	64(34.6)	239(37.3)
At least once a week	38(8.4)	20(10.8)	58(9.1)
Daily	23(5.0)	10(5.4)	33(5.2)
Cigarette smoking			
Never	410(90.1)	169(91.4)	579(90.5)

Used to smoke but quit	3(0.7)	1(0.5)) 4(0.6)
Sometimes	3(0.7)	1(0.5)	4(0.6)
Daily	39(8.5)	14(7.6)	53(8.3)
Chat intake			
Never	384(84.4)	149(80.6)	533(83.3)
At least once a week	46(10.1)	23(12.4)	69(10.8)
Daily	25(5.5)	13(7.0)	38(5.9)
Hashish/ganja intake			
Never	435(95.6)	177(95.7)	612(95.6)
Sometimes	14(3.1)	5(2.7)	19(3.0)
At least once a week	6(1.3)	3(1.6)	9(1.4)
Shisha intake			
Never	421(92.5)	169(91.4)	590(92.2)
Sometimes	21(4.6)	9(4.8)	30(4.7)
At least once a week	13(2.9)	7(3.8)	20(3.1)
Injection drugs use			
Never	453(99.6)	184(99.5)	637(99.5)
Sometimes	2(0.4)	1(0.5)	3(0.5)
Attending night clubs			
Never	368(80.9)	150(81.1)	518(80.9)
Sometimes	68(14.9)	26(14.0)	94(14.7)
At least once a week	19(4.2)	9(4.9)	28(4.4)

Table2. Risky sexual behaviors of Bahir Dar University students, March 2010

Risky Sexual behaviors	Number(perce nt)		Total (209)
	Male (n=141)	Female (n=68)	
Multiple sexual partner	34(24. 1	24(35.3)	58(27.8)
Unprotected sex	39(27. 6	33(48.5)	72(34.4)
Anal sex	3(2.1)	5(7.4)	8(3.8)
Sex with CSWs	11(7.8)	0	11(5.3)
Sex for grade or other benefits	0	8(11.8)	8 (3.8)
Sex before age 18	76(53. 9	36(52.9)	112(25. 3)

Table3. Socio-demographic characteristics and substance use as predictors of multiple sexual partners among BahirDar University students, March 2010

Characteristics (n=209)	Multiple sexual partner		Crude OR(95%CI)	Adjusted OR(95%CI)
	Yes	No		
Sex				
Male	34	107	1.00	1.00
Female	24	44	1.17(1.01- 1.31)**	1.11(1.17- 1.43)*
Year of study				
First year	4	48	1.00	1.00
Second year	17	54	1.23(1.11- 1.77)**	1.31(1.22- 1.63)*
Third year	18	37	1.70(1.52- 1.89)**	2.21(1.78- 2.93)*
Fourth year	19	12	4.32(3.63- 5.14)**	2.20(1.49- 2.72)**
Attending night clubs				
Never	12	121	1.00	1.00
Sometimes	31	25	4.50(1.52- 8.36)*	1.74(1.10- 2.62)*
At least once a week	15	5	4.61(1.51- 5.70)*	3.12(2.61- 3.56)**
Watching pornography				
Never	17	88	1.00	1.00

Sometimes	23	45	2.52(0.90-3.41)	1.20(0.67-2.29)
At least once a week	18	18	2.31(0.99-5.64)	2.00(0.90-3.71)
Alcohol intake				
Never	5	56	1.00	1.00
Holidays& post exams only	13	77	3.70(2.80-6.40)*	2.51(2.17-3.29)*
At least once a week	27	14	6.13(5.21-9.35)*	2.99(1.98-3.77)*
Drink on daily basis	13	4	8.23(6.24-10.22)*	3.23(2.71-4.12)**
Chat intake				
Never	30	117	1.00	1.00
At least once a week	15	12	5.67(3.49-8.32)*	2.02(0.81-2.25)
Daily	13	22	3.33(2.11-7.49)*	3.30(0.60-4.31)
Hashish/ganja intake				
No	43	140	1.00	1.00
Yes	15	11	4.44(3.34-11.3)**	4.13(2.78-5.23)*
Shisha intake				
Never	14	134	1.00	1.00
Sometimes	13	10	1.92(0.39-2.90)	1.24(0.63-2.52)
At least once a week	31	7	2.67(0.10-3.88)	1.37(0.71-2.81)

Variables included in the logistic model were sex, age, year of study, attending night clubs, alcohol intake, Chat intake, hashish intake, shisha intake

*P<0.01

**p<0.05

Table4. Socio-demographic characteristics and substance use as predictors of unprotected sex among BahirDar University students, March 2010

Characteristics	unprotected sex		Crude OR(95%CI)	Adjusted OR (95%CI)
	Yes	No		
Sex				
Male	39	102	1.00	1.00
Female	33	35	2.47(1.8-3.67)*	1.33(1.12-1.17)**
Year of study				
First year	18	34	1.00	1.00
Second year	25	46	2.63(1.94-5.43)*	1.34(1.08-3.45)**
Third year	14	41	4.23(3.56-4.67)*	2.11(1.7-2.8)*
Fourth year	15	16	3.78(1.99-5.32)*	2.02(1.71-2.9)*
Attending night clubs				
Never	35	98	1.00	1.00
Sometimes	29	27	4.67(3.78-5.1)*	2.21(1.85-3.31)*
At least once a week	8	12	6.34(5.98-7.10)*	2.35(1.59-3.87)**
Watching pornography				
Never	34	71	1.00	1.00
Sometimes	24	44	2.75(0.34-4.91)	1.99(0.95-4.16)

At least once a week	14	22	2.34(0.78-6.89)	1.95(0.7-5.47)
Alcohol intake				
Never	15	46	1.00	1.00
Holidays& post exams only	24	66	3.90(3.2-4.99)**	2.12(1.09-2.77)**
At least once a week	24	17	4.18(3.76-6.9)**	2.02(1.97-3.11)*
Drink on daily basis	9	8	5.85(4.34-7.24)**	2.69(2.33-3.54)*
Chat intake				
Never	44	103	1.00	1.00
At least once a week	12	15	5.77(5.02-6.98)*	2.31(0.22-3.13)
Daily	16	19	6.66(6.2-8.67)*	3.00(0.77-8.7)
Hashish/ganja intake				
No	52	132	1.00	1.00
Yes	20	5	10.15(2.56-11.01)*	3.31(2.75-3.44)*
Shisha intake				
Never	40	108	1.00	1.00
Sometimes	10	13	3.31(0.99-5.3)	2.23(0.1-4.5)
At least once a week	16	22	2.56(0.30-3.00)	1.94(0.81-3.1)

Variables included in the logistic model were sex, age, year of study, attending night clubs, alcohol intake, Chat intake, hashish intake, shisha intake.

*P<0.01

**p<0.05

Discussion

The study has revealed high HIV risk behavior, multiple sexual partners (27.8%) and unprotected sexual activity (34.3%) Whereas, the study conducted among Jimma University students revealed that 52.4% of the students had unprotected sex (7). The difference could be due to the time gap between the studies that interventions might have been undertaken. However, the current finding is higher than the most recent national population-based behavioral surveillance survey in Ethiopia, where it was found that 22.7% of the Ethiopians in school youth had more than one partners (8). Majority of the students in the current study, perceived that they are at low risk for HIV or not at risk at all. This very low HIV risk perception might also be one of the factors contributing to low condom use and multiple sexual partners.

Attending night club was associated with multiple sexual partnerships and unprotected sex. The association could be the situation in the night clubs creates conditions to meet casual partners or a night time venue facilitates meeting casual partners. In addition, attending these places might result in changing sexual decision-making which in turn leads to increased likelihood of engagement in more risky sexual behaviors. The interviewed proctor also stated that night clubs are becoming the most risky places for the students in a way that they spend the whole night there taking risks of any kind. One female discussant also stated that *"...night clubs are one of the main places where students enjoy casual sex and engaged in multiple sexual partnerships"*

A similar finding was reported in a study among Portuguese young people, where attending night clubs showed a strong association with sexual risk behavior. It appears that young people who went for night clubbing had higher contextual factors for the adoption of risk behaviors such as not using condoms and having multiple sexual partners (9, 10). In the qualitative study, students also mentioned that night clubs create conditions to have sex with a person whom they don't know before.

There is a body of research indicating the connection between substance use and sexual behavior, including high risk sexual behaviors such as unprotected anal intercourse and multiple sexual partners (11, 12, 13). Results of this study were consistent with previous studies, indicating that substance users had a greater number of sexual partners and engaged in unprotected sex, placing them at greater risk for HIV infection.

The observed association between unprotected sex and alcohol is expected as alcohol de-private cognitive power, alter rational decision making and increase risk-taking behavior (14). A study conducted in in-school and out of school youths of Ethiopia revealed that daily alcohol users were three times more likely to have unprotected sex (15). This is also evidenced as one of; the discussants mentioned that alcohol as one of the driving forces for students to be engaged in risky sexual behaviors, particularly for unprotected sex.

The association of hashish with unprotected sex is the other important finding of this study. In consistent with this finding the situational effects of hashish intoxication was described in other studies such as the impairment of information processing, relaxation or euphoric mood and self reported aphrodisiac effects

(16), which in turn reduces behavioral control and increases the risk of unprotected sex. The practice of unprotected sex showed association with hashish intake which could not be less alarming as number of students using hashish is increasing. Similarly, a cross sectional study in Portugal showed that young people who used hashish had sexual intercourse without using condoms and more often than non users. The number of sexual partners was also highest amongst young people with the highest frequency of alcohol and hashish consumption (17). Two of the students pointed out that students get very high after they used hashish and that their risk taking behavior increases since they become ignorant of the future. Students who usually take hashish have a saying "...live today, forget tomorrow..." as mentioned by one FGD participant, which showed their high risk taking behaviors.

Chat use was not found to be associated with multiple sexual partners and unprotected sex in the current study similar to other study (20) that stated chat has not yet been associated with alteration of rational decision-making and has not been shown to increase risk taking behavior. On the contrary, Chat use and HIV-related sexual risk has been documented by other studies (18, 19). The qualitative result also indicated that students chew chat to help them focus on their studying and it has nothing to do with their sexual risk taking behavior.

Conclusion

Substantial proportions of students were using substances where the common ones were alcohol and chat followed by shisha and hashish. Significant numbers of students were also engaged in risky sexual behaviors as shown by having multiple sexual partner, unprotected sex and anal sex. The use of alcohol, hashish

and attending night clubs were significantly and independently associated with risky sexual behavior among students.

The majority of students were heterosexuals; there was, however, existence of bisexuality and homosexuality which accounted for 3.4% and 2.5% respectively. The common type of sex being practiced by the students was vaginal sex, followed by oral and anal sex.

Recommendations

1. Clubs working on disseminating information regarding the problems of substance use and that promote well informed decisions shall be established in the university. These clubs must be structured in a way that they can closely work with Anti HIV club existing in the university and shall be of participatory of all concerned stakeholders mainly students.
2. Peer education program through clubs and students' union on risky sexual behaviors shall be launched so that the influence of peer pressure can be directed into positive and preventive behaviors.
3. Female students shall be supported economically through different means including gender office of the university
4. Guidance and counseling services that are meant to assist students to get rid of their stress during study time, on how they can be relieved from their addictions to substance use and risky sexual behaviors should be strengthened in the university.
5. The awareness creation campaigns and messages on HIV mode of transmission should be well tailored in terms of sex types. HIV prevention mechanisms during anal and oral sex practice should be stated clearly.

6. Sexuality in Ethiopia requires more rigorous studies on anal sex, sexual orientation and on the core values of the students leading them to behaviors such as multiple sexual partners.

Acknowledgements

I am heartily thankful to my advisors, Fentie Ambaw and Wondwosen Kassahun whose encouragement and guidance from the initial to the final level helped me to develop an understanding of the subject. My special thanks also go to the Ethiopian Public Health Association /CDC for sponsoring this study and Jimma University for giving me the opportunity to pass through this learning processes.

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Thesis Seven

HIV Positive Women's Intention to have Pregnancy using the Theory of Planned Behavior: the Case of Assela Referral Hospital, 2010. Bereket Tefera

Abstract

Background: Though all women have the same rights concerning their reproduction and sexuality, women living with HIV/AIDS require additional care and counseling during their reproductive life. In sub-Saharan Africa, women accounted for almost 6 out of every 10 persons living with HIV/AIDS and the failure to implement intervention measures, known to reduce perinatal transmission of HIV, lead to higher number of new pediatric HIV positive cases.

Objective: The objective of this study was to describe HIV positive women's behavioral intention and its determinant factors to have pregnancy.

Methods: A cross-sectional facility based study design, supplemented with in-depth interview was employed in Assela referral hospital, from March 10- April 8, 2010. The theory of planned behavior was used to develop the conceptual framework. Study participants were selected randomly from clients who came to visit Assela hospital ART unit. Frequencies, means and standard deviations were used to describe the data; and correlations analysis was used to examine the relationships among variables. Stepwise linear regression was used to identify important predictors of pregnancy intention.

Results: There were 344 study participants with response rate of 95.3%. Majority of the respondents (75.3%) were found highly knowledgeable about Prevention of Mother to Child Transmission (PMTCT) of HIV. Large number of women (29.1%) had the intention to be pregnant. Respondents' age, history of PMTCT service exposure, and PMTCT knowledge had significant correlation and accounted for 21.4% of the variability in pregnancy intention. Belief based attitude, subjective norm and perceived behavioral controls had significant correlation with pregnancy intention that explained 36% of the variability in pregnancy intention, where belief based attitude alone accounted for 25.5%. The theory of planned behavior and external variables together explained 57.4% of the variability in pregnancy intention.

Conclusion and recommendation: Large number of HIV positive women had the intention to be pregnant; whereas, attitude towards pregnancy was found the major predictor. Therefore, attention needed to be given on attitude towards pregnancy and strengthening PMTCT services.

Introduction

The sexual and reproductive health of women living with HIV/AIDS is fundamental to their well-being and that of their partners and children. All women have the same rights concerning their reproduction and sexuality, but women living with HIV/AIDS require additional care and counseling during their reproductive life (WHO, 2006). HIV/AIDS can affect fertility desires and outcomes, and fertility can affect the risk of HIV/AIDS and for this reason an empirical association between the two seems almost unavoidable (UN, 2002).

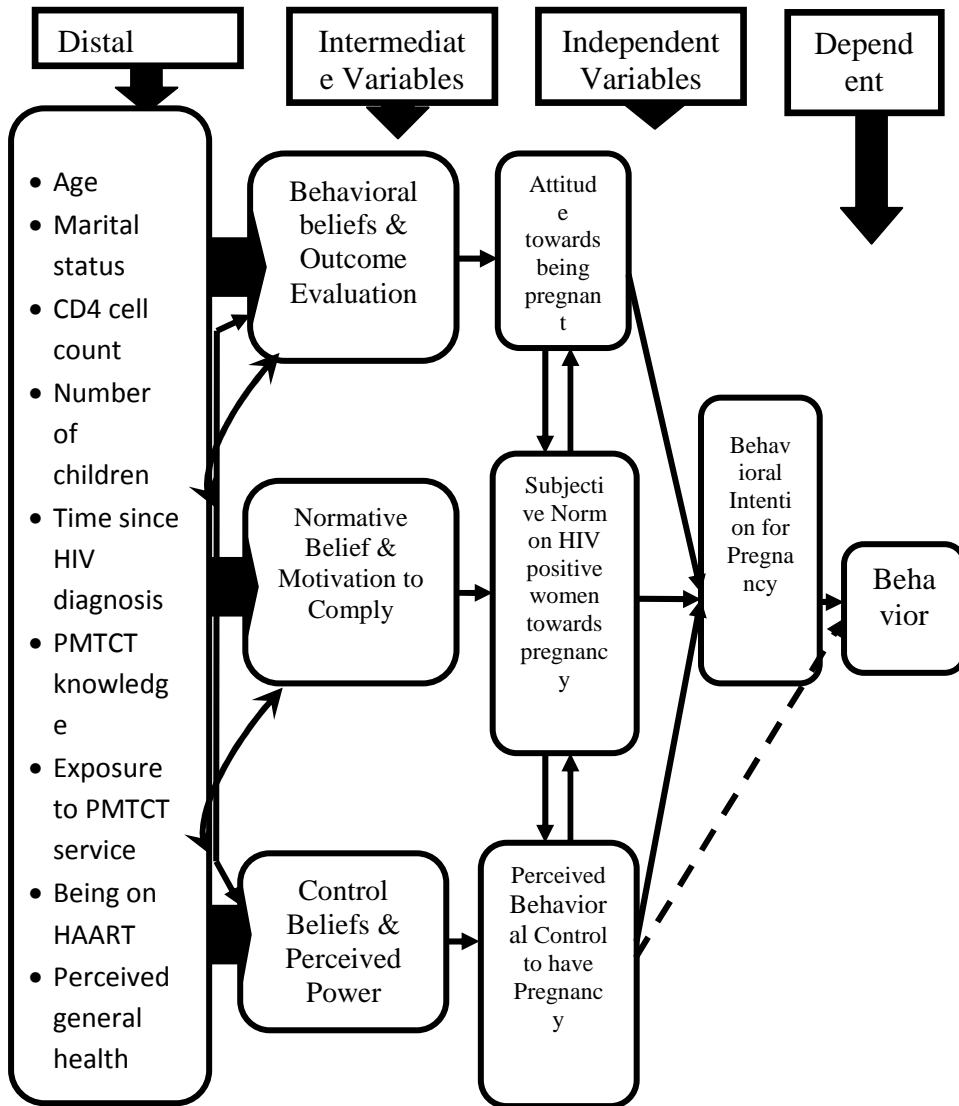
Women comprise an increasing proportion of people living with HIV/AIDS worldwide. Global prevalence among women has accelerated from 41 % of infected adults in 1997 to 50 % in 2002. In sub-Saharan Africa, more women than men are infected with the virus (UNAIDS, 2008; ECA, 2004). And the failure to implement intervention measures, known to reduce prenatal transmission of HIV, accounts for the higher number of new pediatric cases (Anon., 1999). And a moderate reduction in the number of pregnancies among HIV-infected women would yield an equivalent reduction in the number of new HIV positive pediatric cases given that women receive full package of PMTCT (WHO, 2002). In addition, one-fourth of all births in Sub-Saharan Africa are unintended, assuming that 25% of HIV-positive births are also unintended, meeting the family planning needs of all women with HIV in Sub-Saharan Africa has the potential to avert 120,000 HIV-positive births each year (REYNOLDS, 2005).

Levels of orphan-hood have always been high in Sub-Saharan Africa, as a result of high mortality in general and high maternal mortality in particular (UNICEF, 2004). AIDS orphans suffer the psychosocial problems that other orphans do, but have an additional burden of stigma associated with HIV/AIDS (ECA, 2004). The average age of death for HIV infected children born to HIV positive women was less than six months, 72% of them dying within their first year of life and orphans were three times likely to die (Taha et al., 1996).

In Ethiopia, the prevalence of HIV/AIDS in women was 2.6%, and the total number of orphans in the year 2007 was 898,350. From 127,544 pregnant women tested for HIV, 6,655 were reported to be positive and 58.3% of women and 2,736 new born babies had

taken NVP (Neverapin). The proportion of hospitals, health centers and clinics providing VCT service were 63.6% and only 38.2% of the health institutions were providing PMTCT service (MOH, 2007). Over all in Ethiopia 74,000 pregnant women were estimated to live with HIV and looking for PMTCT service. However, only 8% of these women had the service in 2007 (UNAIDS/WHO/ UNICEF, 2008). This figure reflects the VCT and PMTCT services coverage of the country were low.

In this study, the Theory of Planned Behavior (Ajzen, 1991), was adapted to construct the conceptual frame work of the study to determine HIV positive women pregnancy intention. The TPB (Ajzen, 1991) is established to answer the limitation in the TRA (Ajzen and Fishbein, 1980). TPB deals with behavior where individuals have incomplete faculty of using one's will or situation where they have incomplete control of their behavior (Ajzen,1991). The TPB is composed of attitude towards the behavior, social factor called subjective norm and an added variable which is the degree of perceived behavioral control (PBC) (Ajzen, 1991).



The Conceptual framework of the study, adapted from Theory of Planned Behavior, Ajzen 1991.

Significance of the Study:

There are few studies that have been conducted to investigate the behavioral determinants of intention to pregnancy and future fertility. Thus, this study will help in understanding how behavioral factors and other distal variables impose women to make decisions concerning pregnancy to assist in designing appropriate interventions. In addition, it will serve as baseline information and insight for further investigations.

Objective: The objective of this study is to describe HIV positive women's intention and determinant factors to have pregnancy at Assela Referral Hospital, 2010.

Methods

A cross-sectional study supplemented with in-depth interview was conducted in Assela Referral Hospital ART Unit, South East of Ethiopia, from March 10 to April 8, 2010.

Study subjects were randomly selected from women who were in reproductive age group (15-49), who had at least one visit to the ART unit and had an appointment during the study period. The sample size for the quantitative survey was determined by using a single population proportion formula considering the prevalence of HIV positive women intending to have pregnancy as 50%, after sample size correction and summing 10% non-response rate and the final sample size was 361. In-depth interviews were conducted to supplement the quantitative findings with purposely

selected 14 HIV positive women, where information saturation and redundancy were used to limit the number of interviews.

Six data collectors and one supervisor were recruited and trained for two days. Consent was assured from each respondent. Data were collected through a face to face interview using an Amharic version structured questionnaire in a private room.

Two separate data collection instruments were developed to collect quantitative and qualitative data. The quantitative data collection instrument had three sections; socio-demographic information, measures of behavioral intention (direct and salient belief) and measures of PMTCT knowledge as well as a record review check-list.

The direct measures of behavioral intention were adapted to the local context from the manual developed for constructing questionnaires using the TPB and other related studies. Whereas the salient belief measures were developed in two phases, through elicitation study (J.J. Francis et al. 2004b, Conner & Sparks, 1995). The questions were designed in a unipolar likert scale ranging from "Strongly disagree = 1" to "Strongly agree = 5". While items designed to measure attitude were developed in a semantic differential scale to assess the instrumental and experiential aspects.

Before starting the data collection, the questionnaire was translated in to Amharic and back translated in to English to assure its consistency as well as pre-test was conducted in 5% of the sample size. All completed questionnaires were examined and checked for completeness, inconsistency and any other sort of errors at all levels of data management.

SPSS Version 16.0 was used for data entry and analysis. Correlations were made to determine the relationship among

variables; and a stepwise linear regression to identify the important variables that explain pregnancy intention variability.

Results

Socio-demographic and other characteristics of respondents

A total of 344 HIV positive women of reproductive age groups (15-49 years), with mean (SD) age of 30.4(, SD=6.07) years, on ART and Pre-ART care at Assela Referral Hospital participated in the study, that gave a 95.3% response rate. Nearly half, 45.1% (155) of the women were usual residents of Assela town, and in terms of occupation, 140(40.7%) were housewives [Table 1]. With respect to parity, 269(78.2%) had one or more children with an average (SD) number of 2.5 (SD=1.31) children, of these 90(33.5%) had served PMTCT at least once.

The average (SD) length of duration since HIV diagnosis till April 2010 was 28.9 (SD=14.9) months. Of the respondents, 270(78.5%) were on ART and their mean (SD) duration of stay on HAART was 24.1 (SD14.0) months. The latest average (SD) CD4 count of respondents was 362.5(SD=193.3) cells per micro liter.

Table 1: Socio-demographic and other characteristics of HIV Positive women at Assela Referral Hospital, 2010 (N=344).

Characteristics	No.	Percent	Characteristics	No.	Percent
WHO HIV/AIDS Stage			ART Status		
Stage I	44	12.8	On ART	270	78.5
Stage II	90	26.2	On Pre-ART Care	74	21.5
Stage III	186	54.1	Educational Status		
Stage IV	24	7	Primary (1-8 th)	169	49.1
Marital Status			Secondary (9-10 th)	59	17.2
Single	31	9	Preparatory or 11-12 th	23	6.7
Married	146	42.4	TVET	4	1.2
Divorced	68	19.8	Higher Education	10	2.9
Widowed	99	28.8	Illiterate	79	23
Religion			Perceived Health Status		
Orthodox	243	70.6	Very Good	195	56.7
Muslim	58	16.9	Good (minimal change)	135	39.2
Protestant	41	11.9	No change	11	3.2
Catholic	1	0.3	Worsen	3	0.9

Other	1	0.3	Respondents live with		
Ethnicity			Alone	96	27.9
Oromo	192	55.8	My Husband	139	40.4
Amhara	131	38.1	My Parents	35	10.2
Gurage	15	4.4	My children	74	21.5
Tigre	3	0.9			
Others	3	0.9			

PMTCT Knowledge

Regarding PMTCT knowledge, 8(2.3%) respondents were found "Not Knowledgeable" scored 0, 14(4.1%) were "Low Knowledgeable" result 2 to 4 points, 63(18.3%) of them were "Moderately Knowledgeable" got 6 to 8 points, and 259(75.3%) were "Highly knowledgeable" answered all of the questions [Figure 2].

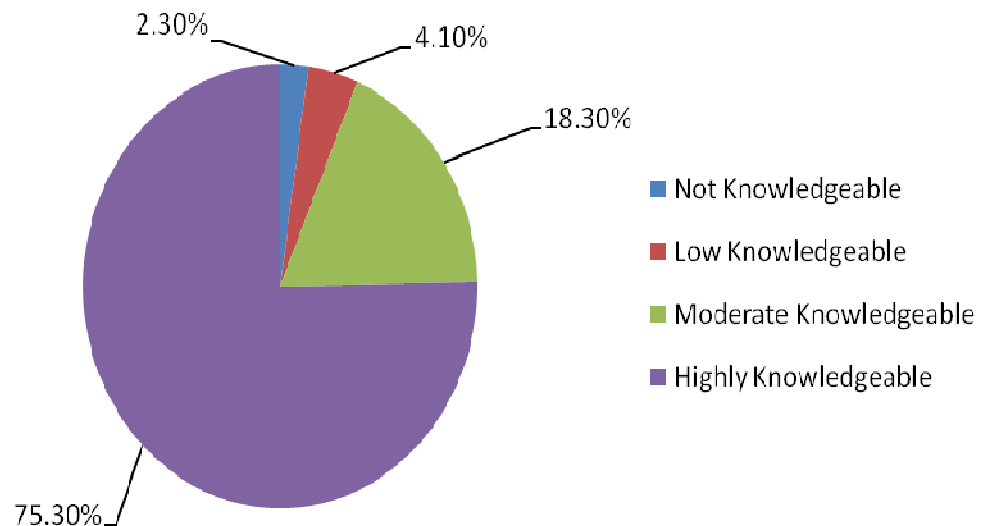


Figure 2. Level of PMTCT Knowledge among HIV Positive women, Assela Referral Hospital, 2010.

Variables of the TPB to Explain Pregnancy Intention

Attitude

The overall attitude was composed with the equation $A = \sum b_i e_i$. Bivariate correlation was computed to examine the relationship between the beliefs based and direct measures of attitude but revealed no significant relationship. This might result from the use of 2 items to measure behavioral belief and outcome evaluation, where 2 items were omitted during instrument development. In a regression model ($F_{2, 341} = 6.68, p < 0.01, AR^2 = 0.03$), the weight scores "If I got pregnant and give birth, I believe like I am fulfilling my desire to have a child; and for me getting pregnant and giving birth to satisfy my desire to have a child is desirable" were found to have better predictors of attitude ($Beta = 0.36, P < 0.001$). However, the model has shown that a higher variance of attitude is due to other factors rather than the salient measures.

Subjective Norm

The overall subjective norm was computed with the equation $SN = \sum m_i n_i$ and the computed correlation coefficient used to examine the relationship between the direct and belief based subjective norm score had revealed a significant relationship ($r = 0.39, p < 0.001$). Then each weight scores were entered into a regression model to look at their relative strength of prediction and significant relationship was found ($F_{3, 173} = 18.51, P < 0.001, AR^2 = 0.23$), where the weight score of variables "My families think that I should get pregnant and have a child, and what my families think on what I should do matters to me" as a predictor for subjective norm ($Beta = 0.49, P < 0.001$).

Perceived Behavioral Control

Similar equation was used to compose the overall PBC like that of attitude and subjective norm. Accordingly, a very strong relationship was observed between belief based PBC and direct measures of PBC ($r=0.83$, $p<0.001$). In this respect, the weight scores were entered into a regression model and the model has explained higher variance ($P< 0.001$, $AR^2=0.69$), where the weight score of variables "An HIV positive woman with a good income gets pregnant to have her own child, and if I have good income, I am likely to get pregnant and have a child" was found the predictors of HIV positive women PBC towards pregnancy (*St. Beta* = 0.35, $P< 0.001$).

HIV positive women intention towards pregnancy

More than half, 185(53.7%) expected an HIV positive woman to get pregnant, and considerable numbers of the subjects, 100 (29.1%) want to get pregnant and have their own child. From these 70 disclosed the number of children they want to have, 37 want to have one child and 33 wanted to have two children.

Pregnancy intention explained by TPB

Mean scores of the direct measures of TPB were computed to explain pregnancy intention. Thus the study participants had a mean pregnancy intention of 2.64, which shows a relatively low leaning towards pregnancy intention, similarly the mean attitude was found to be 1.88, explaining unsupportive attitude towards pregnancy. Moreover a mean of 1.90 was obtained for subjective norm referring to a relatively low influence from the referent groups towards pregnancy and a mean of 2.26 was found for PBC, referring being pregnant with the existing resources and opportunities is difficult. Accordingly, pregnancy intention was

categorized in to three, based on their mean score; 238(69.2%) were low intention groups with a mean of ≤ 3 ; 80(23.3%) were moderate intenders with a mean of >3 and ≤ 4 , and 26(7.6%) were high intenders with a mean of >4 [Figure 3].

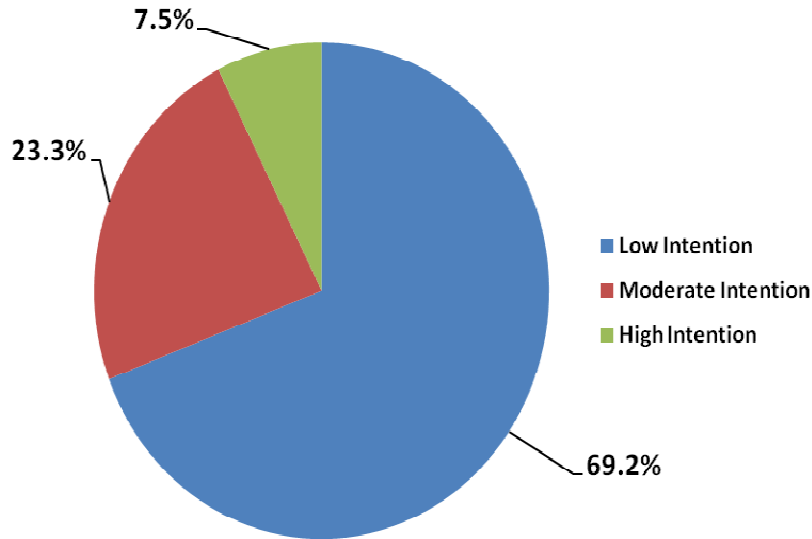


Figure 3: HIV positive women level of pregnancy intention, Assela referral Hospital, 2010.

Behavioral intention to have pregnancy had a strong relationship with that of belief based attitude ($r=0.62$) and belief based perceived behavioral control ($r=0.61$) and a moderate correlation with belief based subjective norm ($r=0.59$) respectively [Table 2].

Table 2. Correlation matrix: Direct and belief based constructs of TPB to explain HIV positive women Pregnancy intention, Assela referral Hospital, 2010.							
Variable	INT	ATT	SN	PBC	BAT	BSN	BPB
s					T		C
INT	1.00						

	0						
ATT	0.33 5	1.000					
SN	0.36 1	0.978	1.000				
PBC	0.57 5	0.731	0.672	1.00 0			
BATT	0.62 3	0.079 *	0.064 *	0.34 0	1.00 0		
BSN	0.59 3	0.419	0.392	0.64 0	0.47 8	1.00 0	
BPBC	0.60 6	0.375	0.334	0.82 7	0.52 0	0.59 4	1.00 0

(* not significant at $\alpha=0.05$ level) (*INT-pregnancy intention; ATT-Attitude; SN-Subjective norm; PBC-Perceived behavioral control; BATT-Belief based attitude; BSN-belief based subjective norm; BPBC-belief based perceived behavioral control*)

Relationship between Distal Variables and Pregnancy Intention

The variables, having own child ($r=0.35$), history of PMTCT service ($r= 0.32$), age ($r= -0.24$), and PMTCT knowledge ($r= 0.19$) were found to have higher relationship with pregnancy intention [Table 3].

Table 3. Distal variables and Pregnancy intention correlation to explain HIV positive women Pregnancy intention, Assela referral hospital, 2010.

Variables	r	p
Age	-0.24	0.001
Marital status	-0.14	0.01
Status of having a child or not	0.35	0.001
ART status (Pre ART care or on ART)	-0.07	0.204
Duration since ART started	0.10	0.121
Duration since HIV diagnosis	0.07	0.184
Perceived current general health status	-0.19	0.001
Latest CD4 count	0.12	0.03
PMTCT knowledge	0.19	0.001
PMTCT service history	0.32	0.001

Predictors of Pregnancy Intention

Of the distal variables age ($Beta=-0.17, P<0.001$), PMTCT knowledge ($Beta=0.16, P<0.005$) and history of PMTCT service ($Beta= 0.22, P< 0.05$) were found as predictors for HIV positive women pregnancy intention.

The theory of planned behavior was used to predict HIV positive women pregnancy intention as it is recommended by Ajzen (1991). History of PMTCT service, age and PMTCT knowledge were first regressed upon intention and found an R^2 of 0.214 ($P< 0.001$), indicates 21.4 % of pregnancy intention was explained by these variables..

Then belief based attitude was regressed upon intention resulted attitude has an additional 25.5% explanation in pregnancy intention. Next, belief based subjective norm was run and resulted in an R^2 of 0.550 ($P<0.001$), with a 0.081 difference explained by attitude, where 8.1% of pregnancy intention was explained by

subjective norm. At last perceived behavioral control was regressed and the R^2 was found 0.574 ($P < 0.001$), with a 0.024 R^2 change explained by subjective norm, signifying that perceived behavioral control explains 2.4% of HIV positive women pregnancy intention. This indicates that TPB alone explained 36% of the variability in pregnancy intention, of which attitude has the highest share. In general, the constructs of TPB together with distal variables explained 57.4% of the variability in pregnancy intention **[Table 4]**.

Model	R	R square	Adjusted R Square	Std. Error of the Estimate	Change statistics				
					R Square change	F Change	df 1	df 2	Sig. F Change
1	0.176 ^a	0.031	0.026	0.97377	0.031	5.623	1	175	0.019
2	0.347 ^b	0.120	0.110	0.93054	0.089	17.639	1	174	0.000
3	0.463 ^c	0.214	0.200	0.88211	0.094	20.630	1	173	0.000
4	0.685 ^d	0.469	0.457	0.72711	0.255	82.616	1	172	0.000
5	0.742 ^e	0.550	0.537	0.67120	0.081	30.851	1	171	0.000
6	0.758 ^f	0.574	0.559	0.65490	0.024	9.617	1	170	0.002

Table 4. TPB and distal variables to predict HIV positive women pregnancy intention, Assela referral Hospital, 2010.

- a. Predictors: (Constant), Age
- b. Predictors: (Constant), Age, PMTCT Knowledge
- c. Predictors: (Constant), Age, PMTCT Knowledge ,History of PMTCT service,
- d. Predictors: (Constant), Age, PMTCT Knowledge ,History of PMTCT service, B.Attitude
- e. Predictors: (Constant), Age, PMTCT Knowledge ,History of PMTCT service, B.Attitude, B.Subjective Norm
- f. Predictors: (Constant), Age, PMTCT Knowledge ,History of PMTCT service, B.Attitude, B.Subjective Norm, B.Perceived Behavioral Control

Discussion

In this study, PMTCT knowledge was found to be high and past history of PMTCT service, PMTCT knowledge and respondent's age among distal variables and attitude from TPB variables were found to be predictors for pregnancy intention.

In addition, 100 (29.1%) of the women want to be pregnant and have a child. The result also goes in line with the study conducted in United States, where 28% to 29% (James et al., 2003); in New York one third (Nancy et al. 2004); and surveys in developed and developing countries 18% to 43% (CHEN et al, 2001) of women with HIV wanted to have children.

The effect of age in this study was found to be potential factor to explain pregnancy intention where younger age groups considered pregnancy. Likewise a study conducted in Lesotho, Malawi, Nigeria and South Africa had disclosed that age has a significant effect over parenthood desire, where older age groups are less likely in need of a child when compared to younger women (T. Adair, 2007; Frank et al. 2009; Oldapo et al. 2005a; Peltzer et al. 2008; CHEN et al. 2001;).

We found that marital status has no significant relation, however in Lesotho married HIV positive women had 14 times more likely than never married woman want to have a child (T. Adair, 2007). This discrepancy might result from weak family support to HIV positive women and care for the newborn. Moreover, qualitative findings has revealed that resources, like better income and living house, strong family support were found more prominent than any other variables to opt for pregnancy.

The number of children a woman had had a significant indirect relation, where women with lower number of children had a higher intention to have a child. Studies in Malawi and South Africa had also found similar results (Frank et al. 2009; Peltzer et al. 2008). In the current study, "ART status" being on ART or on Pre-ART care has found to have no significant relationship with pregnancy intention, similar to a study done in Sub-Saharan African countries (Hoffman et al. 2008). However, longer HAART usage and HAART associated health restorations were associated with childbearing desire (Kaida et al. 2006, Hoffman et al. 2008). This inconsistency might result from low perceived current general health condition in the current study, where only 195(56.7%) had very good perception regarding their current general health condition. Since respondents knew their HIV status and their level of pregnancy intention duration was found to have no significant relationship. While a study conducted in Nigeria (Oladapo et al. 2005a), disclosed that recent diagnosis and desire for children are significantly associated. The value given to having a child, cultural and psychological differences in self adjustment of being HIV positive might explain the variation.

PMTCT knowledge was found to be high and there existed a significant relationship with pregnancy intention and those with higher PMTCT knowledge intend to have a child. This is also supported by a study conducted in Lesotho and South Africa, where Knowledge of PMTCT was significantly associated with increased likelihood of need to give birth (T. Adair, 2007; Peltzer et al. 2008).

Those who had previous PMTCT service exposure had a higher pregnancy intention compared to those who had no PMTCT service

exposure. In addition, it was supported by qualitative finding; however, a study in Lesotho (S. Nakayiwa et al. 2006) had found exposure to PMTCT programs were associated with lower rates of pregnancy risk behaviors. This might be due to the higher level of PMTCT knowledge and personal experience of the respondents in our study.

In general the constructs of TPB together accounted for 36% of the variability in pregnancy intention. Likewise, attitude was a stronger predictor of different health related behaviors. In a Meta analysis of 185 health related studies conducted by Armitage and Conner (2001) the TPB constructs together explain 36% of the variation in intention. In another Meta-analysis (Godin and Kok, 1996) of 56 studies specific to health related behaviors; the average explained variance in intention was 40.9%, which were comparable with the current study, i.e. 36%.

Strengths and Limitations of the Study

Strengths:

- The TPB was adapted to develop the conceptual framework of the study.
- Other moderator variables external to TPB are included as a distal variable.
- The instrument is developed according to standard guideline and relevant literatures.
- An elicitation study was conducted to identify the salient beliefs of pregnancy intention.

Limitations:

- Social desirability bias may be introduced as the interviewers were clients' own care givers.

- The study is facility based, thus findings may not be generalized to HIV positive women who are not taking ART and non-ART care.
- No local studies were compared to the findings of this study.

Conclusion and Recommendation

In this study majority of the study participants had higher PMTCT knowledge. However efforts should be strengthened to close the existing knowledge deficits. Considerable number of respondents (29%) wanted to get pregnant and have their own child. This necessitates strengthening PMTCT services and provision of holistic support to those intended to have their own child. Respondents' age, PMTCT knowledge and previous exposure to PMTCT services and attitude were found to be predictors of pregnancy intention. Hence, interventions and health education activities should direct to increase PMTCT knowledge; reinforce PMTCT service utilization and improving attitude.

Acknowledgment

I would like to thank my parents; my advisors Ms. Tsion Assefa, Mr. Yitbarek Kidane, and Mr. Wondwossen Kassahun; those who provided me with professional support; Diane Cooper (Professor), Mr. Eshetu Girma, and my fellow friends; the study participants and those involved in data collection. Finally the Ethiopian Public Health Association and US Center for Disease Control and prevention (EPHA-CDC) are acknowledged for sponsoring this study.

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