

Full Length Research Paper

# Thorough knowledge, character and practice of street adults towards human immunodeficiency infection/AIDS (HIV/AIDS) in Northwest Ethiopia

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Street people are prone for many infectious diseases including human immunodeficiency virus (HIV). This study assessed comprehensive knowledge, attitude and practice of street adults towards human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS). A cross-sectional study was conducted on 325 street adults at two cities using a pretested questionnaire. Comprehensive knowledge on HIV/AIDS was assessed using five questions, attitude was measured using the Likert scale and practice by condom use and number of sex partners in the last one year. Descriptive statistics and bivariate/multiple logistic regressions were performed. The mean age of participants was  $30.1 \pm 9.0$  standard deviation (SD) years. Majority (96.9%) had ever heard about HIV/AIDS. Main sources of information were radio (55.7%), neighbors (35.7%) and friends (33.2%). Only 31.4% had comprehensive knowledge, 23.7% favorable attitude and 27.7% used condom in their recent sexual intercourse. Almost a third (30.4%) had more than one sex partner in the last one year. Self-perceived risk of HIV infection was associated with knowledge, attitude and practice. The level of comprehensive knowledge, attitude and practice were low among street adults especially among those who cannot read and write. Prevention programs must equip street people with basic HIV/AIDS knowledge for behavioral change.

**Key words:** Human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), comprehensive knowledge, street people, Ethiopia.

## INTRODUCTION

According to the 2012 acquired immune deficiency syndrome (AIDS) pandemic report, the estimated number of adults living with human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) in 2011 were 34 million, with more than two-third (23.5 million) living in sub-Saharan Africa (United Nations Program on HIV/AIDS (UNAIDS), 2012). HIV/AIDS epidemic in Ethiopia is considered a "generalized" epidemic

which has affected all demographic, socio-economic, and institutional populations of the society (CSA/ORCMacro, 2006). Researches on the spread and determinants of HIV/AIDS in sub-Saharan Africa have shown differences by age, sex, urban/rural residence, and geographical regions within and between countries (Mishra et al., 2009).

Among the diverse determinants of HIV/AIDS are

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knowledge on basic facts, attitude towards the disease and people living with it, and sexual behaviors are universal in any population group. HIV prevalence varies by sex and educational status among street dwellers, being significantly higher among females (Moges et al., 2006). It is vivid that HIV prevalence depends on knowledge of preventive actions, the attitude towards the disease and people's sexual behaviors. Knowledge about HIV/AIDS related issues is associated with delayed onset of sexual relations, consistent use of condoms and reduction in the number of sexual partners (Mudingayi et al., 2011).

Street people in Ethiopia, girls and women in particular, are exposed to sexual exploitation, rape and prostitution (Sorsa et al., 2002). The circumstances in which street people live and work increases their vulnerability to sexual exploitation and abuse, and puts them at a higher risk of sexually transmitted infections and HIV/AIDS (Gurung, 2004). Several studies had been done on the level of knowledge, attitude and practice towards HIV/AIDS in the general population and among diversified social groups (Negash et al., 2003). However, there is scarce evidence on HIV/AIDS associated behavioral risk factors, attitude and prevention among the various segments of the population in Ethiopia (Moges et al., 2006) especially among the most at risk populations such as street people. The fight against HIV/AIDS among street people suffers from gaps in research behavior change models, HIV testing, sero-prevalence, and treatment protocols (Kusserow, 1990).

It is a frequent observation to see adult street people in major towns in Ethiopia having one or two babies by their sides. This indicates that they are sexually active, be it safe or unsafe, and definitely unprotected. Hence, there is a need to address street people in the fight against HIV/AIDS. Lack of appropriate and systematic research to enable an effective response to the threat of HIV/AIDS among street-based people and limited prevention interventions targeting them in HIV/AIDS programs is one of the bottle necks for the prevention and control of HIV among street people. The research question of this study was „what are the levels of comprehensive knowledge, attitude, and practice among street adults on HIV/AIDS?“

## **MATERIALS AND METHODS**

### **Study design**

A cross-sectional study was conducted in Gondar and „Bahir Dar“ cities of Amhara Regional State in March, 2011.

### **Study area**

The study was conducted in two major cities (Gondar and Bahirdar) of Amhara National Regional State. These two cities are located about 550 and 727 km North-West of Addis Ababa, respectively. These cities were selected, being the highly populated cities with higher number of street people in the region. According to the 2006

annual report of the Regional Bureau of Labor and Social Affairs, among 3,576 street people in 32 urban areas of the region, 43% were from Bahirdar and Gondar cities. Additionally, urban areas in the region have higher burden of HIV/AIDS (HAPCO, 2010). In both cities, there were houses built by the government for beggars having dependent families.

### **Sampling**

„Cluster“ sites where street people mostly reside were selected using expert guidance from city administrations in both cities. All eligible street people were included in this study. Street people residing in the streets, verandas or compounds of churches and mosques, road sides and isolated camps for beggar people during the four weeks data collection period were interviewed.

### **Data collection**

Data were collected using a structured and pretested questionnaire by ten trained final year health officer students using a face-to-face interview technique. Data were collected in the mornings of Sundays and other religious feast days around churches, roads and mosques where street people are frequently observed begging, and at night time after 9:30 pm on the streets where the homeless are residing. Women who reside at streets during the night for commercial sex work were not included in this study. The contents of the interview questionnaire were structured in a logical manner into four sections (socio-demography, HIV/AIDS knowledge, attitude, and practice questions). Pre-testing of the questionnaire was done on 30 similar subjects who were excluded from further analysis.

### **Operational definitions**

People who make their lives on the street, live, beg, sleep at streets and/or road sides were defined as street people. People who had no formal homes (homeless) and sleep on streets, verandas, balconies, etc at night were classified as „on street“ while those who had houses to go for sleep at night were termed as „off street“ people.

### **Instrument used for knowledge and attitude**

If a respondent knew that using condom correctly at every sexual intercourse and having just one uninfected faithful partner can reduce the risk of HIV infection, that a healthy-looking person can have HIV, and rejected the two most common local misconceptions (HIV can be transmitted through mosquito bites and by sharing food) (CSA/ORCMacro, 2006; CiCCio and Sera, 2010), then he/she was considered to have comprehensive knowledge on HIV/AIDS. Attitude towards HIV/AIDS was assessed using Likert scale by asking nine items, each rated from one to five. The median value for the scaled responses was determined for all the nine response items. Then, each item response was added for each respondent and divided by nine to identify the mean score for each respondent. People who scored above or equal to the median were considered as having favorable attitude. Sexually active people were further inquired about condom utilization and the number of sexual partners they had. Non use of condom at all or an inconsistently use among unmarried or non-cohabiting people, or having two or more sexual partners in the last one year was considered as poor practice towards HIV/AIDS.

### **Data analysis**

The data were entered into a computer using Epi Info version 3.5.3(CDC, Atlanta, Georgia) and exported to statistical package for social sciences (SPSS) version 16 (SPSS, Inc., USA) for analysis.

**Table 1.** Socio-demographic profile of street adults, North-West Ethiopia, March, 2011 (n = 325).

Variable	No (%)
<b>Age (years)</b>	
15-24	106 (32.6)
25-34	105 (32.3)
35-49	113 (35.1)
<b>Sex</b>	
Male	127 (39.1)
Female	198 (60.9)
<b>Religion</b>	
Orthodox	287 (88.3)
Muslim	35 (10.8)
Other**	3 (0.9)
<b>Ethnicity</b>	
Amhara	303 (93.2)
Tigre	7 (2.2)
Other**	15 (4.4)
<b>Marital status</b>	
Single	126(38.8)
Married	94 (28.9)
Divorced/ Separated	54 (16.7)
Widowed	21 (12.6)
<b>Educational Status</b>	
Cannot read and write	190 (58.5)
Read and write only	57 (17.5)
Elementary education (Grade 1-8)	78 (24.0)
<b>Housing status</b>	
On street	200 (63.3)
Off street	116 (36.7)

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Data were analyzed descriptively using frequencies and cross tabulations. Logistic regression analyses (bivariate and multiple) were employed to determine the effect of factor(s) on the outcome variable(s) and to control possible confounders. P-value < 0.05 was considered to show statistical significance. Factors found to have a p-value of 0.2 or less in the binary logistic regression were further entered into multivariate analysis.

#### Ethical considerations

Ethical approval was obtained from the Research and Publications Office (RPO) of the College of Medicine and Health Sciences, University of Gondar. Permission letters to conduct the research were obtained from Labor and Social Affairs Offices (LSAO) of both cities. The purpose of the study was explained to each participant. Since most were illiterate, only verbal consent was obtained regarding agreement to participate in the study after reading them

agreement to participate in the study after reading them the information and consent forms prepared in Amharic language. Names were not recorded in order to keep the identity of respondents anonymous and no incentives were given for individuals during data collection.

## RESULTS

A total of 325 street adults aged 15 to 49 (mean age = 30 ± 9 SD) years were included in this study. Almost 61% (n = 198) were females. Majority were Amhara ethnics (93.1%) and Orthodox Christians (88.3%). Less than a third of the participants (28.9%) were married. More than two-third (69.2%) came from rural areas and engaged into street life, and 204 (59.8%) had regular work before street life (Table 1).

### Knowledge of street adults on HIV/AIDS

A total of 315 (96.9%) participants said they had heard about HIV/AIDS. The three main sources of information on HIV to street people were radio (55.7%), neighbors (35.7%) and friends (33.2%). Though about 81% knew mother to child transmission of HIV, almost a quarter (24.6%) still believe HIV is solely a disease of prostitutes. The level of knowledge of participants ranges from 67.0 to 95.4% for each component of the five comprehensive knowledge questions (Table 2). However, only 99 (31.4%) had comprehensive knowledge on HIV/AIDS. Comprehensive knowledge towards HIV/AIDS was higher among males than females (38.9 versus 27.6%), and the never married ones than those ever been married (38.9 versus 22.2%).

### Attitude of street adults towards HIV/AIDS

The median score for the nine attitude questions rated from 1 to 5 was 4. Among 300 people who responded to all attitude questions, 71 (23.7%) had favorable attitude towards HIV/AIDS while the remaining 229 (76.3%) had unfavorable attitude. More males had favorable attitude than females (33.0 versus 17.8%,  $\chi^2 = 8.31$ ,  $p = 0.003$ ). The responses to each attitude score are presented in Table 3.

### Practice towards HIV/AIDS

Among the 158 ever sexually active street people, 61 (38.6%) had ever used condom of whom only 43 (70.5%) used it in their recent sexual intercourse. However, among those who reported condom use, only 20 (32.8%) used condoms in every sexual encounter. Almost a third of the sexually active street adults (30.4%) had two or more sex partners in the last one year. Proportion of condom users in the recent sex was relatively higher among

**Table 2.** Knowledge towards HIV/AIDS among street adults, northwest Ethiopia, March, 2011.

Knowledge question	Response		
	Yes (%)	No (%)	Total
HIV can be prevented by correct use of condom at every sexual intercourse	207(68.3)	96 (31.7)	303
Having only one uninfected and faithful sexual partner can reduce the risk of getting HIV/AIDS	240(78.4)	66 (21.6)	306
A healthy looking person can have the HIV virus in his/her blood	247(81.2)	57 (18.8)	304
HIV can be transmitted through mosquito bites	99 (33.0)	201 (67.0)	300
HIV can be transmitted by eating together	14(4.6)	292 (95.4)	306
Comprehensive* knowledge about HIV/AIDS	99 (31.4)	216 (68.6)	315

\*Yes = if answered correct to all five question.

those having two or more sex partners (36.5 versus 20.5%). Just more than half (51.7%) of the street people in this study considered themselves to be at risk of contracting HIV infection.

### Factors associated with Comprehensive knowledge, attitude or practice

In the bivariate analysis, younger street people (15 to 24 years) had a twice higher comprehensive knowledge towards HIV/AIDS (Crude Odds Ratio COR = 1.93 and 95% confidence interval (CI); 1.07, 3.47). But this was not significant after adjustment for other factors (Table 4). Those who had at least elementary education were almost three and half times more (Adjusted Odds Ratio AOR = 3.53 and 95% CI; 1.79, 6.95) likely to have comprehensive HIV knowledge compared to those who were not able to read and write. Street adults who perceived themselves at risk of HIV were almost two times (AOR = 2.15 and 95% CI; 1.19, 2.89) highly likely to have comprehensive knowledge on HIV/AIDS compared to those who do not perceive themselves at risk of HIV infection. Additionally, "on street" adults were less likely to know about HIV/AIDS compared to the "off street" ones, although the difference was not significant in the multivariate analysis.

Attitude towards HIV/AIDS among street adults was associated with several factors. In general, street people who were single, aged 25 to 34 years, males, educated and sexually active had favorable attitude towards HIV/AIDS (Table 5). Additionally, those who had comprehensive knowledge on HIV/AIDS were almost four times (AOR = 3.97 and 95% CI; 1.44, 10.91) more likely to have favorable attitude towards HIV/AIDS compared to their counterparts.

In the bivariate analysis, practice towards HIV/AIDS (condom use) was associated with a number of sex partners (COR = 2.24 and 95% CI; 1.11, 4.53), self-perception to be at risk of HIV, age 25 to 34 years and having good comprehensive knowledge on HIV/AIDS. Since the number of people using condom were very few, most factors considered were not significant in the multivariate analysis except self-perception to be at risk

of HIV infection. There is a ten times (AOR = 10.87 and 95% CI; 2.93, 40.25) higher likelihood of using condom among street adults who perceive themselves at risk of HIV infection.

### DISCUSSION

The present study extends prior evidence by investigating levels of comprehensive knowledge, attitude and practice towards HIV/AIDS in a special group of people, and street adults. About 97% of participants had ever heard about HIV/AIDS. This is almost similar to the national (98.8%) and regional (97.2%) 2011 Demographic and Health Survey (DHS) reports for adults aged 15 to 49 years (CSA/ORCMacro, 2011).

Comprehensive knowledge on HIV/AIDS is a basic requisite for behavioral change in the context of HIV related risk behavior. Comprehensive knowledge on HIV/AIDS among street adults in this study (31.7%) was comparable to the national (30.0%) but lower than the regional (41.6%) 2006 Ethiopian DHS reports of same age group (CSA/ORCMacro, 2006). But it is higher than the 2005 Behavioral Surveillance Survey (BSS) report (18.5%) (Kassie et al., 2008). This difference could be explained by the five years time gap between the current study and the aforementioned reports. Similar to this study, a study conducted in southern Ethiopia also reported a low level of knowledge on HIV/AIDS among street people (Sorsa et al., 2002). Another study from Ghana indicated that 80% of the street adolescents (aged 11 to 19 years) had at least minimal knowledge of HIV, and 54% perceived themselves to be at risk for contracting HIV (Wutoh et al., 2006) which is similar to the current study (51.7%). Like many other studies (Gurung, 2004; Kassie et al., 2008; CiCCiò and Sera, 2010; Ochako et al., 2011), women had lower comprehensive knowledge on HIV/AIDS in this study.

The overall low level of favorable attitude (23.5%) indicated that still there were many people having miss beliefs about HIV/AIDS. Poor attitude may result from poor knowledge of the disease and in turn may lead to risky behavior (Mudingayi et al., 2011), as the level of knowledge influences attitudes on HIV/AIDS (Galvez et al., 2012).

**Table 3.** Attitude towards HIV/AIDS among street adults, North-West Ethiopia, March, 2011.

Attitude item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	N (%)	N (%)	N (%)	N (%)	N (%)
Eat with an HIV+ person	37(12.4)	36(12.0)	12(4.1)	94(31.4)	120(40.1)
Share cloths with an HIV+ person	43(14.2)	54(17.8)	42(13.9)	91(30.0)	73(24.1)
Shake hands of an HIV+ person	25(8.2)	34(11.2)	15(4.9)	113(37.2)	117(38.5)
Caring as an attendant to an HIV+ person	25(8.3)	41(13.6)	36(11.9)	95(31.5)	105(34.8)
Work with an HIV+ person	21(6.9)	23(7.6)	16(5.3)	110(36.3)	133(43.9)
Abstain from sex to prevent HIV	9(3.0)	11(3.6)	17(5.6)	141(46.7)	124(41.1)
People should be faithful to one uninfected partner to prevent HIV	10(3.3)	19(6.3)	24(8.0)	159(53.0)	88(29.3)
People should use condom to prevent themselves from HIV	22(7.4)	23(7.7)	47(15.8)	137(46.1)	68(22.9)
Use condom to protect from HIV	38(12.8)	30(10.1)	51(17.1)	115(38.6)	64(21.5)
<b>Overall attitude score</b>					
Favorable				71(23.7%)	
Unfavorable				229(76.3%)	

Condom use in every sexual intercourse has remained one of the major indicators of behavior change in HIV/AIDS preventions. In the current study, 32.8% used condoms in every sexual encounter which is higher than a similar report from Nepal (20.9%) (Gurung, 2004). This study also showed that nearly a third of the sexually active street adults (30.4%) had two or more sex partners which is less than a similar report from Nepal (52%) (Gurung, 2004). The Nepalese study was on teenage street dwellers while the current study was among street adults (15 to 49 years) which can explain the difference in the risky behaviors, since young people are particularly vulnerable to HIV infection due to their risky sexual behaviors (CiCCiò and Sera, 2010).

At least primary education, being „off street“ at night and self-risk perception of HIV infection, were the factors associated with comprehensive HIV knowledge on HIV/AIDS. Educational status is the main determinant of HIV knowledge in this

study which is similar to many other studies (Sorsa et al., 2002; Eshetu et al., 2004; Kibombo et al., 2007). Similar to other studies (Eshetu et al., 2004; Gurung, 2004), people who perceived themselves to be at risk of HIV acquisition had a better level of comprehensive HIV/AIDS knowledge, had favorable attitude and good practice towards HIV/AIDS. Self-perceived risk of HIV infection is a universal determinant of comprehensive knowledge, attitude and condom utilization among street adults. It may serve as a motivation to get to know about, think of minimizing own risk and ultimately changed behaviors. However, it should be taken cautiously because the link between perception of risk and sexual behavior can work both ways (Dube, 1997) as one may perceive her/his risk of getting HIV infection to be high or low depending upon their previous sexual behavior or vice versa.

Knowledge about HIV/AIDS related issues is associated with delayed onset of sexual relations,

consistent use of condoms and reduction in the number of sexual partners (Mudingayi et al., 2011) which may result from risk perception. The key challenge for HIV/AIDS prevention education programs is applying methods that result in rapid enhancement in knowledge and attitudes regarding basic practices such as condom use and limiting sexual partners (Rahnama et al., 2011) and behavioral interventions are mostly difficult (Bonell and Imrie 2001). Despite the limitations of being cross-sectional and use of non statistical sampling techniques (as the lack of firm inclusion criteria makes estimating the population size of street people difficult), this study came up with evidence from a most at risk group of the population.

## Conclusion

The level of comprehensive knowledge, attitude

**Table 4.** Logistic regression of factors with comprehensive knowledge towards HIV/AIDS among street adults, North-West Ethiopia.

Predictor Variable	Comprehensive knowledge			Crude OR (95% CI)	Adjusted OR (95% CI)	
	Yes	No	Total			
Age	15-24	40	60	100	1.93 (1.07,3.47)*	1.17 (0.55, 2.48)
	25-34	31	69	100	1.30 (0.71, 2.38)	1.08 (0.47, 2.50)
	35-49	28	81	109	1.00	1.00
Background Residence**	Urban	32	63	95	1.12 (0.67,1.86)	1.00 (0.55, 1.84)
	Rural	67	147	214	1.00	1.00
Sex	Male	45	73	118	1.56 (0.96, 2.55)	1.47 (0.65, 2.10)
	Female	54	137	191	1.00	1.00
Marital Status	Single	44	74	118	1.00	1.00
	Married	21	70	91	0.51 (0.27, 0.93)*	0.92 (0.43, 2.00)
	Divorced	22	39	61	0.95 (0.50,1.80)	1.03 (0.45, 2.37)
	Widowed	12	27	39	0.75 (0.34,1.62)	1.20 (0.45, 3.17)
Educational Status	Unable to read and write	42	140	182	1.00	1.00
	Read and write only	22	32	54	2.29 (1.21,4.36)*	2.67 (1.31, 5.42)*
	Elementary	35	38	73	3.07 (1.73, 5.45)*	3.53 (1.79, 6.95)*
Sleeping at night	On street	53	139	192	1.00	1.00
	Off Street	44	65	109	1.78 (1.08, 2.92)*	1.62(0.88, 2.97)
Perceived risk of infection	Yes	64	104	168	2.50 (1.47, 4.26)*	2.15 (1.19, 2.89)*
	No	24	100	124	1.00	1.00

\*\*Residence before engaging into street life, \*Significant at  $p < 0.05$ . OR = odds ratio, CI = confidence interval.

**Table 5.** Logistic regression of associated factors with attitude towards HIV/AIDS among street adults, North-West Ethiopia.

Predictor variable	Favorable attitude			Crude OR (95% CI)	Adjusted OR (95% CI)	
	Yes	No	Total			
Age	15-24	40	60	100	1.33 (0.87, 3.47)	2.04 (0.85, 4.90)
	25-34	31	69	100	1.16(0.71, 2.38)	3.13 (1.12, 8.72)*
	35-49	28	81	109	1.00	1.00
Marital Status	Single	37	83	120	2.52 (0.98, 6.54)*	4.57 (1.26, 16.53)*
	Married	12	79	91	0.86 (0.30, 2.48)	1.34 (0.36, 5.00)
	Divorced <sup>+</sup>	19	42	61	2.56 (0.92, 7.13)	2.44 (0.69, 8.65)
	Widowed	6	34	40	1.00	1.00
Sex	Male	39	81	120	2.16 (1.27, 3.67)*	2.01 (1.05, 3.87)*
	Female	35	157	192	1.00	1.00
Educational status	Unable to read and write	32	155	182	1.00	1.00
	Read and write only	14	41	54	1.65 (0.81, 3.39)	2.17 (0.95, 4.94)
	Elementary	28	45	73	3.01 (1.65, 5.23)*	3.22 (1.49, 6.95)*
Background Residence	Urban	28	65	93	1.65 (0.95, 2.85)	1.47 (0.75, 2.91)
	Rural	46	176	222	1.00	1.00

**Table 5. Contd.**

Sleep at night	On street	34	156	180	1.00	1.00
	Off street	36	77	113	2.23 (1.30, 3.84)*	1.71 (0.86, 3.40)
Sexually active	Yes	17	36	53	2.91 (1.37, 6.18)*	3.37 (1.22, 9.44)*
	No	19	117	136	1.00	1.00
knowledgeable on HIV/AIDS	Yes	43	53	96	4.95 (2.81, 8.71)*	3.97 (1.44, 10.91)*
	No	28	174	212	1.00	1.00

\*Significant at  $p < 0.05$ . OR = odds ratio, CI = confidence interval.

and condom utilization are low in this study population group and even lower among those who cannot read and write and those who did not perceive themselves at risk. Men, educated, those having comprehensive knowledge and those who perceived themselves at risk of HIV had favorable attitude towards HIV/AIDS. Self risk perception universally affects the three entities (comprehensive knowledge, attitude and practice) towards HIV/AIDS. These deficiencies also highlight the limited efforts taking place to address misconceptions and educate these sub-populations on HIV/AIDS. Hence, behavioural interventions that make individuals less vulnerable to becoming infected or infecting others with HIV should specially emphasize this special group of the population, street adults.

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