

Utilization of Safety Measures Against the Risk of Occupationally Acquired HIV/AIDS Among Building Construction Workers in Gondar Town, Northwest Ethiopia

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ABSTRACT

Background: Construction workers face difficult and dangerous working conditions with the risk of physical injury which likely to expose HIV infection as a distant risk. Such working conditions can give rise to feelings to stress that workers may seek to relieve through alcohol and sex. The construction industries faces additional risks because of the migratory nature of their work that requires continuous movement of work related mobility often significantly increases vulnerability to acquire HIV infection.**Objectives:** To assess utilization of safety measures against the risk of occupationally acquired HIV/AIDS among building construction workers in Gondar town, Northwest Ethiopia.**Methods:** Institution based quantitative cross-sectional study was conducted from March 25- April 10, 2014 among building construction workers. A total of 660 workers were selected from the source population by using simple random sampling technique. Data were collected from respondents by face-to-face interview using a pretested and semi-structured questionnaire after taking informed consent, and then collected data was entered into SPSS version 20.0 for further analysis. Bivariate analysis was employed to see relationship between the dependent variable and explanatory variables. Predictors having p –value ≤ 0.25 in bivariate analysis were included in the multivariate model. Odds ratios and their 95% confidence intervals were computed and p-value of ≤ 0.05 was considered as statistically significant in multivariate model.**Results:** from the total of 660 respondents enrolled, 650 of them were with a response rate of 98.48% were participated in the study. Utilization of safety measures against the risk of occupationally acquired HIV/ AIDS was 40.2%. Training on HIV/AIDS [AOR=5.42, 95% CI: (3.69,8.24), male sex [AOR= 1.81, 95% CI: (1.29, 2.94)], Marital status [AOR=0.38, 95% CI:(0.15,0.95)] and Monthly salary [AOR=1.72, 95% CI: (1.04,2.83)] were found to be significantly associated with utilization of safety measures against the risk of occupationally acquired HIV/AIDS.**Conclusion:** The findings of this study declared that utilization of safety measures against the risk of occupationally acquired HIV/AIDS among building construction workers was 40.2%; showing that above half of the respondents were not utilized safety measures against the risk of occupationally acquired HIV/AIDS, which demands the attention of all concerned bodies. Besides, several variables including HIV/AIDS Training, Male sex, marital status and Monthly salary were found to be independent predictors of utilization of safety measures against the risk of occupationally acquired HIV/AIDS among building construction worker.

Keywords:-HIV/AIDS, Occupationally Acquired, Safety, Construction, workers

INTRODUCTION

HIV/AIDS has turned out to be the greatest challenge facing the world today and remains a profound human tragedy and the most devastating pandemic in human history (1). According to UNAIDS report of 2012, 35.3 million people globally were living with HIV, of which 32.1 million accounts for Adult, 2.3 million people became newly infected with HIV, 1.6 million people died from AIDS-related illnesses, every day 8,000 people die from HIV/AIDS globally(2). Globally Adult HIV/AIDS prevalence in 2012 was 0.8 % with prevalence of 4.7 % in Sub-Saharan Africa with same year (2). Sub-Saharan Africa, which is hardest hit and hosts 63 per cent of the world's AIDS-infected people, has its epicenter in Southern Africa, with an infection rate of 33.4 % in Botswana, 30.2 % in South Africa, 24 % in Zimbabwe, 10-25 % in Zambia (3).More Africans die of AIDS-related illness than of any other cause. South Africa has the largest number of people living with HIV—between 4.5 million and 6.2 million. Swaziland has the highest adult HIV prevalence rate: More than 38 percent of adults are infected with HIV (1). HIV and AIDS pandemic is the worst health crisis in recorded history. It has clearly moved beyond being primarily a health and psycho-social issue, to an economic and developmental crisis. Not only is it threatening the lives of individuals, but also has a significant impact on the workplace, the functioning of the labor market and the national economy as a whole (4).

The ILO estimates that: 28 million workers had been lost to the global work force due to HIV/AIDS by 2005; this number will rise to nearly 86 million by 2020 and Two million HIV positive workers become unable to work every year as their illness worsen. Thus, Construction is one of the more hazardous sectors of the

economy, with two to four times the average frequency of fatal accidents. In this situation, construction workers are likely to be more concerned with immediate workplace hazards and to view HIV infection as a distant risk. At the same time, such working conditions can give rise to feelings to stress that workers may seek to relieve through alcohol and sex (5). While HIV and AIDS prevalence is notably high in the construction sector, the industry faces additional risks posed by the nature of work that requires continuous migration of the labor force between work sites (6).

Even though, many diseases primarily affect the young and the old, HIV is different, majorly it is adults, the economically active, who are the hardest hit. The ILO estimates that: 28 million workers had been lost to the global work force due to HIV/AIDS by 2005; this number will rise to nearly 86 million by 2020 and Two million HIV positive workers become unable to work every year as their illness worsen. Thus, Construction is one of the more hazardous sectors of the economy, with two to four times the average frequency of fatal accidents. In this situation, construction workers are likely to be more concerned with immediate workplace hazards and to view HIV infection as a distant risk. At the same time, such working conditions can give rise to feelings to stress that workers may seek to relieve through alcohol and sex (5). On top of this, construction industry has a large number of semi-skilled and unskilled workers, who are primarily males between the ages of 18-40. The industry faces additional risks because of the migratory nature of their work that requires continuous movement of work related mobility often significantly increases vulnerability to HIV infection (7).

Most construction projects are once-off projects, meaning that when the work is completed the workers move to a new project site or are laid off. Hence, there is an inherent migratory nature to construction, which means that the movement of labor, in terms of time and space is relatively high compared to other industries. This also creates a process of circular migration whereby migrant workers return home once their job is completed, or returning to job-site only when new work is available (8). And also, Construction is often classified as a high-risk industry because it has historically been plagued with much higher and unacceptable injury rates when compared to other industries. For instance, in the United States, the incidence rate of accidents in the construction industry is reported to be twice that of the industrial average. According to the National Safety Council, there are an estimated 2,200 deaths and 220,000 disabling injuries each year (9). So, Construction workers face difficult and dangerous working conditions, with risk of physical injury, and thus are likely to regard HIV infection as a distant risk. (10)

Ethiopia is one of the countries that are hardest hit by the epidemic, where nearly 1.4 million people are living with the virus and almost 129,000 develop new infections every year. It is estimated that HIV is responsible for about a third of all adult deaths in the age group 15-49 years (11). Since the detection of the first two reported AIDS cases in 1986 in Ethiopia, the epidemic has rapidly spread throughout the country, 1.5 % of adults age 15-49 are infected with HIV in Ethiopia(6) . With over 1.2 million people living with HIV, Ethiopia carries one of the largest HIV disease burdens in the world. Adult HIV prevalence in 2008 in Amhara region was 2.7 % (6).

Utilization of safety measures against the risk of occupationally acquired HIV/AIDS

Construction is one of the most dangerous lines of work, with a proportionately high number of job-related accidents and diseases. Faced daily with difficult and dangerous working conditions and risk of physical injury, construction workers tend to be preoccupied with other immediate challenges and may regard HIV infection as a distant risk (12).

A base-line study in Gondar town showed, 50% of the male and 48.5% of the female building construction workers reported accidental injuries. The accidental injuries reported among workers were either falling from a height, hit by falling objects and strike by an object. The injuries from falling or sharp instruments depended on the nature of the work performed by the workers in addition to their carelessness and lack of personal protective devices (13).

Construction workers face difficult and dangerous working conditions, with risk of physical injury, and thus are likely to regard HIV infection as a distant risk. There is a lack of healthcare facilities and services available in the areas where construction sites are often located. Even in areas where healthcare facilities exist, workers may be reluctant to seek these services for fear of dismissal (14).

Without effective HIV prevention, there will be an ever-increasing number of people who will require HIV treatment. Among the interventions, which play a pivotal role both in treatment and in prevention, HIV CT stands out to be of paramount importance (16). Construction workers tend to be poorly educated, with low levels of HIV and STI knowledge and various misconceptions about the disease. Even where education and information is relatively available, there seem to be various misconceptions about condom use (17). One study done in small- and medium-scale enterprises (SMEs) in Nigeria showed that Knowledge about condom and where to access it was high (over 90%). However, only 73% of the employees had ever used a condom. The main reasons for using a condom were to avoid getting a disease (63%), avoid pregnancy (48%), and pressure from partner (7%), which was the least popular reason (18).

The comparative study done among 155 private companies (five with HIV/AIDS workplace policy and 150 without the policy) done in Western Region of Ghana show that about 68% of the entire worker population that was sampled had the knowledge that the disease could be acquired through three main transmission modes, namely unprotected sex, blood transfusion from an infected patient and the sharing of sharp objects such as needles and razor blades with infected persons. The percentage differentials is clearly seen when the worker population is disaggregated based on the existence of a workplace policy on the pandemic. About 80% employees who had the above stated level of knowledge about the various modes of transmission of the disease were working in companies that were implementing HIV/AIDS workplace policies (19).

In general, construction workers lack access to healthcare services because these services are either not available or accessible near the construction sites. In general, there is a lack of HIV and AIDS interventions in the construction sector due to limited understanding by management of construction companies of HIV vulnerability factors in the sector. In addition, logistical difficulties may be encountered in implementing interventions due to the geographical remoteness of construction sites, constantly changing and complex configuration of activities on construction sites, and rapid turnover of employees owing to the extensive use of limited-duration contracts (13).

Risk factors associated with Utilization of safety measure against the risk of occupationally acquired HIV/AIDS

The International Organization for Migration (IOM) mentions some of the factors that may increase the vulnerability of construction workers to HIV infection. It mentions factors like nature of work, lack of access to health care services for construction workers, increased sub-contracting trend, gender – male dominated sector and low knowledge about HIV and AIDS (6).

ILO's Rapid Assessment study among migrant workers in construction sector on HIV/AIDS risk and vulnerability in Raigadh district of Maharashtra in India was identify that 25% of workers reported casual sex with non regular partners mostly sex workers, 25% workers did not use condom while having casual sex, Women construction workers reported to work as part-time sex workers in one-tenth of the locations, Poor knowledge of HIV transmission, prevention methods, and STI symptoms was recorded, Workers in only about one-tenth of the locations knew about VCT services and About half of the workers did not express positive attitude towards HIV positive co-workers (18).

Cross sectional study done among construction workers in India indicate the risk of HIV-infection varies by gender, age, and ethnicity. Women are more likely than men to become infected with sexually transmitted diseases. Religious views and being in school also influence attitudes about HIV/AIDS and the perception of risk (20).

Study done in Bahir Dar City among Big construction workers variables such as sex, educational level, marital status, age at first sexual intercourse, presence of current sexual partner and casual sex were found to be independent predictors of risky sexual behavior (21).

HIV/AIDS is a workplace issue, and should be treated like any other serious illness/ condition in the workplace. This is necessary, not only because it affects the workforce, but also because the workplace, being part of the local community, has a role to play in the wider struggles to limit the spread and effects of the epidemic (22).

It is important to note that work place is not only a place where people earn a living but also a distinctive community where people interact, socialize and influence each other in terms of creating a shared identity, shared behavior including sexual behavior. The prevailing features of such shared behavior in to the surrounding communities and the result of such interaction and transaction in knowledge and experience has its own impact in the spread of HIV/AIDS (23).

In study done in Nigeria, many employees of large organization face a significant risk of HIV infection especially due to occasional or regular job transfer and involvement in casual sex encounters (24).

Moreover studies showed that risky sexual behaviors were seen not only in mobile persons but also in partners staying behind (13, 25).

Construction workers may be vulnerable to HIV/AIDS. According to a document published by the International Labor Organization (ILO), they may have factors that increase the risk of HIV infection, such as mobility, working in geographically isolated and male-dominated environments, and working in a male-dominated profession. Study done in Asia indicated that construction workers were characterized in general as male, less educated, young, single, and mobile (26).

Construction work is characterized by relatively short-term work on a variety of sites. By removing workers from their families and support systems for extended periods of time, this nomadic "on-site" lifestyle increases their vulnerability to HIV infection. Often living in all-male housing in isolated areas that offer little diversion or recreation, workers are more likely to indulge in risk-taking behavior such as alcohol abuse and unsafe casual sex. In addition, their comparative wealth enables them to purchase sex from sex workers in the

community (27).

one study on the impact of HIV and AIDS on the construction industry, identify five major working environments that act as additional risks for the industry, thereby contributing to a high rate of HIV incidence amongst construction workers: Long distance between work site and home make it difficult for the worker to travel to and from home on a daily basis; A place without preventative measures and promotional materials, including condoms and pamphlets; Lack of facilities for extramural activities, such as sporting activities; The place is not suitable for spouses to visit (shared tin houses or shacks or tents); and There may also be after hours" boredom (6).

Underlying the behavioral factors, researchers have indicated the relevance of socio-economic factors and cultural practices that may increase the risk of infection. These, may include heterosexual relations, widow inheritance, polygamy, gender inequality, forced marriage, abduction, unhygienic circumcision, female genital cutting, poverty, and rural-urban migration, among others (9).

High-risk behavior—unprotected sex with multiple partners, injecting drug use, and commercial sex—can increase vulnerability to HIV infection. While heterosexual sex between multiple partners has been the driving force behind the epidemics in sub-Saharan Africa, injecting drug use and commercial sex have been the main drivers of epidemics in Asia (29).

In addition, logistical difficulties may be encountered in implementing interventions due to the geographical remoteness of construction sites, constantly changing and complex configuration of activities on construction sites, and rapid turnover of employees owing to the extensive use of limited-duration contracts. Even in areas where healthcare services do exist, construction workers may be reluctant to seek these services. Workers may also be reluctant to get tested for HIV for fear of stigma and discrimination and losing their jobs if their employer finds out their HIV status.

In Ethiopia much remains to be done to protect construction workers from such risks that cause HIV infection; that may in turn impact on the quality of construction Industry. To better target prevention efforts, information on the burden caused by occupational acquired HIV/AIDS would be useful. Therefore, this study was conducted to assess utilization of safety measures against the risk of occupationally acquired HIV/AIDS among Building construction workers in Gondar Town.

Methods and Materials

1. Study design and period

Institution based quantitative cross-sectional study was conducted from March 25- April 10, 2014.

2. Study area

The study area was Gondar town, which is the capital of North Gondar zone in Amhara regional state. It is one of the historical towns in the country and located at 750 km Northwest of Addis Ababa. According to the 2007 Ethiopian census report, Gondar has a total population of 206, 987 and more than half (108,902) of them are females (31). There was Eleven Licensed building Construction enterprises during data collection.

3. Source population and Study population

All construction workers involved directly in the construction process of licensed Building construction enterprises in Gondar Town were included in the study.

Inclusion criteria: All workers who engaged directly in construction work randomly selected from each licensed building construction enterprise were irrespective of sex and age included in the study.

Exclusion criteria: Those Workers who were severely ill unable to communicate were not included in the study.

4. Sample size calculation

The sample size was determined using the following assumption

A 95 % confidence interval, 50 % single population proportion, a marginal of error 5 % and 10 % non response rate are added to the total sample.

Sample size is computed based on single proportion formula assuming utilization of safety measures against HIV/AIDS in this group is 50% because there is no research has been conducted on this topic in Ethiopia. A z-value of 1.96 was used at 95% CI and d of 5%.

(n= sample size, p= prevalence, d= margin of error).

$$n = \frac{z^2 p (1-p)}{d^2}, n = \frac{(1.96)^2 \times (0.5) (0.5)}{(0.04)^2} = 600$$

So with adjustment for non-response (10% contingency) n= (600+60), the final sample size will be 660. The subjects were chosen by using PPS (probability proportional to sample size), considering the homogeneity of construction worker.

5. Sampling procedure used

Eleven Licensed Building constructions were working in Gondar Town during data collection. The researcher had involved all of them by taking the list of their workers. Then the researcher prepared one new frame by alphabetical order and simple random sampling technique was administered to identify the study subjects.

6. Data collection procedure

6.1. Data collection Instrument

The quantitative data was collected by interviewing construction workers in Gondar town using structured questionnaire and ensured by observation. And also observational checklist was prepared to assess working environment condition. The questionnaire was prepared in English version and translated back to Amharic and again to English to confirm the correctness of the translation. The questionnaires were collected by the help of data collector and facilitators to minimize non-response rate.

Data was collected by eight final year BSC students of Environmental and occupational health and safety department of University of Gondar who were selected by the principal investigator. They were trained for two days on data collection techniques by the principal investigator. Three occupational health and safety professionals were employed as field supervisors after training. The supervisors were assist data collectors and they also were checking the filled questionnaire individually and together with the principal investigator for consistency, completeness and accuracy during data collection. The data was collected from March 25- April 10, 2014.

6.2. Pretest

Pre-testing of the questionnaire was carried out in outside of the actual study area. During the pre-testing, the questionnaire was assessed for its consistency, clarity, understandability, completeness, reliability, how much it will answer the objectives and the sensitivity of the subject matter was assessed. Interviews were conducted face to face after obtaining informed consent. Interviews were gender matched. It was modified accordingly.

6.3. Data quality control issues

To achieve good data quality, the questionnaire was prepared in English and translated into Amharic and back translated to English in order to keep consistency of the data. Data collectors were selected based on their ability to the local language and knowledge to the study issue. Training was provided to data collectors and supervisors for three consecutive days including the pre-test period. Close supervision was under taken during data collection by the principal investigators and the supervisors for the incompleteness.

6.4. Data management and analysis

After coding the data was entered, using EPI INFO 3.5 and it was exported and analyzed by using SPSS version 20, Analysis was done by the investigator using the same computer package. The descriptive statistic and logistic regressions was carried out to compute the different rate, proportion and relevant association. The variables that found to be significant at the 5% level was entered into the logistic regression model using the Back ward method, and at a 95% confidence interval to determine the actual predictors for the utilization of safety measure against HIV/AIDS problem. Finally, the results were presented with odds ratio (OR) and 95% confidence interval (CI).

7. Study variables

7.1. Independent variables:

- Socio demographic factor: Sex, Age, Religion, Marital status, Educational level, Monthly Salary, Job category, Type of employment, Work experience and Residence .
- Working Environment factors: HIV/AIDS Training, Workplace safety supervision, availability of HIV/AIDS information, Existence of Health and safety representative and availability of health service.
- Behavioral factors: Alcohol consumptions, Chat chewing, Job satisfaction and Smoking status.

7.2. Dependant variable

- Utilization of safety measure

8. Operational definition of variables

- ❖ **Job satisfaction:** whether the worker was happy with the job that he/she had engaged currently or not.
- ❖ **Occupationally acquired HIV/AIDS:** HIV/AIDS acquired due to work or work related condition.
- ❖ **Safety procedure:** procedure utilized to pertain how to carry out work.
- ❖ **Utilization of safety measures:** The correct level of utilization of safety measure against the risk of occupationally acquired HIV/AIDS $\geq 40.2\%$ of respondent who answered correctly to the utilization of safety measure related questions.

9. Ethical consideration

Ethical clearance was obtained from the School of public health University of Gondar. Co-operation and clearance was asked from construction companies and the objective of the study was explained. Consent was obtained from the study participants after they all briefed why the study was needed and they were informed that they have a full right to participate or not.

RESULTS

Socio-demographic characteristics of the study subjects

A total of 650 respondents with a response rate of 98.48% were enrolled and participated in the study. More than

one third of the respondents, 309(47.5%) were found between the age group of 18-22 years. The mean age was 24.10 (± 5.59 SD) years, Three hundred Eighty One, 381(58.6%) of respondents were males and 409(62.9%) were single.

Orthodox Christianity was the dominant religion, (91.1%) followed by Muslim (7.8%) and (1.1%) were protestant. Concerning the educational levels of the study subjects, (40 %) of them were secondary school and above. Regarding job category of the respondents, (27.8%) were construction laborer and (4.3%) were painter. Most (56.5%) of the respondents had work experience of below 1 year. About (43.4%) of the respondents had monthly salary in the range of 500-1,000 Birr per month. The median monthly salary of the respondents was 1,200.00 Birr. The detail of socio-demographic characteristics presented in table-1.

Table-1: Socio-Demographic Characteristics of building construction workers in Gondar town, Gondar, 2014 (n=650)

Variable	Frequency	Percent
Sex	Male	381
	Female	269
Age	18-22	309
	23-27	192
	>27	149
Marital status	Single	409
	Married	207
	Others	34
Educational Status	Not attend formal Ed.	196
	Primary Ed.	194
	Secondary & above	268
Employment condition	Daily Laborer	394
	Contract	217
	Permanent	39
Current occupation	Plasterer	148
	Carpenter	114
	Mason	108
	Welder/Electrician	30
	Painter	28
	Driver/operator	41
	Construction Laborer	181
Service year in construction	<1 year	367
	≥ 1 years	283
Monthly salary	500-1000	282
	1001-1500	193
	>1500	175
Residence	Urban	355
	Rural	295

Others= separated, widowed and divorced; Ed. = Education

Utilization of safety measures against occupationally acquired HIV/AIDS

Among the respondents, 261 (40.2%) them utilized safety measures and 389(59.8%) of them did not utilize safety measure. Majority of the worker 436(67.1%) did not follow workplace safety procedure while they were working; the reason they were responded was company has no safety procedure. Among total respondents, 349(53.7%) them did not use personal protective Equipment while they were working; the reason they gave was the company did not provide personal protective equipment. Table 3 summarizes utilization of safety measures.

Table 2: utilization of safety measures among construction workers in Gondar Town, 2014 n=650

Variable	Frequency	Percent
Follow workplace safety procedure	Yes	180
	No	470
PPE Utilization	Yes	301
	No	349
VCT service utilization	Yes	369
	No	281
Condom utilization	Yes	187
	No	463
Occupational injury Report	Yes	522
	No	128
Health service utilization	Yes	445
	No	205

PPE= Personal Protective Equipment; VCT= Voluntary Counseling and Testing

Among the respondents utilized Personal Protective Equipment, utility glove accounted the highest 212(32.6%), and the least were Goggle 11(1.7%). Figure 2 shows PPE self reported utilization of respondents.

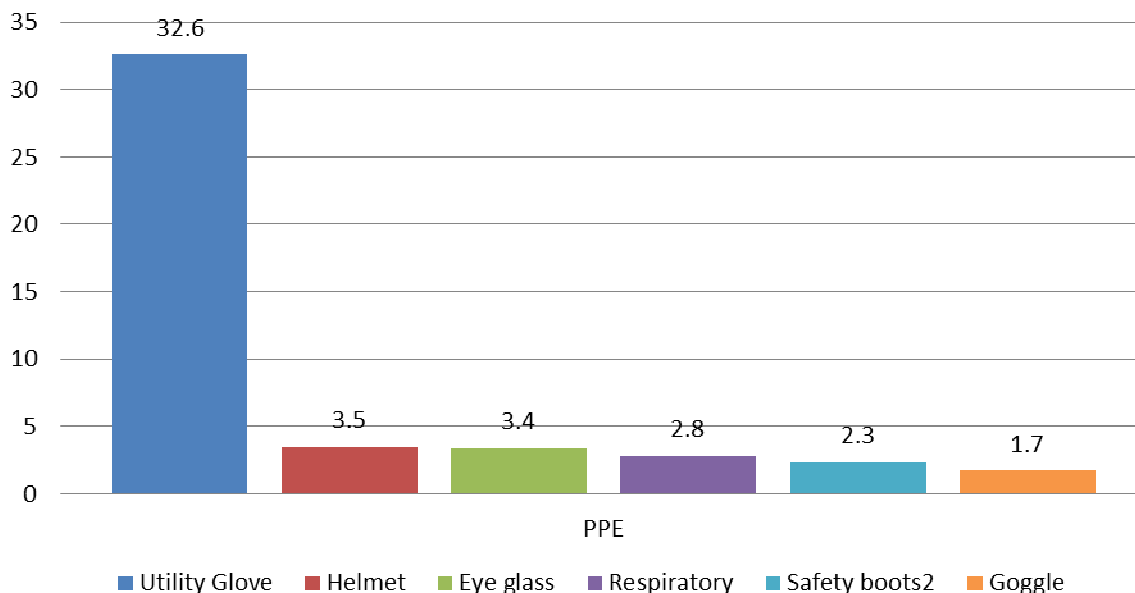


Figure 2 Personal Protective Equipment utilization of respondents, Gondar city construction workers, 2014, n=650

The reason for not using Personal protective equipment as the respondents answered Three hundred twenty four, 324(49.5%) PPE was not provided for them and 3.2% of the respondents answered personal protective equipment was not comfortable. Among the respondents 128(19.7%) of them did not report injury because, 75(11.5%) did not know reporting procedure followed by 17(2.6%) they did not think it was important. A considerable proportion of construction worker 463(71.2%) did not utilize condom, the reason for 160(24.6%) was they did not like condom, the rest 127(19.5%) partner refused to use condom followed 46(7.1%) did not think it was important.

Construction workers 470(72.3%) did not follow safety procedure while they were working as they have mentioned the reason 436(67.1%) company had no safety procedure and this was checked by internal observation during data collection.

Work Environment Characteristics

A considerable proportion 470 (72.3%) of construction Workers did not get HIV/AIDS Training. Site observation was taken place during data collection in all construction companies. The observational check list was used during observation. Responsible body for Health and safety of workers, Presence of Health and safety regular supervision, Availability of HIV/AIDS material in the company, Occupational Health and safety training and availability of Health service was checked. Two companies delivered Occupational health and safety training once in the last one year. All construction company did not have responsible Health and safety professional. There were no health service in all construction companies except first aid kit during observation

and also there were no available HIV/AIDS materials for the workers in Construction Company.

Behavioral characteristics of construction workers

Majority of the respondents 460(70.8%) were satisfied with their job and 190(29.2%) were dissatisfied with their job, the reason for dissatisfaction low monthly salary. In our study, alcohol consumption is fairly common among workers with 272(41.8%) of all workers reporting that they drink alcohol at least “occasionally”. And majority the respondents 639(98.3%) did not smoke cigarette. Considerable proportion 607(93.4%) of them did not chew chat.

FACTORS ASSOCIATED WITH UTILIZATION OF SAFETY MEASURES AGAINST OCCUPATIONALLY ACQUIRED HIV/AIDS

In the Bivariate logistic regression analysis, utilization of safety measure was associated significantly with Sex, Age, Marital status, Current occupation, Experience, Monthly salary, Training on HIV/AIDS, Job satisfaction, and Knowledge of occupationally acquired HIV/AIDS. However, in the multivariate logistic regression analysis, Utilization of safety measure associated significantly with sex, Monthly salary, marital status and HIV/AIDS Training.

Sex also showed statistically significant association with utilization of safety measures; construction workers who were Male 1.81 times more likely to utilize safety measures than Female construction workers [AOR= 1.81, 95% CI: (1.29, 2.94)].

Construction workers who were separated or divorced were 62% less likely utilize safety measures against risk of occupationally acquired HIV/AIDS than unmarried construction workers [AOR= 0.38, 95%CI: (0.15,0.95)].

Construction workers who earn monthly Salary >1500 birr were 1.72 times more likely to utilize safety measure against the risk of occupationally acquired HIV/AIDS than that of 500-1000 birr earned monthly salary [AOR=1.72, 95% CI (1.04, 2.83)].

There was statistically significant association between HIV/AIDS Training and Utilization of Safety measure. Construction workers who had training towards HIV/AIDS 5.42 times more likely to utilize safety measure against the risk of occupationally acquired HIV/AIDS than who had no training on HIV/AIDS [AOR=5.42, 95% CI: (3.69,8.24)]

Table-3: Multivariate logistic regression analysis for potential factors associated with utilization of safety measures among Construction Workers in Gondar town, Gondar, 2014 (n=650).

Variables		Utilization		Crude OR (95%CI)	Adjusted OR (95% CI)
		Yes	No		
Sex	Male	201	180	2.08(1.49,2.89)	1.81(1.18,2.76)*
	Female	188	81	1.00	
Age	18-22	195	114	1.00	
	23-27	112	80	1.22(0.85,1.77)	
	>27	82	64	1.39(0.94,2.08)	
Marital status	Single	243	166	1.00	
	Married	119	88	1.08(0.77,1.52)	
	Separated/Divorced	27	7	0.38(0.16,0.89)	0.38(0.15,0.95)*
Occupational status	Plasterer	77	71	2.06(1.31,3.23)	
	Carpenter	67	47	1.57(0.96,2.55)	
	Mason	58	50	1.92(1.18,3.15)	
	Welder/Electrician	15	15	2.23(1.02,4.88)	
	Painter	19	9	1.06(0.45,2.48)	
	Driver/operator	28	13	1.04(0.50,2.15)	
	Construction Laborer	125	56	1.00	
Service year in construction	<1 year	231	136	1.00	
	≥1 years	158	125	1.34(0.98,1.84)	
Monthly salary	500-1000	194	88	1.00	
	1001-1500	102	91	1.97(1.35,2.87)	1.65(1.03,2.64)*
	>1500	93	82	1.94(1.32,2.87)	1.72(1.04,2.83)*
Jon satisfaction	Yes utmost level	106	90	1.19(0.96,2.55)	
	Yes, with some degree	172	91	0.75(0.96,2.55)	
	Not at all	111	79	1.00	
HIV/AIDS Training	Yes	59	121	4.83(3.34,6.99)	5.42(3.64,8.09)*
	No	330	140	1.00	

*significantly associated with<0.05

DISCUSSION

In Ethiopia, Utilization of safety measure contribution for the risk of occupationally acquired HIV/AIDS among construction workers was not assessed. To examine this issue, this study was designed and conducted with the aim of assessing Utilization of safety measures against risk of occupationally acquired HIV/AIDS with special focus on the construction workers, in Gondar Town.

Accordingly, utilization of safety measures against risk of occupationally acquired HIV/AIDS in this study was 40.2%, which is lower than the result of the study done in south India (10), were 64.1% of the welders utilized safety measures. This difference might be attributed to difference in the study population, and study area. In addition this difference could be justified by the fact that the strength of occupational health and safety regulation is very weak in Ethiopia. Majority of the respondents, 470 (72.3%) did not follow workplace safety procedures while they work. This high proportion of non adherence to workplace safety procedures could probably related to lack standard of work, and carelessness of workers and employees about safety issue due to the absence of construction safety policy in the country as a whole. One of the major reasons acknowledged by the study participants for not following safety procedures is lack of training. Similarly, in China, the study done in Hong Kong, showed that majority (61.3%) of the construction workers did not receive safety procedures of work before work starts (31). It is approved that workers perform their work based on their normal practice and work experience since contractors only concerned the progress and production of the work rather than giving training on safety procedures. However, if there is no discouragement on the worker performing unsafe behavior and doing the work in non-compliance standards, it will become as the workers normal practice and will continue to do it, and this result to occupational accidents (31). Only 46.3% of the respondents utilized at least one PPE during their work. This contrasts with previous study done in the same area (6, 34), where none of construction workers fail to use PPE. Though the labor proclamation stated the duty of Employee to deliver PPE (32), most 324(49.8%) of none users of PPE reported failure of their company to provide it.

Knowledge of occupationally acquired HIV/AIDS was low (56.5%) amongst construction workers. Many contraction workers believe in myths, and had misconceptions about how HIV is transmitted. This shapes the individual's perception of the risk of contracting HIV and therefore the individual sexual behavior. Low perceptions of risk may result in low or incorrect utilization of safety measures. Even if knowledge of occupationally acquired HIV/AIDS is not statistically associated with utilization of safety measures against the risk of occupationally acquired HIV/AIDS, almost half of those who had knowledge about occupationally acquired HIV/AIDS utilized safety measures, while only 28.32% of not knowledgeable participants utilized safety measure. This indicates the need for provision of training on occupationally acquired HIV to increase knowledge of construction workers.

In this study there was statistically significant association between HIV/AIDS Training and Utilization of Safety measure. Construction workers who had training towards HIV/AIDS were 5.42 times more likely to utilize safety measure against the risk of occupationally acquired HIV/AIDS than who had no training on HIV/AIDS [AOR=5.42, 95% CI: (3.69,8.24)]. This might be due to the fact that training enhances awareness and improve attitude towards utilizing safety measures among construction workers. Thus, this finding has a great importance for planning preventive measures in construction setups, where arranging proper training on prevention of occupationally acquired HIV/AIDS is a feasible target.

In this study Sex showed statistically significant association with utilization of safety measures; construction workers who were Male 1.81 times more likely to utilize safety measures than Female construction workers [AOR= 1.81, 95% CI: (1.29, 2.94)]. It has been reported that in construction area males are assigned on hazardous task (28), which enforces them to utilize safety measures against the risk of hazardous situation. The other reason might be the tendency of male to utilize condom during sexual intercourse is high. In this study alone 75.40% male construction workers utilized condom when compared with female construction worker. Availability of male condom, social factors of female to buy condom and fear to ask the males to utilize condom during sexual intercourse might be the reason. Moreover, women construction workers are especially vulnerable to harassment and violence on isolated sites (33), in which case they lack opportunity even to utilize condom. A study done in Zimbabwe confirmed that, 72% of women never use condoms with their partner; the issue may be more complex than generally perceived. Condom use encompasses issues of power and the ability to negotiate and initiate the discussion on condom use on the part of females. Most females have little or no influence on these issues particularly when the man is the dominant partner in the relationship (34). This could be true that since most of the time condom is worn by the male, it is likely that it is characteristic of the male, rather than the female, are crucial in regard to condom use.

The current study revealed that marital status was statically associated with utilization of safety measure against the risk of HIV infection. Thus, Construction workers who were separated or divorced were 62% less likely utilize safety measures against risk of occupationally acquired HIV/AIDS than unmarried construction workers [AOR= 0.38, 95%CI: (0.15,0.95)]. Similarly, the study conducted in Bahir Dar among Big construction workers showed that, divorced construction workers had risky sexual activities(23). This could be due to the fact

that those who were divorced/ separated have careless attitude towards their general health.

In this study there was also statistically significant association between Monthly salary and utilization of safety measures against the risk of occupationally acquired HIV/AIDS. Construction workers who earn Monthly Salary >1500 birr were 1.72 times more likely to utilize safety measure against the risk of occupationally acquired HIV/AIDS than that of 500-1000 birr earned monthly salary [AOR=1.72, 95% CI (1.04, 2.83)]. The same is true for the worker earned a Monthly Salary of 1001-1500 was 1.65 times more likely to utilize safety measures than the worker earned 500-1000 monthly salary [AOR=1.65, 95% CI (1.03, 2.64)]. Majority of construction workers who earned monthly salary above 1000 birr; were employed as contract or permanent; and the company give more priority to these group of workers than daily laborer (who earned less than 1000 birr per month) to deliver PPE. Study done in Austria indicated that (35), in connection with wages, a risk of working poor can be observed: lowest qualified jobs tend to be insufficient to feed a whole family.

Conclusion and Recommendation

CONCLUSION

The findings of this study declared that utilization of safety measures against risk of occupationally acquired HIV/AIDS among building construction workers is 40.2%; showing that above half of the respondents were not utilized safety measures against the risk of occupationally acquired HIV/AIDS, which demands the attention of all concerned bodies. Besides, several variables including HIV/AIDS Training, Male sex, marital status and Monthly salary were found to be independent predictors of utilization of safety measures against risk of occupationally acquired HIV/AIDS among building construction worker.

Therefore, organization of training activities for employees focusing on HIV ways of transmission, protection measures that can be applied by employees to prevent HIV infection, design and implementation of HIV/AIDS workplace program can alleviate the problem.

Thus, more studies need to be carried out at different sites and among workers enrolled at different construction activities. Moreover, the present data may be used as base line information for further studies.

Recommendations

- I. For construction company
 - Workplace safety and Health program is mandatory to tackle workplace HIV/ AIDS, so plan and implement the program.
 - Utilization of safety measure against the risk of occupationally acquired HIV/ AIDS is low among construction workers. Therefore, by delivering PPE, on site condom disruption, setting work standard and on site VCT service can reduce the risk.
 - Because construction sites are often situated far from any established providers of health services, mobile health service may be necessary.
- II. For MOLSA
 - Construction being significant sector is essentially not well regulated (except the general LABOR PROCLAMATION 377/2003). Promulgation of regulations and enforcement procedures may help in reducing risk of occupationally acquired HIV/AIDS.
 - Regular prevention focused Health and safety supervision is important for workers adherence of safety measures and company deliver suitable PPE for the worker.
- III. For construction workers
 - Avoid poor work practices to reduce risk of occupationally acquired HIV/AIDS.
 - Adherence to PPE, VCT service utilization and use condom regularly when you have sex with partners other than spouse.
- IV. For researchers
 - Additional research is needed to work out in the area.

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