

# 1. INTRODUCTION

## 1.1 Background

Human Immuno-deficiency Virus (HIV) is a lentivirus (slowly replicating virus) that causes Acquired Immuno-deficiency syndrome (AIDS) (Douek et al. 2009) a condition in humans in which progressive failure of the immune system allows life threatening opportunistic infections and cancers to thrive.

HIV is different in structure from other retroviruses. It is roughly spherical (McGovern et al. 2002) with a diameter of about 120 nm, around 60 times smaller than a red blood cell, yet large for a virus (Bruce et al. 2007). It is composed of two copies of positive single-stranded RNA that codes for the virus's nine genes enclosed by a conical capsid composed of 2,000 copies of the viral protein p24 (Kuiken et al. 2008). The single-stranded RNA is tightly bound to nucleocapsid proteins, p7, and enzymes needed for the development of the virion such as reverse transcriptase, proteases, ribonuclease and integrase. A matrix composed of the viral protein p17 surrounds the capsid ensuring the integrity of the virion particle (Kuiken et al. 2008). This is, in turn, surrounded by the viral envelope that is composed of two layers of fatty molecules called phospholipids taken from the membrane of a human cell when a newly formed virus particle buds from the cell. Embedded in the viral envelope are proteins from the host cell and about 70 copies of a complex HIV protein that protrudes through the surface of the virus particle (Kuiken et al. 2008). This protein, known as Env, consists of a cap made of three molecules called glycoprotein (gp) 120, and a stem consisting of three gp41 molecules that anchor the structure into the viral envelope (Chan et al. 1997). This glycoprotein complex enables the virus to attach to and fuse with target cells to initiate the infectious cycle (Chan et al. 1997).

Two types of HIV have been characterized: HIV-1 and HIV-2. HIV-1 is the virus that was initially discovered and termed both LAV and HTLV-III. It is more virulent, more infective (Gilbert et al. 2003) and is the cause of the majority of HIV infections globally. HIV-1 (subtype C) and HIV-2 were identified in Nepal (Nepal 2007). The lower infectivity of HIV-2 compared to HIV-1 implies that fewer of those exposed to HIV-2 will be infected per

exposure. Because of its relatively poor capacity for transmission, HIV-2 is largely confined to West Africa (Reeves and Doms 2002).

AIDS has become one of the world's most serious health and development challenges. The first case were reported in 1981 and today more than 30 years later, approximately 34 million people currently living with HIV and nearly 30 million people have died of AIDS related causes since the beginning of the epidemic (UNAIDS 2012). Most of the cases are reported in middle income countries particularly in sub Saharan Africa (UNAIDS 2012). Most new infections are transmitted heterosexually although risk factors vary. In some countries, men who have sex with men, injecting drug users and sex workers are at significant risk (WHO/UNAIDS/UNICEF 2012). HIV in Nepal is characterized as concentrated epidemic, where majority of the infections (more than four in every five new infections) are transmitted through sexual transmission (DOHS 2067/68). People who inject drugs, men who have sex with other men and female sex workers are the key high risk population groups spreading the epidemic. Male labour migrants (particularly to India, where labour migrants often visit female sex workers) and clients of female sex workers in Nepal are acting as bridging population groups that transfer infections from high risk groups to low risk general population (DOHS 2067/68). Highest infection is estimated in the age group of 25-49 years who are economically productive and sexually active. The male labour migrants constitute 27.7% of HIV infection estimates by population group (NCASC 2010).

The virus is primarily blood borne although it has been isolated in other body fluids including semen, vaginal and cervical secretions, tears, saliva, cerebrospinal fluid and breast milk. The main routes of transmission are:

- ) Sexual (often described as horizontal transmission).
- ) Mother to baby transmission (also known as vertical transmission).
- ) Contaminated intravenous drug using equipment.
- ) Blood borne transmission via infected blood, blood products, infected human organs (if used in transplantation) or infected donor semen (if used in artificial insemination procedures). Such transmission would also include cases of occupational infection and/or other transmission via contaminated medical equipment.

The clinical features of HIV infection can be classified into four stages.

### **1. Initial infection**

No symptoms during the first few years. The symptoms are fever, sore throat, headache rash, malaise etc. The symptoms last about two weeks and the person becomes asymptomatic for variable duration.

### **2. Asymptomatic carrier stage**

This is the period during which a person can transmit the disease but show no symptoms except for persistent generalized lymphadenopathy.

### **3. AIDS related Complex (ARC)**

ARC is a stage during which a person exhibits one or more of the symptoms caused by viral damage to the immune system but does not have opportunistic infection. It shows following symptoms.

- Unexplained diarrhoea for more than one month.
- Loss of weight more than 10% of body weight.
- Fever for more than one month.
- Fatigue, malaise and night sweats.
- Oral candidiasis, generalized lymphadenopathy or splenomegaly

### **4. AIDS**

AIDS is the last stage of HIV infection during which many opportunistic infections and/or cancers develop in addition to having symptoms of ARC. Death occurs due to infection.

## **1.2 Prevention of HIV transmission**

Effective strategies to reduce the spread of HIV need to address all the routes of transmission. These include:

- ) Using condoms for all penetrative sexual intercourse.

- ) Reducing number of sexual partners and delaying the age at which first sexual intercourse takes place.
- ) Effective screening for and prompt treatment of sexually transmitted infections.
- ) Adopting appropriate interventions to reduce mother to infant transmission
- ) Supporting safer drug using practices including not sharing equipment used for injection drug use.
- ) Screening of all blood and organ donors and appropriate treatment of all blood products.

### **1.3 Objectives of the study**

#### **General objective**

To determine the current situation of HIV/AIDS on migrants people in Dang district.

#### **Specific objectives**

1. To determine the prevalence of HIV/AIDS on migrants people in Dang.
2. To determine the Knowledge, Attitude, and Practices among migrants people.

### **1.4 Significance of the study**

As the numbers of the patients with HIV/AIDS are increasing day by day, the study will help to know about the number of people infected with HIV. This study also aimed to identify the Knowledge, Attitude and Practices on HIV/AIDS among migrants. It helps to find out the risk of transmission of HIV/AIDS indirectly through their husband as their husband go away from home for employment leading their chances of contact with sex workers as a result they transmit the disease to their wives which can ultimately even result a HIV infected children. So this study also helps to control the risk among the spouses and migrants and reduces the risk of HIV transmission. As it is affected by cultural, economic, household, ethnic, migration and employment factors, the study will also help to generate some awareness in the people regarding the narrow concepts towards HIV/AIDS and helpful to design preventive intervention strategy measures.

## **2. LITERATURE REVIEW**

### **2.1 Global Scenario of HIV/AIDS**

There were approximately 34 million people living with HIV and nearly 30 million people have died of AIDS-related causes since the beginning of the epidemic (UNAIDS 2012). From almost all countries, among them maximum people with HIV (97%) are living in low and middle-income countries, particularly in sub-Saharan Africa (UNAIDS 2012). Most people living with HIV or at risk for HIV are still far from basic health care facilities (WHO/UNAIDS/UNICEF 2011). More than 50% of HIV cases reported among people below 25 years which is most productive age of life (UNAIDS 2012). HIV not only affects the health of individuals, it impacts households, communities, the development and economic growth of nations. HIV endemic countries of the world are also suffer from other infectious diseases, food insecurity, and other serious problems. The global prevalence rate has leveled since 2001 and was 0.8% in 2011 and 1.7 million people died of AIDS in 2011 (UNAIDS 2012).

### **American Continent**

More than 1.1 million people in the United States are living with HIV infection, and almost 1 in 5 (18.1%) are unaware of their infection among which gay, bisexual, and other men who have sex with men (MSM), particularly young black/African American MSM, are most seriously affected by HIV (CDC 2012). About 1.6 million people are estimated to be living with HIV in Latin America and the Caribbean combined, including 96,000 newly infected in 2011(UNAIDS 2012). The Caribbean alone represent 1% prevalence of HIV is the second endemic region in the world after sub-Saharan Africa. According to UNAIDS (2012) report the greatest number of people living with the HIV is the Brazil. In this continent major mode of transmission are primarily by injecting drug use and heterosexual transmission. Endemicity of HIV remains stable for several years but new infections are in increasing numbers according to recent estimates (UNAIDS 2012).

## **Africa**

HIV is a leading cause of death worldwide and the number one cause of death in Africa. Of the estimated 40 million people living with HIV/AIDS worldwide at the end of 2001, sub-Saharan Africa accounts for 28.5 million people (UNAIDS 2002). In some southern African countries more than one in three adults is currently living with HIV/AIDS (UNAIDS 2002). A published report suggests that in Africa more than two-thirds (69%) of people living with HIV but only about 12% of the world's population (UNAIDS 2012). Most children (94%) with HIV live in this region (UNAIDS 2012). Swaziland has the highest prevalence rate in the world (26.0%). Recent data offer promising signs, with national HIV prevalence and/or incidence stabilizing or even declining in many countries in the region (UNAIDS 2012). The regional prevalence of HIV infection is nearly 25 times higher in sub-Saharan Africa than in Asia (UNAIDS 2012).

## **Europe**

The estimated number of people living with HIV in Europe was 23,00,000 in 2011. It was reported that estimated population living with HIV in western and central Europe was 6,40,000 in 2001 which increases up to 900,000 in 2011 which showed about 30,000 people were newly infected. Similarly new case reported in western and central Europe was about 140,000 cases. (WHO 2011). In western and central Europe, an estimated 7,000 adults and children died of AIDS in 2011, which showed slightly decreased mortality rate 7800 from 2005( WHO 2011). A report of Ukraine on bio-behavioural survey among labour migrant showed higher prevalence (5%) of HIV among internal migrants compared to residents(3%) returning from work abroad. Similarly workers returning to Ukraine from the Russian Federation had a higher HIV prevalence (17%) than those returning from other countries (International AIDS Alliance of Ukraine 2009). A HIV KAP study done in Cyprus showed statistical significance between the level of education and the behaviour of not using a condom( $p=0.000$ ) (Kouta et al. 2013). In the United Kingdom, about 44% of people newly diagnosed with HIV in 2007 had acquired HIV abroad, mainly in sub-Saharan Africa (Jansen 2010). A review in 2006 in European Union countries plus Norway and Iceland showed that 65% of the migrants newly diagnosed with HIV originated from sub-Saharan Africa (ECDC 2009). In 2010, among people infected heterosexually, 43% originated from a country with a

generalized epidemic and 9% reported a partner from a generalized epidemic country (ECDC 2010). As a result, migrants living with HIV constitute a key population that must be engaged through prevention, treatment, care and support programmes.

## **Australia**

In Australia many report showed increasing trend of HIV prevalence. One of the published report showed an increase of 8.2% prevalence within one year. It was published that 31,645 cases of HIV infection had been diagnosed in Australia. (Donald 2012).

## **Asia**

More than 5 million people are living with HIV across South Asia, South East Asia and East Asia. HIV incidence has increased by more than 25% since 2001 in Bangladesh, Indonesia, the Philippines, and Sri Lanka (UNAIDS 2012). In Bangladesh HIV prevalence is considered very low at below 0.1% in the general population; however, amongst Most At Risk Populations (MARPs) it rises to 0.7% and was as high as 2.7% among casual sex workers in Hili, a small border town in northwest Bangladesh (UNGASS 2010, World Bank and UNAIDS 2009). There are an estimated 12,000 people living with HIV in Bangladesh (UNAIDS 2008), many of them are migrant workers. In 2004, data from the National AIDS/Sexually Transmitted Disease (STD) programme of the Ministry of Health and Family Welfare (MoHFW) showed that 57 of 102 newly reported HIV cases were among returning migrants from any foreign countries (UNAIDS 2008). The National AIDS/STD programme report of 2006 stated that approximately 67% of identified HIV positive cases in the country were returnee migrant workers and their spouses (UNAIDS 2008).

In Thailand HIV prevalence is higher among migrants than non migrants. HIV prevalence among migrant female sex workers were reported to be higher than for Thai female sex workers. In Burmese HIV prevalence among migrants was 0.67%, Cambodian 2.53%, Laos 0.5% respectively (Saonuan 2010).

The first cases of HIV reported in China were among China's migrant population. It became evident that a large percentage of migrants were HIV positive, although exact figures are not available ( Sheng and Cao 2008). About 150 million migrants in China were of a sexually active age group (UNAIDS 2003). More than 80% HIV positive population were between the

ages of 20 and 39 (Iredale et al. 2005). Analysis of HIV prevalence rates in the various districts of China showed a higher prevalence of homosexual and heterosexual transmission of HIV in provinces with larger numbers of migrant workers((UNAIDS 2007). A workplace survey of 1,845 unmarried migrant workers in east China found substantial gaps in HIV knowledge and infrequent condom use (Tucker et al. 2005). A KAP study on HIV among migrants and urban workers showed that urban workers were more knowledgeable than the migrants in attitude and practices (Hesketh et al. 2006).

There were 5.6 million people living with HIV in India, which indicated that there were more people with HIV in India than in any other country in the world ( UNAIDS 2006). UNAIDS estimated that 2 million to 3.1 million people were living with HIV (UNAIDS 2007). A KAP study done in India in 2005 among migrants and non migrants showed HIV prevalence rate higher among migrants (0.29)% than that of non migrants (0.28%). But sex wise HIV prevalence was higher in male migrant 0.55% while it was only 0.29% among non migrants (NACO 2006). Similarly the awareness was low among female than male (NACO 2006). These results, supports the fact that migrants and HIV relationship is more evident for the males and also in the internal migration is dominated by females, due to marriage migration. KAP study conducted among Myanmar migrants factory workers in Thailand during 2000 showed the mean knowledge on HIV AIDS in both male and female were about 62%. Misconceptions on prevention of HIV/AIDS were present in more than half of the respondents. There was no satisfactory significant association between knowledge and condom use, but a positive attitude was associated with safe practice (Thu et al. 2004).

## **2.2 National Distribution**

The first case of AIDS in Nepal was reported in 1988. The estimated prevalence of HIV in the adult population was 0.33% during 2068 (DOHS 2067/68). Surveillance data is scarce in Nepal, however limited data indicate that HIV prevalence is currently around 0.3% in the general population (NCASC 2003). Epidemiological data suggests that Nepal has a low prevalence of HIV in general population (NCASC 2003). In the Kathmandu Valley HIV/AIDS prevalence was 2% or below among FSWs and IDUs in the mid- 1990s and it has now reached 68% among IDUs, approaching 20% among FSWs, and is over 70% among FSWs who also report being IDUs (SACTS and FHI 2002). By the middle of 2008, more



than 1,750 cases of AIDS and over 11,000 cases of HIV infection were officially reported, with two times as many men reported to be infected as women (The World Bank 2008).

Removal from traditional social structures can promote unsafe sexual practices, such as having multiple sexual partners and engaging in commercial sex which leads to HIV infection (The World Bank 2008). Female sex workers, IDUs, MSM, transgender, migrants and commercial sex are the important factors in MARPs for HIV. Another important factor is the high number of sex workers who migrate or are trafficked to Mumbai, India, to work, thereby increasing HIV prevalence in the sex workers network in Nepal more rapidly (SACTS and FH 2002). HIV prevalence is higher in Terai region than any other parts of the country (DOHS 2067/68). Similarly according to regional level, Central Development Region has highest prevalence than any other regions (DOHS 2067/68). The reported HIV cases in Nepal are 21,551, out of these cases 13,718 are males while 7,817 are females and 16 are third genders. The age group between 30-39 has the highest prevalence of HIV/AIDS with 8,318 cases. Out of the total sub groups, client of sex workers have the highest prevalence of HIV/AIDS (NCASC 2012).

### **2.3 HIV/AIDS Scenario among migrant population in Nepal**

The main transmission mode of HIV in Nepal has been through sexual transmission (UNGASS 2010). Women in Nepal, including women in sex work and wives of migrants, are at especially high risk. Wasti et al. 2009 reported that 27% of Nepali migrants working in India were engaged in high risk sexual behaviour and frequently visited brothels or sex workers so migrants are considered the most vulnerable subset of the population and represent a significant bridge population that contributes to the spread of the HIV epidemic. Mostly migration for employment purpose found to be almost in all developing and developed countries but with regard to HIV/AIDS, no data were found to be recorded. The only available data regarding HIV/AIDS among migrants are available among those who frequently migrate to India. Besides these data remaining HIV/AIDS among migration is from internal migration. One of the report showed that people migrating from Achham to Mumbai shows 7.7% prevalence (FHI and New Era 2001) which is similar to result showed by World Bank 2008. Similarly another report showed 0.6% of HIV/AIDS among people migrated from Kailali to Uttar Pradesh (Poudel et al. 2006) which is similar to the result

shown by FHI and New Era 2001 in Sandepani and Darakh VDC of Kailali. Geographically landscape of Nepal is widely varied from Mountain to Terai. Terai is more developed than other parts so hilly and mountain people migrate to Terai, headquarters for employment where one of the growing business is commercial sex or prostitution. Hence ordinary people from hilly as well as Terai involve in sexual activities with these prostitutes as a result they become infected by HIV/AIDS. One of the report shows people among hilly district (Doti) have HIV/AIDS 2% which is clear that it was from the internal migration (Poudel 2001). Many research reports shows that HIV prevalence is higher among migrants than non migrants. A research done in Doti shows 10.10% and 2% (Poudel 2001) in migrant and non migrant which was similar to the result of truckers (migrants) along the highway routes in the Terai of Nepal (FHI 1999), higher than the prevalence of Dadeldhura i.e., 0.70% and 0% respectively (Pkhakadze 2002). Similarly prevalence of HIV among migrants returnees from Mumbai in 2005 shows 46% of the estimated infection in Nepal were among seasonal labour migrants to India (UNAIDS 2008). Prevalence of HIV among people of Far Western to India in seasonal migration showed increasing trend of prevalence with year (Vaidya and Jianhong 2007). Similarly prevalence of HIV/AIDS among male labour migrant workers in WDR and Mid to FWDR showed 1.4% and 0.8% respectively (New Era and SACTS 2008) which was lower than migrant workers working in Nepal and Indian cities i.e., 2.3% and 8.5% (Gurubacharya and Gurubacharya 2004).

Sexual behaviour among external migrants shows a higher rate than the internal migrants. Research on KAP study among migrant workers working in Nepal and Indian cities showed 60% of migrants within Nepal and 85% of migrants to India have visited FSWs, 75% of migrant within Nepal used condom while visiting FSWs in comparison to only 10% of migrants to India (Gurubacharya and Gurubacharya 2004). An IBBS study showed the prevalence of HIV among the wives of migrants laborers (who temporarily migrate or had migrated to India) in the West to Far Western region of Nepal is 3.3% and varies with four districts, 4.5% in Achham, 3% in Doti, 2.5% in Kailai and 1.1% in Kanchanpur (New Era and SACTS 2008). Prevalence of HIV among trafficked women returning from India to Nepal showed 22% to 38% (Silverman et al. 2007). In Dang HIV/AIDS was first seen in 2005 in the VCT centre of Nepal family planning Association Dang Branch in which one female was infected. After sometime it was also seen in one male. In 2006 13 males and nine

females were infected in which eight males and one female were dead. In 2007 altogether 19 males and 13 females were infected. At the end of 2012 April there were altogether 173 people infected among which 75 were migrants and 34 males and 12 females were dead from HIV (DACC, Dang 2012).

### 3. MATERIALS AND METHODS

#### 3.1 Study Area

The study area for the research is Dang district situated in Rapti zone of Mid western region of Nepal. It is divided into 39 VDCs and two municipalities having an area of 2,955 sq.km. surrounded by Rolpa, Pyuthan and Salyan in North, Kapilbastu and Arghakhanchi in East, Uttar Pradesh of India in South and Banke in West. Dang district is considered as largest valley in Asia. It has an elevation of 213m. to 2,058 m. from the sea level. The total population of Dang district according to 2011 National census is 552,583 among which male were 261,059 and female 291,524) (V.D.C. and Demographic profile of Nepal 2013). The literacy rate of 6 years and above is 70.3%. Most of the people depend on agriculture for livelihood. A little portion of the population are engaged in business and job. Most of the male population go to foreign country and cities of Nepal for employment purpose. The frequently going countries are overseas countries like Saudi Arab, Malaysia, Dubai, Qatar, Bahrain, Korea, Israel, and India. When living outside the country these people almost are involved in risk sexual relationship with other paying partners, brothels and prostitutes. They are not aware of risk of HIV/AIDS at the time of sexual relationship and they continue their relationship with such risky partners. After some years they return to their home and they transmit the HIV and other STI to their spouses. Most of the positive transmission was seen among migrants who used to go to overseas and India and used to involved in such risky behaviour. A few years ago most of the people used to go to India for earning purpose for seasonal period, while staying there they used to frequently visit brothels and prostitutes. They are unaware of HIV and other STI infection and also they don't have their regular body check up. This is the common mode of HIV transmission among migrants people in Dang district.

The present research study was done by the combined coordination with Dang Plus, a Non Government Organization working in the field of HIV/AIDS/STIs awareness and prevention particularly on the migrants people in Dang district since 2006. Its main head office is located in Ghorahi and has two branches situated in Lamahi and Tulsipur having VCT centre.

The entire work was done in the laboratory of Dang Plus from two VCT centre during the period from 2069 Jestha to Kartik month.

The research study was divided into two areas, Lamahi VCT in the east of district covering 11 VDC and Tulsipur VCT in west covering 28 VDC and two municipalities. The other NGOs working in the field of HIV/AIDS in Dang are District AIDS Co-ordination committee, INF Dang, FPAN, BDS Dang, ICH and NSARC.

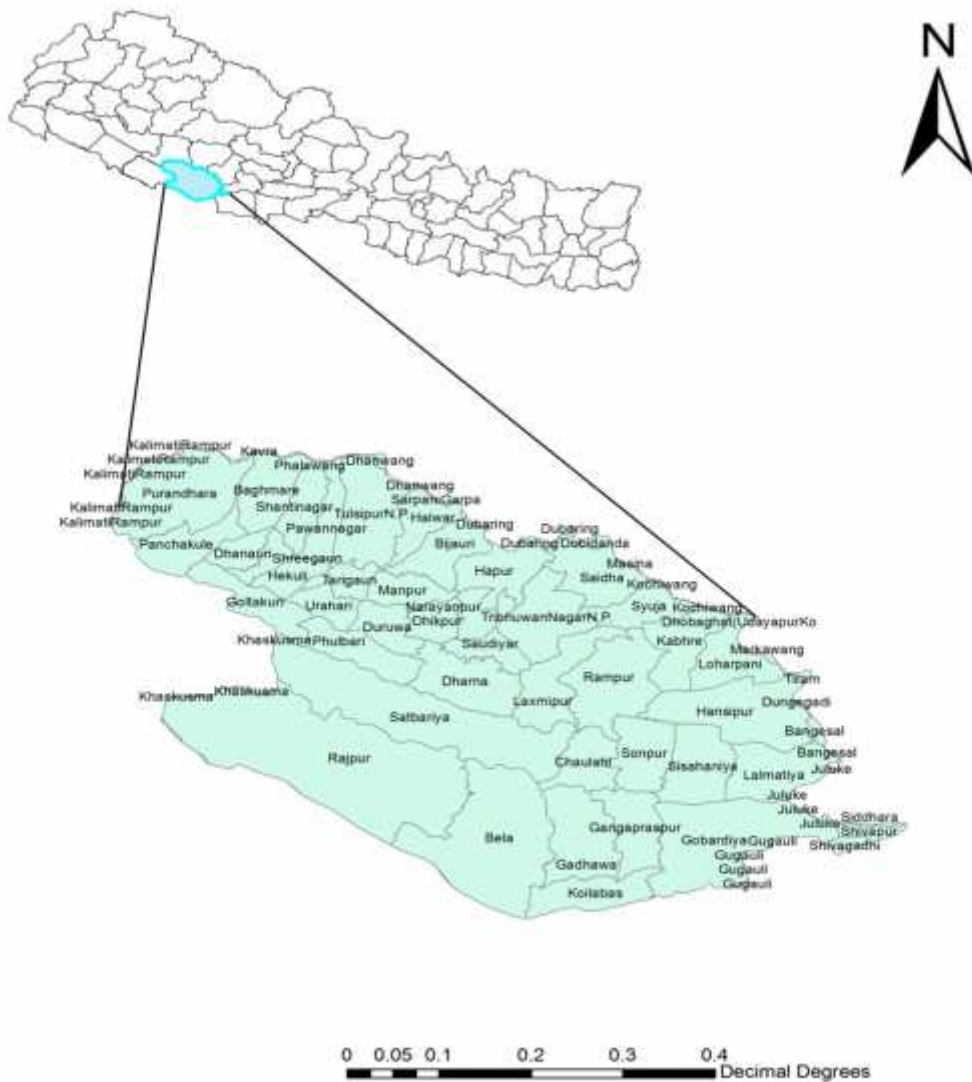


Fig1 : Study Area

### **3.2 Materials Used**

Since the study was based under laboratory examination, the materials used during the work has been listed below:

Centrifuge Machine	Cotton spirit
Blood lancet	Capillary tube
RDT kits	Buffer solution
Stop watch	Syringe
Test tube	Gloves and mask

### **3.3 Study design**

Purposive sampling method was used for the research study.

#### 3.3.1 Blood examination

#### 3.3.2 Questionnaire survey

##### **3.3.1 Blood Examination**

The blood examination consists of three parts. They are

1 Blood Collection

2 Lab Analysis

3 Post test counseling

##### **1. Blood collection**

The PE and OE were mobilized in the village level for HIV awareness regarding the importance of HIV test and STI treatment to all the people particularly focusing on migrants and their spouses. Awareness programmes related to HIV/AIDS to youth who were planning to go to foreign for employment were also done along with school children of secondary level students. Similarly regular mobile camps were also held by the organization focusing the remote and most at risk of HIV/AIDS exposure population. Two mobile camps were held during the field study (Photos 1-8). By the influence of PE and OE the respondents came to

VCT for HIV test and STI treatment. The respondents were categorized at the time of counseling. After obtaining an informed consent from the study participants, socio-demographic characteristics, sexual partners and sexual contacts, knowledge of STI and HIV/AIDS, and exposure to HIV related activities was administered by trained interviewers and counselors. To protect the anonymity of the respondents, neither their names nor their addresses were recorded anywhere. Instead, each participant was given a unique identification number. This same number was used to mark the questionnaire, medical records and blood sample of each participant. The blood collection was done by two methods, vein puncture and finger prick method. Ethical approval was obtained from Nepal Health Research Council and Central Department of Zoology Kathmandu for human subject protection.

## **2. Lab Analysis**

### **Vein puncture method**

After extracting about 2.5 ml. blood from vein, the blood was transferred to test tube and was centrifuged for 30 minutes. After centrifuge plasma and serum was separated and the serum was transferred by micropipette to RDT kits and buffer solution was added in the kit. After 15-60 minutes it gives result. If two bands appear in the kit it shows positive result and if only one band appears in the kit it shows negative result.

### **Finger prick method**

In this method first the finger was cleaned with cotton spirit and prick was made in the finger by using lancet. The blood was collected by capillary tube and then it was transferred to RDT kits. Buffer solution was added in the kit, after 15-60 minutes it gives result. If two bands appear in the kit, it shows positive result and if only one band appears it shows negative result.

The HIV antibody tests were performed using three different types of immunochromatography or Rapid kits that were recommended by the national HIV testing protocol and followed UNAIDS and WHO HIV Test Surveillance /Diagnosis Algorithm Strategy II. Determine HIV 1/2 Kits (Abott, Japan Co. Ltd) were used as the first line of screening test. Uni-Gold HIV 1/2 Kits (Trinty Biotech, Dublin, Ireland) were used as confirmatory test and

SD Bioline HIV 1/2test kits ( Standard Diagnostics Inc., Kyonggii-do South Korea) were used as tie- breaker for unresolved results from first line of screening and confirmatory tests.

### 3. Post test counseling

After lab analysis each participant were given result of the test by counselor with confidentiality. They were advised to follow up after three months if the performed test was the first one. Necessary information and advice was given regarding family planning, reproductive health and risks of HIV and sexual behaviour.

#### Some Photographs during the Field study



**Photo 1:** Mobile Camp



**Photo 2:** Awareness Programme in Mobile camp



**Photo 3:** Counseling with Participants

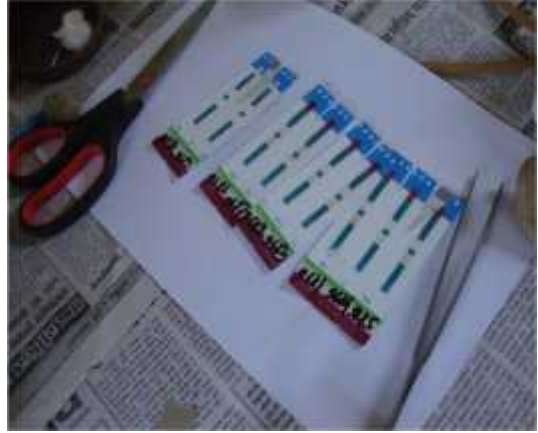


**Photo 4:** Blood extraction by Finger prick Method





**Photo 5:** Blood transferred to RDT kits



**Photo 6:** RDT kits



**Photo 7:** Participation in VACC meeting



**Photo 8:** Dang Plus (Coordinating Organization)

### **3.3.2 Questionnaire survey**

First the questionnaire was designed and the same questionnaires were discussed among friends and supervisor and necessary feedback was made and administered to participants of the research study. Questionnaires were done to 150 respondents during the field study at VCT centre and mobile camp programme.

Knowledge related whether participants have heard about HIV/AIDS or not, knowledge about VCT centre and their service, HIV testing, condom use, family planning, HIV transmission, misconception about HIV/AIDS, STI and their symptoms were administered to participants in questionnaire survey.

Attitude regarding their opinion towards HIV transmission, family planning methods, prevention of HIV/AIDS, treatment of HIV by medicine, people at risk of HIV/AIDS were administered to participants in questionnaire survey.

Practice regarding reason for testing, HIV test, their partner status, use of family planning methods, condom use, age of marriage, their spouse destination countries, their sexual relationship outside, experiencing STI symptoms, participation in HIV/AIDS awareness program were administered to participants in questionnaire survey.

### **3.4 Statistical Analysis**

Descriptive statistics were used to describe the socio-demographic characteristics of the respondents. The chi-square test was used to examine the relationship between categorical socio-demographic and outcome variables (knowledge, attitude and practices precautionary measures). Data analysis was conducted using the Statistical Package for Social Sciences (version 16) and MS Excel.

## 4. RESULTS

### 4.1 Prevalence of HIV/AIDS in Dang

A total of 1102 migrant population were selected in order to determine the prevalence of HIV/AIDS and to assess other demographic characteristics. Among the different age group 25-34 has the highest prevalence (0.3%), which is the most potential reproductive age group. Male are affected more (1.8%) in comparison to female (0.3%). HIV in different age and sex group was statistically significant ( $p < 0.05$ ) (Table 1).

**Table 1: Prevalence of HIV in different Age and Sex group**

Age category (Years)	Sex			HIV +ve	Total	HIV +ve	Chi-square	P
	Male	HIV +ve	Female					
1-17	6(2.7%)	1 (0.5%)	12(1.1%)	0	18 (1.6%)	1 (0.1%)	Chi-square for age group and Result	
18-24	69 (31%)	0	329 (29.9%)	0	398(36.1%)	0	12.541	0.014
25-34	99 (44%)	1 (0.5%)	383 (34.8%)	2 (0.2%)	482 (43.7%)	3 (0.3%)	Chi-square for sex and Result	
35-44	30 (2.7%)	1 (0.5%)	134 (12.2%)	1 (0.1%)	164 (14.9%)	2 (0.2%)	6.044	0.014
45-75	17 (1.5%)	1 (0.5%)	23 (2.1%)	0	40 (3.6%)	1 (0.1%)		
Total	221 (20.1%)	4 (1.8%)	881 (79.9%)	3 (0.3%)	1102	7 (0.64%)		

Prevalence of HIV in different marital status and sex group showed maximum among married population (0.36%) followed by male (1.8%) respectively. Marital status and sex group was statistically significant ( $p < 0.05$ ) (Table 2).

**Table 2: Prevalence of HIV in different Marital status and Sex group**

Marital status	Sex				Total	HIV +ve	Chi-square	P
	Male	HIV +ve	Female	HIV +ve				
Married	191 (17.3%)	3 (1.35%)	878(79.7%)	1 (0.11%)	1069 (97%)	4 (0.36%)	317.5	0.00
Unmarried	29 (2.6%)	1 (0.45%)	1 (0.1%)	0	30 (2.7%)	1 (0.09%)		
Widow	0	0	2 (0.2%)	2 (0.22%)	2 (0.2%)	2 (0.18%)		
Divorced	1 (0.1%)	0	0	0	1 (0.1%)	0		

Agriculture showed the dominant prevalence of HIV (0.36%) among occupation. Similarly male were more infected with HIV (0.9%) than female. Occupation and sex group was statistically significant ( $p < 0.05$ ) (Table3).

**Table 3: Prevalence of HIV in different Occupation and Sex group**

Occupation	Sex				Total	HIV +ve	Chi-square	P
	Male	HIV +ve	Female	HIV +ve				
Housewife	0	0	208 (18.9%)	1 (0.11%)	208 (18.9%)	1 (0.09%)	283.2	0.000
Agriculture	137(12.4%)	2 (0.9%)	648 (58.8%)	2 (0.22%)	785 (71.2%)	4(0.36%)		
Business	8 (0.7%)	1 (0.45%)	5 (0.5%)	0	13 (1.2%)	1 (0.09%)		
Job	38 (3.4%)	0	9 (0.8%)	0	47 (4.3%)	0		
Labor	23 (2.1%)	0	6 (0.5%)	0	29 (2.6%)	0		
Driver	5 (0.5%)	0	0	0	5 (0.5%)	0		
Student	8 (0.7%)	0	5 (0.5%)	0	13 (1.2%)	0		
Not applicable	2 (0.2%)	1 (0.45%)	0	0	2 (0.2%)	1 (0.09%)		
Total	221 (20.1%)	4 (1.8%)	881 (79.9%)	3 (0.34%)	1102	7 (0.64%)		

Prevalence of HIV among different risk group showed maximum among migrants (0.27%). Similarly migrant male (1.35%) showed maximum prevalence than female. Risk group and sex group was statistically significant ( $p < 0.05$ ) (Table 4).

**Table 4: Prevalence of HIV in different Risk group and Sex group**

Risk group	Sex				Total	HIV +ve	Chi-square	P
	Male	HIV +ve	Female	HIV +ve				
Migrant	215 (19.5%)	3 (1.35%)	6 (0.5%)	0	221 (20.1%)	3 (0.27%)	104.1	0.00
Spouse of migrant	4 (0.4%)	0	875 (79.4%)	3 (0.34%)	879 (79.8%)	3 (0.27%)		
MTCT	2 (0.2%)	1 (0.45%)	0	0	2 (0.2%)	1 (0.09%)		
Total	221 (20.1%)	4 (1.8%)	881 (79.9%)	3 (0.34%)	1102	7 (0.64%)		

#### 4.2 Socio-demographic characteristics among study participants

A total of 150 migrant population were surveyed by questionnaires method in order to assess KAP. Among them maximum participants were female (76%) compared to male (24%) while age wise distribution showed maximum among the age group 18-34 years. Age and sex wise distribution was not statistically significant ( $p > 0.05$ ) (Table 5).

**Table 5: Age and Sex wise distribution of participants**

Age category (Years)	Sex		Total
	Male	Female	
1-17	1 (0.7%)	2 (1.3%)	3 (2%)
18-24	17 (11.3%)	44 (29.3%)	61 (40.7%)
25-34	15 (10%)	47 (31.3%)	62 (41.3%)
35-44	3 (2%)	19 (12.7%)	22 (14.7%)
45-75	0	2 (1.3%)	2 (1.3%)
Total	36 (24%)	114 (76%)	150

Educational status of the respondent showed maximum among lower secondary level education (33.3%). Similarly the least was seen in Bachelor level (0.7%) while 6% respondent were uneducated. Educational status of respondent was not statistically significant ( $p > 0.05$ ) (Table 6).

**Table 6: Educational status of the respondent**

Education	Sex		Total
	Male	Female	
Primary	9 (6%)	31 (20.7%)	40 (26.7%)
Lower Secondary	7 (4.7%)	43 (28.7%)	50 (33.3%)
Secondary	14 (9.3%)	32 (21.3%)	46 (30.7%)
Higher secondary	3 (2%)	1 (0.7%)	4 (2.7%)
Bachelor	1 (0.7%)	0	1 (0.7%)
Uneducated	2 (1.3%)	7 (4.7%)	9 (6%)
Total	36 (24%)	114 (76%)	150

Marital status of respondent showed that maximum 93.3% were married. Among this figure 75.3% were female. Among them 6% were unmarried. Marital status and sex proportion was statistically significant ( $p < 0.05$ ) (Table 7).

**Table 7: Marital status and Sex proportion of the respondent**

Marital Status	Sex		Total
	Male	Female	
Married	27 (18%)	113 (75.3%)	140 (93.3%)
Unmarried	9 (6%)	0	9 (6%)
Widow	0	1 (0.7%)	1 (0.7%)
Total	36 (24%)	114 (76%)	150

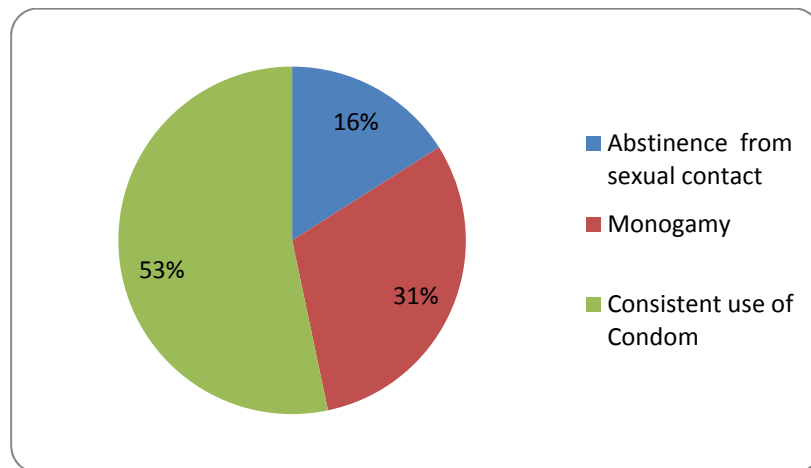
### 4.3 Analysis of KAP among study participants

#### 4.3.1 Knowledge about HIV/AIDS and VCT among study participants

1. A total of 150 migrant population were surveyed by questionnaires method in order to assess knowledge among study participants. 97.3% knew about VCT centre service

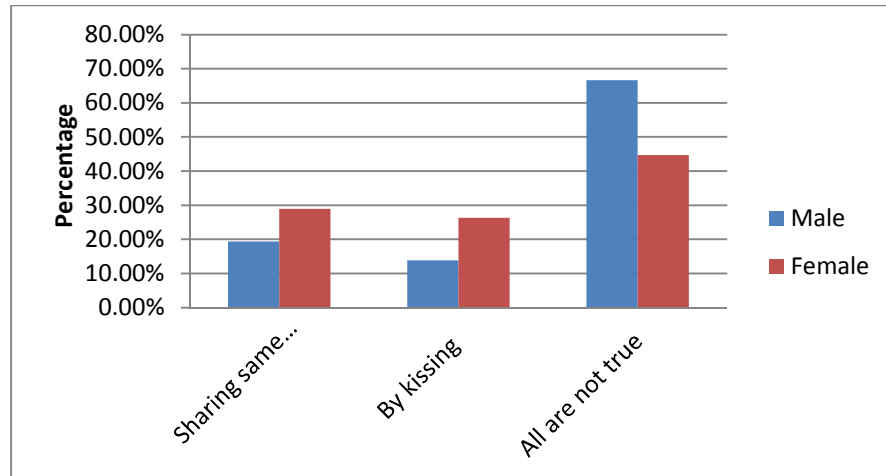
among study participants which was not statistically significant ( $p > 0.05$ ). Similarly 88% participants have learnt VCT centre service from referred PE/OE.

2. Almost all participants have heard about HIV/AIDS. 96% participants have knowledge about HIV testing. The maximum response was shown by male (100%) among sex group. Knowledge about HIV testing was not statistically significant ( $p > 0.05$ ).
3. Maximum respondent (97.3%) knew about family planning which was not statistically significant ( $p > 0.05$ ).
4. Almost all concluded that HIV/AIDS can be transmitted which was statistically significant ( $p < 0.05$ ). Similarly almost all have knowledge about STIs which was not statistically significant ( $p > 0.05$ ).
5. The maximum response showed consistent use of condom (53.3%). Knowledge about preventing HIV/AIDS was statistically significant ( $p < 0.05$ ) (Fig. 2).



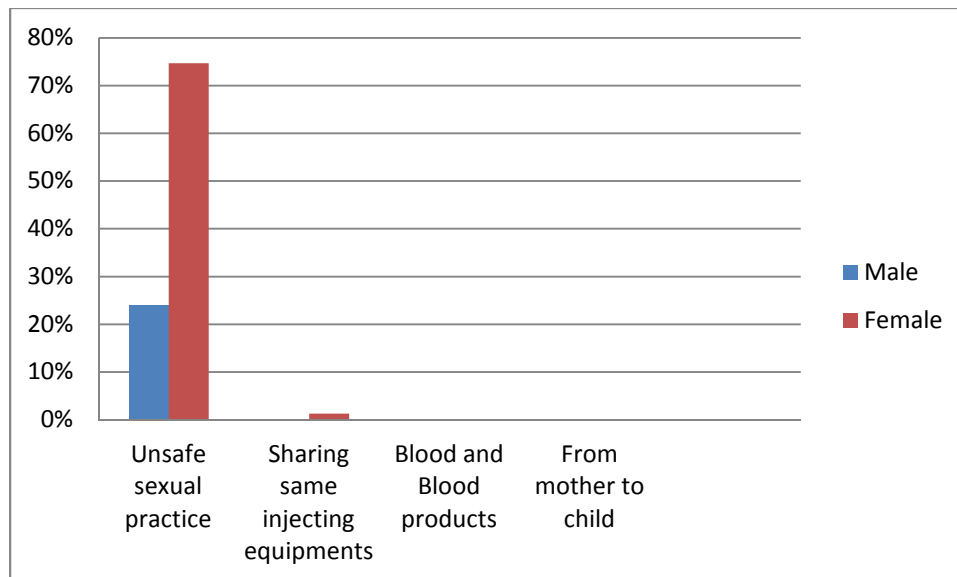
**Figure 2: Knowledge about preventing HIV/AIDS**

6. Misconception about transmission of HIV/AIDS showed maximum participants (50%) were aware of transmission of HIV/AIDS, however 26.7% showed response to sharing same utensil /toilet/ clothes /swimming pool and 23.3% showed response by kissing which was not statistically significant ( $p > 0.05$ ) (Fig.3)



**Figure 3: Misconception about transmission of HIV/AIDS**

7. Knowledge regarding major modes of transmission showed maximum (98.7%) through unsafe sexual practice and least 1.3% through sharing same injecting equipments which was not statistically significant ( $p > 0.05$ ) (Fig.4).



**Figure 4: Knowledge regarding major modes of transmission**

#### **4.3.2 Analysis of Attitude among study participants**

1. Maximum participants (70.7%) concluded that they were not sure that HIV/AIDS could be cured by continue medicine however it was statistically significant ( $p < 0.05$ ).



2. 90% participants concluded that sex with multiple partner was one of the risk of getting HIV/AIDS which was not statistically significant ( $p > 0.05$ ).

#### **4.3.3 Analysis of Practice among study participants**

1. Marital status and condom use of participants showed married population (53.3%) sometimes used condom in last 12 months, 10.7% never used condom, 15.3% were not sexually active in last 12 months and 14% used other method of contraception. Marital status and condom use among participants was not statistically significant ( $p > 0.05$ ) (Table 8).

**Table 8: Marital status and condom use among study participants**

Marital Status	Condom use in last 12 months				Total
	Never	Sometimes	Not sexually active in last 12 months	Other method of contraception	
Married	16 (10.7%)	80 (53.3%)	23 (15.3%)	21 (14%)	140(93.3%)
Unmarried	1 (0.7%)	5 (3.3%)	3 (2%)	0	9 (6%)
Widow	0	0	1 (0.7%)	0	1 (0.7%)
Total	17 (11.3%)	85 (56.7%)	27 (18%)	21 (14%)	150

2. Target group and condom use of participants showed 38% Spouse of migrants used condom sometimes in last 12 months, 18.7% migrant used condom sometimes in last 12 months. Similarly 4% migrant and 7.3% spouse of migrant never used condom in last 12 months. Target group and condom use among participant was statistically significant ( $p < 0.05$ ) (Table 9).

**Table 9: Target group and condom use among study participants**

Target group	Condom use in last 12 months				Total
	Never	Sometimes	Not sexually active in last 12 months	Other method of contraception	
Migrant	6 (4%)	28(18.7%)	3 (2%)	3 (2%)	40(26.7%)
Spouse of migrant	11(7.3%)	57 (38 %)	24 (16%)	18 (12%)	110(73.3%)
Total	17 (11.3%)	85 (56.7%)	27 (18%)	21 (14%)	150

3. Occupation and condom use among participants showed that 34% agriculture occupation people used condom sometimes in last 12 months. Occupation and condom use among participants was not statistically significant ( $p > 0.05$ ) (Table 10).

**Table 10: Occupation and condom use among study participants**

Occupation	Condom use in last 12 months				Total
	Never	Sometimes	Not sexually active in last 12 months	Other method of contraception	
Housewife	10 (6.7%)	22(14.7%)	6 (4%)	7 (4.7%)	45(30%)
Agriculture	5 (3.3%)	51 (34 %)	18 (12%)	14 (9.3%)	88(58.7%)
Business	0	2 (1.3%)	0	0	2 (1.3%)
Job	0	4 (2.7%)	1 (0.7%)	0	5 (3.3%)
Labour	2 (1.3%)	1 (0.7%)	1 (0.7%)	0	4 (2.7%)
Driver	0	2 (1.3%)	0	0	2 (1.3%)
Student	0	3 (2%)	1 (0.7%)	0	4 (2.7%)
Total	17 (11.3%)	85 (56.7%)	27 (18%)	21 (14%)	150

4. Educational level and condom use among participants showed that maximum (21.3%) lower secondary attained participants sometimes used condom in the last 12 months, 4.7% primary and lower secondary attained participants used other method of contraception. Similarly 6% primary level attained participants never used condom in last 12 months, 6% lower secondary and secondary level participants were not sexually active in last 12 months. Educational level and condom use among participants was statistically significant ( $p < 0.05$ ) (Table 11).

**Table 11: Educational level and condom use among study participants**

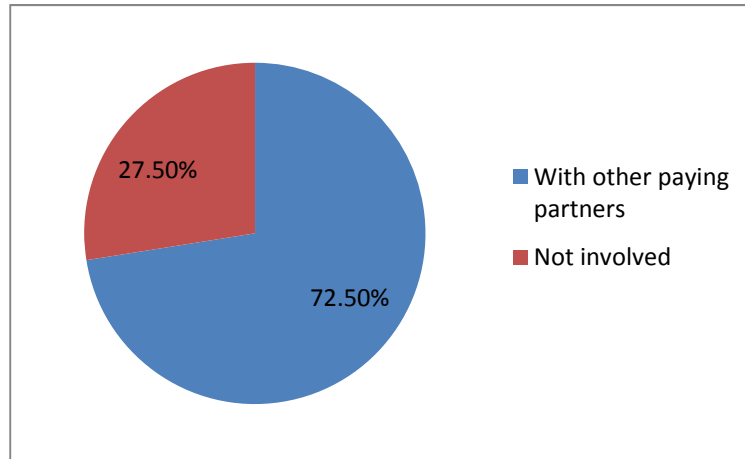
Education	Condom use in last 12 months				Total
	Never	Sometimes	Not sexually active in last 12 months	Other method of contraception	
Primary	9 (6%)	17 (11.3%)	7 (4.7%)	7 (4.7%)	40(26.7%)
Lower secondary	2(1.3%)	32 (21.3%)	9 (6%)	7 (4.7%)	50 (33.3%)
Secondary	6 (4%)	29(19.3%)	9 (6%)	2 (1.3%)	46 (30.7)
Higher secondary	0	4 (2.7%)	0	0	4 (2.7%)
Bachelor	0	1 (0.7%)	0	0	1 (0.7%)
Uneducated	0	2 (1.3%)	2 (1.3%)	5 (3.3%)	2 (1.3%)
Total	17 (11.3%)	85 (56.7%)	27 (18%)	21 (14%)	9 (6%)

5. Sexual relationship and marital status among participants showed 16% married people had sexual relationship with other paying partners. Similarly 76.7% were not involved in sexual relationship outside. On the other hand 4% unmarried people had sexual relationship with other paying partners. Sexual relationship and marital status was statistically significant ( $p < 0.05$ ) (Table 12).

**Table 12: Sexual relationship and Marital status among study participants**

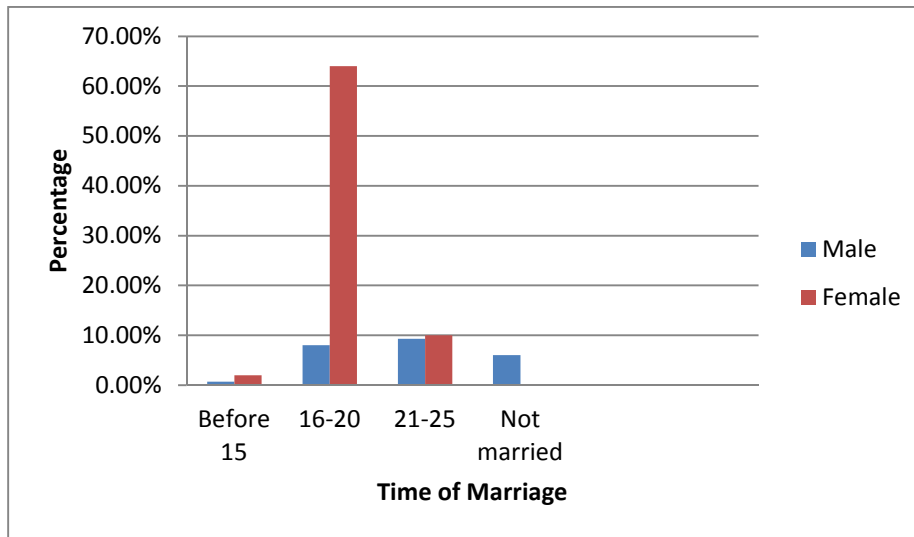
Have you had sexual relationship outside?	Marital status			Total
	Married	Unmarried	widow	
With other paying partners	24 (16%)	6 (4%)	0	30 (20%)
With other male partners	1 (0.7%)	0	0	1 (0.7%)
Not involved	115 (76.7%)	3 (2%)	1 (0.7)	119 (79.3%)
Total	140 (93.3%)	9 (6%)	1 (0.7%)	150

6. Migrants and their sexual relationship showed 72.5% participant had sexual relationship with other paying partners while 27.5% are not involved in sexual relationship outside which was statistically significant ( $p < 0.05$ ) (Fig.5).



**Figure 5: Migrants and Sexual relationship**

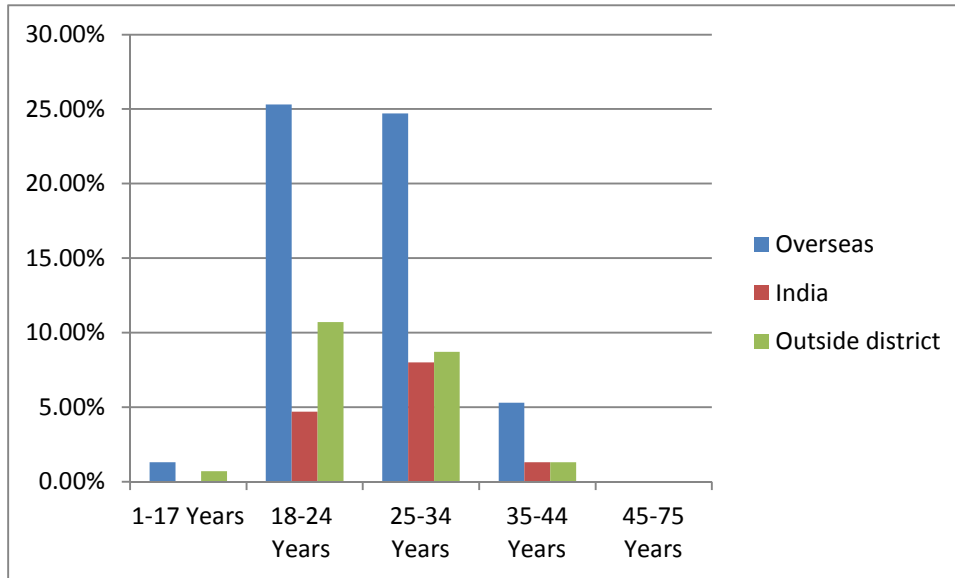
7. Age and marriage of respondent showed maximum (64%) marriage at the age of 16-20 and least at the age before 15. Age and marriage of respondent was statistically significant ( $p < 0.05$ ) (Fig.6).



**Figure 6: Age and marriage of respondent**

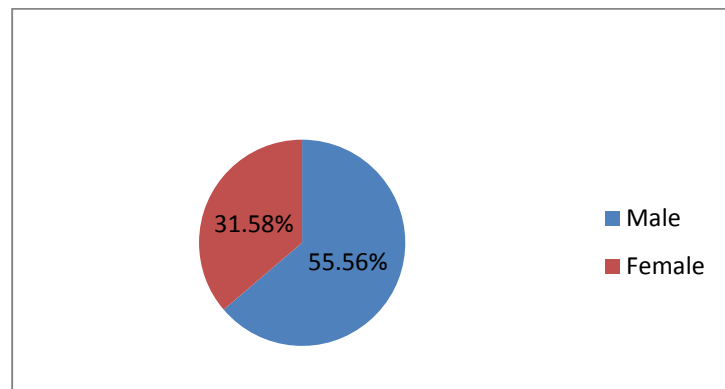
8. Maximum 25.3% had gone to overseas countries of the age group 18-24, maximum 10.7% to outside of district of age category 18-24 and maximum 8% had gone to India of age

category 18-34. Respondent and their spouse country was statistically significant ( $p < 0.05$ ) (Fig.7).



**Figure 7: Respondent and their spouse country**

9. Male (55.56%) have already participated in HIV/AIDS awareness program in comparison to female (31.58%). Participation in HIV awareness programme among participants was statistically significant ( $p < 0.05$ ) (Fig. 8).



**Figure 8: Participation in HIV awareness programme**

**10.** Reason for HIV testing among participants showed maximum (66%) to STI which was statistically significant ( $p < 0.05$ ). Similarly maximum participants (98.7%) have heard about condom. 67.3% married people were suffering from STI symptoms which was statistically significant ( $p < 0.05$ ). Level of education and HIV testing among participants showed least people (16%) had an HIV test before and among tested secondary level participants were more tested (6.7%). Level of education and HIV testing among participants was not statistically significant ( $p < 0.05$ ).

## 5. DISCUSSION

A total of 1,102 migrant population were selected in order to determine the prevalence of HIV/AIDS and to assess other demographic characteristics. The highest prevalence was found in the age group 25-34 which was similar to the findings of Iredale et al. (2005) that reported more than 80% HIV positive population between age group 20-39. A study in Dang (DACC, Dang 2012) recorded that male were infected more than female, that was similar to the present study in which males are affected more (1.8%). Nepal is an agricultural country and most of people depend on agriculture for their livelihood, the present study also found agriculture as the main occupation having high prevalence of HIV (0.36%). Prevalence of HIV in different risk group was higher among migrants (0.27%) than others. This result was similar to many research reports which showed that HIV prevalence was higher among migrants than non migrants (2%) (Poudel 2001, FHI 1999). A study done among Nepalese migrant workers working in Nepal and Indian cities by Gurubacharya and Gurubacharya (2004) showed HIV prevalence of 2.3% among migrants with in Nepal and 8.5% among migrants to India which was higher than the prevalence of present study because of more number of migrants population than the present study and lower to the study of FHI, New Era and SACTS (2000) (17%) and FHI, New Era and SACTS (2001) (16%).

Age and sex wise distribution of participants showed maximum participants were female (76%) compared to male (24%) and among the age group 18-34 years which was higher than the study done in Kanchanpur district by Sharma (2005) in which females were 60%. The highest prevalence of female in the present study might be due to the fact that female were eager to know about HIV/AIDS. The prevalence of present study was higher as obtained by Bartoula (2004) but less than as obtained by He et al. (2009).

Educational status of the respondents showed maximum (94%) participants were literate which was almost similar to the study done by Thapa (2003) (88%). Among the sex group male were more literate (94.44%) than female (93.85%) which was also similar (100%) to the study done by Sharma (2005). The present study regarding the educational status among male and female participants was higher than the earlier studies (Bartoula 2004 (52.5%),

Ghimire 2004 (54.5%), Chaudhari 2005 (56%), Rayamajhi 2001 (36.93%) and He et al. 2009 (70%). High literacy rate of participants in the present study reveals that the participants were aware about the knowledge of HIV/AIDS.

Marital status and sex proportion of the respondent showed maximum 93.3% were married and among them married females were more in number (75.3%) which was similar to the previous studies (Ghimire 2004 (78%), Rai 2005 (83%) Sharma 2005 (86.67%) and He et al. 2009 (62.5%)). The highest prevalence of married female in present study might be due to the fact that their males worked some where outside the country.

In the present study 97.3% knew about VCT centre service which was higher than the study done by He et al. (2009) (46.5%). Maximum (100%) of the participants have heard about HIV/AIDS which were higher than the earlier studies (UNICEF 2001, Thapa 2003, Shah 2003, Bartoula 2004, Bhusal 2005, K.C. 2004, Ghimire 2004, Karki 2005, Rai 2005, Chaudhari 2005 and Rayamajhi 2000). The main sources of information in their findings were found to be Radio, TV, health workers which were similar to the findings of present study. The present study was based upon HIV testing and 96% participants have knowledge about HIV testing which was not found in the findings of other studies.

In the present study 97.3% participants knew about family planning which was higher than the findings done by Bartoula (2004) (52.8%). The knowledge about STI was maximum (99.3%) among the participants in the present study which was higher than the previous findings (Shah 2003 (92.5%), Bartoula 2004 (71.7%), K.C. 2004 (72.4%), Karki 2005 (73.35%), Rai 2005 (97%), and Chaudhari 2005 (50%)). This high prevalence about the STI is probably due to high literacy rate among the participants. Knowledge about preventing HIV/AIDS through use of condom (53.3%) was similar to the study done by Nepal Demographic Health survey (51%).

Misconception about transmission of HIV/AIDS showed maximum (50%) participants were aware of transmission of HIV/AIDS which was similar (50%) to the result of KAP study done by Thu et al. (2004). The present findings was higher than earlier studies (Shah 2003 (8%), Rayamajhi 2000 (20%) and He et al 2009 (30%)). The present study showed that 90% of the respondents knew about the transmission of HIV/AIDS through sex with multiple



partners and 98.7% through unsafe sexual practices. This study was higher than the earlier studies (Thapa 2003 (90.8%), Shah 2003 (92.5%), Bartoula 2004 (81.5%), K.C. 2004 (63.8%), Karki 2005 (41.18%), Sharma 2005(93.33%) and Chaudhari 2005 (69.2%)). The study done by He et al. (2009) showed 83.4% HIV/AIDS can be transmitted through pregnant mother to child. This study was far different in relation to the present study.

Analysis of attitude among participants showed that 70.7% participants concluded that they were not sure that HIV/AIDS could be cured by continuous medicine. In contrast to the present findings study conducted by Bhusal (2005) showed 96.4% concluded that HIV/AIDS cannot be cured by continue medicine which signifies good knowledge on HIV/AIDS than present study findings. Maximum response was shown in not curable by the findings of Ghimire (2004) (56.7%) and Karki (2005) (68.42%) which was higher than the present findings (29.3%). A study done by He et al. (2009) showed 46% participants response towards curable which was higher than the present study.

While comparing about marital status and condom use among the participants 53.3% married population sometimes used condom and 10.7% never used condom. This prevalence was higher as obtained by He et al. (2009), K.C. (2004) and Karki (2005) but lower than the study done by UNICEF (2001). In the present study 18.7% migrants and 34% agricultural occupation people used condom in the last 12 months. The earlier study (18.7%) was similar to the findings of He et al. (2009) (19%) and the latter study (34%) was higher than the findings of Chaudhari (2005) (29%).

Educational level and condom use among participants was statistically significant in the present study which was similar to the KAP study done in Cyprus by Kouta et al. (2013); however Thu et al. (2004) showed insignificant association between knowledge and condom use. Educational level and condom use among participants showed maximum (21.3%) lower secondary attained participants used condom in the last 12 months which was different in the study of Bartoula (2004), showed primary level attained respondents (65.9%) used condom in last 12 months. Similarly literacy status and condom use was higher (29%) in the study done by Chaudhari (2005) among males who were ever emigrant workers.

Sexual relationship and marital status among participants showed 16% married people had sexual relationship outside with other paying partners which was almost similar (18.6%) to the study done by Thapa (2003) but higher than the study done Bartoula (2004) (12.5%), Chaudhari (2005) (13%) and lower than the study of Ghimire (2004) (28%). The present study showed 72.5% of migrants involved in sexual relationship with other paying partners which was higher than the previous studies (Gurubacharya and Gurubacharya 2004 (60%) and Thapa 2003 (32.8%)). These result shows migrants are more vulnerable to HIV infection than others.

Age and marriage of respondent showed maximum marriage (64%) at the age of 16-20 years in the present study which was similar to the findings of Bartoula (2004) in which age was 16-19 years (68.75%), 15-20 years in the findings of Thapa (2003) and 15-19 years in the findings of Rai (2005). Age and marriage of respondent was maximum in the age of 20-25 years (67.3%) in the findings of Ghimire (2004) which was different from the findings of present study. In the present study maximum respondent (25.3%) had gone to overseas which was different from the study done by Sharma (2005) in which 60% respondent had gone to India.

Male were more participated (55.56%) than female (31.58%) in HIV/AIDS awareness program which was higher than the findings of Thapa (2003) in which participation of male in HIV awareness programme was 20%. Maximum (98.7%) participants have heard about condom in the present study which was almost equal to the earlier studies (K.C. 2004 (98.3%), Chaudhari 2005 (99%), Rai 2005 (97.9%)) and higher than the findings of Bartoula (2004) (74.2%) and Karki (2005) (90%).

In the present study maximum (67.3%) married people were suffering from STI symptoms which was higher than the previous findings (Thapa 2003 (4.16%), Shah 2003 (25.1%), K.C. 2004 (3.4%) and Karki 2005 (5.54%) which indicates that they are more prone to STI infections and HIV/AIDS. In the present study 16 % people had an HIV test before which was higher than the study done by He et al. (2009) (2.3%). This indicates that there is more practice of HIV test in the present study.

## 6. CONCLUSION AND RECOMMENDATIONS

A total of 1102 migrant population were selected during the six months in order to determine the prevalence of HIV/AIDS. The prevalence was 0.64% among the migrant population. Among the different age group 25-34 has the highest prevalence (0.3%), males were affected more (1.8%) in comparison to female (0.3%). Prevalence of HIV was seen maximum (0.36%) among the married population and among occupational wise was seen in agriculture (0.36%). Migrant and spouse of migrant have the same prevalence (0.27%) of HIV infection among the different risk group.

Among the 150 study participants maximum respondents were among the age group 18-34. Educational status of the respondent was maximum (33.3%) in lower secondary level. Maximum (93.3%) of the participants were married. 97.3% knew about VCT centre service and 88% have learnt VCT centre service from referred PE/OE. Most (96%) of the participants have knowledge about HIV testing. Knowledge about family planning and HIV transmission was also satisfactory among the participants. Knowledge about prevention of HIV/AIDS was statistically significant. Misconceptions about transmission of HIV/AIDS showed maximum (50%) participants were aware of transmission of HIV/AIDS. Almost all concluded unsafe sexual contact as the major modes of transmission of HIV.

Maximum participants concluded that they were not sure that HIV/AIDS could be cured by continue medicine and 90% concluded that sex with multiple partner was one of the risk of getting HIV/AIDS. Marital status and condom use among participants showed 53.3% sometimes used condom, 10.7% never used condom, 15% were not sexually active, and 14% used other method of contraception during the last 12 months. Similarly among the target group 38% spouse of migrants, 18.7% migrant used condom sometimes and 4% migrant, 7.3% spouse of migrants never used condom in the last 12 months. Educational level and condom use among participants was statistically significant. 16% of the married participants were involved in sexual relationship with other paying partners which indicates the risk of HIV transmission to their spouses. Maximum of the participants were not involved in sexual relationship outside. Among the target group 72.5% of migrants were involved in sexual

relationship with other paying partners. Maximum of the participant's marriage age was between 16-20 and overseas countries were the main destination (25.3%) and 18-24 was the highest age group for employment among the study participants. Participation in HIV awareness program was found to be higher in male (55.56%) than female (31.58%). STI was the main reason for HIV testing and least people had an HIV test before and secondary level participants had HIV test more than other educational level participants.

Based on the findings of the study following are the recommendations

1. Knowledge regarding HIV/AIDS, transmission, prevention, family planning methods, VCT centre and the importance of HIV testing should be raised by different programmes in all the village level.
2. The public awareness programmes should be raised to all the youths who are planning to go to foreign country.
3. The I.E.C. programmes should be actively mobilized from governmental levels.
4. There is less habit of condom use among people so consistent use of condom among people reduces the risk of HIV infection and STIs.
5. Regular HIV test must be done compulsory to all the migrant population as they are more vulnerable to HIV infection.

## 7. REFERENCES

Bartoula, K. 2004. Impact of mass media on Knowledge of HIV/AIDS and STDs among migrant female carpet workers: a study of Kathmandu valley. M.A. Thesis. Central Department of Population Studies, Tribhuvan University, Kathmandu, Nepal.

Bhusal, H.N. 2005. Knowledge, Attitude and Behaviour on STDs and HIV/AIDS among Secondary level school students: a case study of some selected secondary school in Eastern part of Nawalparasi district. M.A. Thesis. Central Department of Population Studies, Tribhuvan University, Kathmandu, Nepal.

Bruce, F., Richard, P.H. and Pamela, C.C. 2007. Lippincott's Illustrated Reviews: Microbiology 2<sup>nd</sup> ed. Williams and Wikkins, 233 p.

Centre for Disease Control and Prevention (CDC). 2010. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data United States and Six U.S. dependent areas. HIV Surveillance Supplemental Report 2012. **17**(3 A).

Chan, D.C., Fass, D., Berger, J.M. and Kim, P.S. 1997. Core structure of gp41 from the HIV envelope glycoprotein. *Cell* **89**(2): 263-273.

Chaudhari, S.K. 2005. Knowledge, Attitude and Behaviour towards sexually transmitted disease, HIV/AIDS and use of condom among males who were ever emigrant workers: a case study of some V.D.Cs. of Saptari district. M.A. Thesis. Central Department of Population Studies, Tribhuvan University, Kathmandu, Nepal.

DACC. 2012. District AIDS Profile, Government of Nepal. District AIDS Co-ordination Committee, Dang.

DOHS. 2012. Annual Report 2067/68 (2010/2011). Department of Health Services, Ministry of Health and Population, Kathmandu, Nepal.

Donald, A.M. 2012. HIV, viral Hepatitis and sexually transmissible infections in Australia Annual Surveillance Report, Australia.

Douek, D.C., Raedeveer, M. and Koup, R.A. 2009. Emerging concepts in the immunopathogenesis of AIDS. *Annual Revised Medicine* **60**: 471-484.

ECDC. 2009. Migrant health: Epidemiology of HIV and AIDS in migrant communities and ethnic minorities in EU/EEA countries, European Centre for Disease Prevention and Control, Stockholm.

ECDC. 2010. Migrant health: HIV testing and counseling in migrant population and ethnic minorities in EU/EEA/EFTA member states, European Centre for Disease Prevention and Control. Stockholm.

Family Health International and New Era. 2001. A study in Prevalence and risk factors among migrant and non migrants of Kailai district. FHI and New Era, Kathmandu, Nepal.

Family Health International. 1999. STD and HIV prevalence survey among female sex workers and truckers on highway routes in the Terai. FHI, Kathmandu, Nepal.

Family Health International, New Era and STD/AIDS Counseling and Training Services. 2000. Kathmandu female sex workers seroprevalence study. FHI, New Era and SACTS, Kathmandu, Nepal.

Family Health International, New Era and STD/AIDS Counseling and Training Services. 2001. Kathmandu female sex workers seroprevalence study. FHI, New Era and SACTS, Kathmandu, Nepal.

Ghimire, G. 2004. HIV/AIDS awareness among Rickshaw pullers of Bharatpur municipality, Chitwan. M.A. Thesis. Central Department of Rural Development, Tribhuvan University, Kathmandu, Nepal.

Gilbert, P.B., McKeague, I.W., Eisen, G., Mullins, C., Gueye-Ndiaye, A, Mboup, S. et al. 2003. Comparison of HIV-1 and HIV-2 infectivity from a prospective cohort study in Senegal. *Statistics in Medicine* **22**(4): 573-593

Gurubacharya, D.L. and Gurubacharya, V.L. 2004. HIV prevalence among Nepalese migrant workers working in Nepal and Indian cities. *Journal of Nepal Medical Association* **43**: 178-181

He, N., Zhang, J., Yao, J., Tian, X., Zhao, G., Jiung, Q. et al. 2009. Knowledge, Attitude and Practices of Voluntary HIV counseling and Testing among rural migrants in Shanghai, China. *AIDS Education and Prevention* **21**(6): 570-581.

Hesketh, T., Li, L., Ye, X., Wang, H., Jiang, M. and Tomkins, A. 2006. HIV and syphilis in migrant workers in Eastern China. *National Institute of Health* **82**(1): 11-14.

International AIDS Alliance of Ukraine. 2009. Behaviour related to commercial sex and the transmission of HIV among sex workers and their clients. [http://www.aidsalliance.org.ua/ru/library/our/monitoring/pdf/clients\\_books09.pdf](http://www.aidsalliance.org.ua/ru/library/our/monitoring/pdf/clients_books09.pdf), accessed on 10 September, 2011.

Iredale, R., Zhenzhen, Z. and Ko, S.H. 2005. The vulnerability of Migrants to HIV/AIDS in China and Mongolia. *Chinise Journal of STD/AIDS Prevention and Control* **6**: 348-354

Jansen, I. 2010. Increasing trend in HIV-1 incidence among young men who have sex with men in Amsterdam: a 25 year prospective cohort study. The Seventeenth Conference on Retroviruses and Opportunistic Infections, San Francisco, California, U.S.A. Feb. 16-19.

K.C., S. 2004. Women's Knowledge and Practice on STDs and HIV/AIDS in Birendranagar, Municipality . M.Ed. Thesis. Health, Physical and population Education Department, Tribhuvan University, Kathmandu, Nepal.

Karki, L.B. 2005. Knowledge and Attitude on STDs and HIV/AIDS among Rickshaw pullers: a case study of Damak Municipality, Jhapa. M.A. Thesis. Central Department of Population Studies, Tribhuvan University, Kathmandu, Nepal.

Kouta, C., Phellas, C. and Charis, K. 2013. Knowledge Attitude and Perceptions of immigrants from third countries in Cyprus, on HIV/AIDS and sexual reproductive health. The implications of Nursing Ethics to Healthcare. *Health Science Journal* **7**(3): 258-268.

Kuiken, C., Foley, B., Max, P., Wolinsky, S., Leitner, T., Korber, B. et al. 2008. HIV Sequence Compendium. *Theoretical Biology and Biophysics*. Los Alamos, New Mexico. U.S.A.

McGovern, S.L., Caselli, E., Grigorieff, N. and Shoichet, B.K. 2002. A common mechanism underlying promiscuous inhibitors from virtual and high-throughput screening. *Journal of Medical Chemistry* **45**(8): 1712–1722.

National AIDS Control Organization. 2006. HIV/AIDS Epidemiological Surveillance and Estimation Report for the Year 2005. Ministry of Health and Family Welfare, New Delhi, India.

National Centre for AIDS and STD Control. 2003. National HIV/AIDS strategy (2002-2006). Ministry of Health, Kathmandu, Nepal.

National Centre for AIDS and STD Control. 2010. Department of Health Services. Ministry of Health and Population, Kathmandu, Nepal.

National Centre for AIDS and STD Control. 2012. Department of Health Services. Ministry of Health and Population, Kathmandu, Nepal.

Nepal Family Health Survey. 2001. Family Health Division. Department of Health Services, Ministry of Health and Population, Kathmandu, Nepal.

Nepal, B. 2007. Population mobility and spread of HIV across the Indo-Nepal border. National centre for social and Economic Modelling, University of Canberra, Australia.

New ERA and STD/AIDS Counselling and Training Services. 2008. Integrated Biological and Behavioural Surveillance Survey among Male Labour Migrants in 11 Districts in Western and Mid to Far-Western Regions of Nepal, Round II.

Pkhakadze, G. 2001. Poverty migration and HIV/AIDS in Dadeldhura District. M.P.H. Thesis. Department of Community medicine and Family Health Maharajgunj Campus, Institute of Medicine, Tribhuvan University, Kathmandu, Nepal.

Poudel, K.C. 2001. HIV/STIs risk behaviours among migrants and non-migrants in Doti district. A report submitted to Japan International cooperation Agency (JICA), Kathmandu, Nepal.



Poudel, K.C., Tandukar, K and Jimba, M. 2006. HIV/AIDS Vulnerability of Nepali Migrants to India: Whose Concern? *The Lancet* **368**

Rai, R.K. 2005. Knowledge and Behaviour of STDs and HIV/AIDS among minibus drivers: a case study of Kathmandu Metropolitan city. M.A. Thesis. Central Department of Population Studies, Tribhuvan University, Kathmandu, Nepal.

Rayamajhi, S.B. 2000. A case study on HIV/AIDS awareness of Badi commercial sex workers at Chandani Chowk community in Bardiya district. M.A. Thesis. Patan Multiple Campus, Tribhuvan University, Lalitpur, Nepal.

Reeves, J.D. and Doms, R.W. 2002. Human Immunodeficiency Virus Type 2. *Journal of General Virology* **83**(6): 1253-1265.

Saonuan, P. 2012. Policy initiatives and proposed action for HIV/AIDS and mobility. National AIDS management centre (NAMC), MOPH, Thailand.

Shah, N.J. 2003. Knowledge, Attitude and Practices on HIV/AIDS /STI among FSWs working in Makwanpur, Bara and Parsa highway routes: M.A. Thesis. Patan Multiple Campus, Tribhuvan University, Lalitpur, Nepal.

Sharma, A.N. 2005. AIDS in the Far west region of Nepal: a case study of cause and effect relationship of HIV/AIDS in Kanchanpur district. M.A. Thesis. Central Department of Population Studies, Tribhuvan University, Kathmandu, Nepal.

Sheng, L. and Cao, W. 2008. HIV/AIDS epidemiology and prevention in China. *Chinese Medical Journal* **121**(13): 1230-1236.

Silverman, J.G., Decker, M.R, and Gupta J. 2007. HIV Prevalence and Predictors of Infection in Sex Trafficked Nepalese Girls and Women. *Journal of American Medical Association* **298**(5): 536-542.

STD/AIDS Counselling and Training Services and Family Health International. 2002. STD/HIV Prevalence among FSWs in Kathmandu. SACTS and FHI, Kathmandu, Nepal.

Thapa, N. 2003. Knowledge, Attitude and Behaviour about STDs and HIV/AIDS of Far Eastern male returnee workers of seasonal emigrants to India: a case study of emigrants of Kanchanpur and Kailali boarder. M.A. Thesis. Central Department of Population Studies, Tribhuvan University, Kathmandu, Nepal.

The World Bank. 2008. HIV/AIDS in Nepal.

Thu, M., Kyu, H.H. and Putten, M.V. 2004. Knowledge Attitude and Practices on HIV/AIDS present among Myanmar migrant in Maha Chai, Samut Sukhon Province, Thailand. Faculty of Nursing Science, Assumption University, Bangkok, Thailand.

Tucker, J.D., Hendersona, G.E. and Wang, T.F. 2005. Surplus men, sex work, and the spread of HIV in China. *AIDS* **19**: 539-547.

UNAIDS. 2002. Report on the global HIV/AIDS epidemic. Geneva.

UNAIDS. 2003. A Joint Assessment of HIV/AIDS Prevention, Treatment and Care in China, by China Ministry of Health and UN Theme Group on HIV/AIDS in China.

UNAIDS. 2006. UNGASS Country Progress Report. China.

UNAIDS. 2006. Report on the global AIDS epidemic. Geneva.

UNAIDS. 2007. Annual Report. Knowing your epidemic. Geneva.

UNAIDS. 2008. UNGASS Country Progress Report: Bangladesh.

UNAIDS. 2008. UNGASS Country Progress Report: Nepal.

UNAIDS. 2008. Country Situation. India.

UNAIDS. 2010. UNAIDS report on the global AIDS epidemic.

UNAIDS. 2012. Core slides: Global Summary of the AIDS epidemic. Joint United Nations Programme on HIV/AIDS, Geneva, Switzerland.

UNAIDS. 2012. Report on the global AIDS epidemic. Joint United Nations Programme on HIV/AIDS, Geneva, Switzerland.

UNAIDS. 2012. World AIDS Day Report Result. Joint United Nations Programme on HIV/AIDS, Geneva, Switzerland.

UNICEF. 2001. A survey of teenagers in Nepal for life skills development and HIV/AIDS prevention. United Nation Children's Fund. Kathmandu, Nepal.

United Nations General Assembly Special Session on AIDS. 2010. Country Progress Report. Government of Bangladesh.

United Nations General Assembly Special Session on AIDS. 2010. Country Progress Report. Government of Nepal.

V.D.C. and Demographic profile of Nepal. 2013. A Socioeconomic Development Database of Nepal. Megapublication and Research Centre, Kathmandu, Nepal. 819 p.

Vaidya, N.K. and Jianhong, W. 2011. HIV epidemic in far western Nepal: effect of seasonal labour migration to India. *Journal of Biomedical Central Public Health* **11**: 1-11.

Wasti, P.S., Simkhada, P., Randall, J. and Teijlingen, V.E. 2009. Issues and Challenges of HIV/ AIDS Prevention and Treatment Programme in Nepal. *Global Journal of Health Science* **1**(2).

WHO. 2011. HIV AIDS situation in Europe. Facts and Figures. World Health Organization, Geneva.

WHO/UNAIDS/UNICEF. 2011. Global HIV/AIDS Response. Geneva.

WHO/UNAIDS/UNICEF. 2012. Global HIV/AIDS Response. Geneva.

World Bank and UNAIDS. 2009. 20 Years of HIV in Bangladesh: Experiences and Way Forward. Washington, D.C., U.S.A.

# APPENDIX 1

## Informed Verbal Consent Form

An Epidemiological study of HIV/AIDS on migrants people in Dang district

Central Department of Zoology, Tribhuvan University

Kirtipur, Kathmandu

**Namaste!**

My name is Karna Bahadur Oli. I am from T.U. CDZ to collect data for a research study. During this data collection I will ask you some personal questions that will be about knowledge on HIV/AIDS and sexual behavior. The information given by you will be strictly treated as confidential. Nobody will know whatever we talk about because your name will not be mentioned on this form. All the mentioned information will be used only for study purpose. This survey will take about 20-30 minutes.

It depends on your wish to participate in this survey or not. You don't have to answer those questions that you do not want to answer, and you may end this interview at any time you want to. But I hope you will participate in this survey and make it success by providing correct answers to all the questions.

Are you willing to participate?

1. Yes -----      2. No -----

Sign of Participant -----

Date: -----

## APPENDIX 2

### QUESTIONNAIRES

Central Department of Zoology, Tribhuvan University

Kirtipur, Kathmandu

**“Knowledge, Attitude and Practices on HIV/AIDS among migrants people in Dang”**

Date: ----- Name/Code#-----

Permanent Add. (Dist/VDC): ----- Age:----- Sex:-----

Marital Status: ----- Occupation: ----- Education: -----

Target Group: ----- Site: -----

1. Have you heard about HIV/AIDS?

1. Yes ----- 2. No -----

2. From which source have you heard about HIV/AIDS?

1. Radio ----- 2. TV ----- 3. Friends/Teachers ----- 4. Health workers -----  
5. Newspaper ----- 6. Others (specify) -----

3. In your opinion, can HIV/AIDS be transmitted?

1. Yes ----- 2. No -----

4. Do you know about VCT centre service?

1. Yes ----- 2. No -----

5. How did you learn about this (VCT) service?

1. Family/Friends ----- 2. Sexual partner -----

3. Referred PE/OE ----- 4. Others( specify )-----

6. Do you know about HIV testing?

1. Yes----- 2. No -----

7. Reason for testing: Medical

1. STI ----- 2. TB -----  
3. Pregnancy ----- 4. High prevalence area (asymptomatic) -----  
5. Surgery ----- 6. HIV/AIDS symptoms -----  
7. None ----- 8. Other -----

8. Have you had an HIV test before?

1. No -----  
2. Yes, negative ----- Yes, positive-----  
Yes but, don't know the result -----

9. HIV status of partner exposed to

1. Positive ----- 2. Negative ----- 3. Unknown ----- 4. N/A -----

10. Have you heard about condom?

1. Yes ----- 2. No ----- If ,Yes

11. From which source did you learn?

1. Radio ----- 2. TV----- 3. Friends /Teachers-----4. FCHV -----5. Health workers .....

12. Do you know about family planning?

1. Yes ----- 2. No -----

13. Which of the family planning methods we can use to prevent from HIV/AIDS and other STDs?

1. Pills ----- 2. IUD ----- 3. Condom ----- 4. Others ----- 5. Don't know -----

14. At what distance the Medical/ Clinics are available?

1. 5 min. -----2.10 min. ----- 3. 20 min. ----- 4. more than half an hour ----

15. Source of condom

1. Freely distributed by HP/SHP PE/OE/FCHV ----- 2. Self purchase -----

16. Condom use in last 12 months

1. Never ----- 2. Sometimes ----- 3. Always -----

4. Not sexually active in last 12 months ----- 5. Other method of contraception: -----

17. At what age did you marry?

1. Before 15 -----2.16-20 ----- 3.21-25 ----- 4. Above 25----- 5. Not married

18. At what age did your husband/wife had left home after your marriage?

1. At age of 20 or younger---- 2.21-25 ----- 3.26-30-----4.above 30 ----- 5. Not married

19. Which country your spouse had gone?

1. Overseas ----- 2. India (UP, Maharastra, Himachal, Delhi, Goa) -----

20. Have you had sexual relationship outside?

1. With other paying partners ----- 2. Multiple partners-----

3. or with other male partners ----- 4. Not -----

21. What do you think about the knowledge about preventing HIV/AIDS?

1. Abstinence from sexual contact -----

2. Monogamy -----

3. Consistent use of Condom -----

22. Major modes of transmission:

1. Unsafe sexual intercourse -----
2. Blood and blood products -----
3. Sharing same injecting equipments -----
4. From HIV positive mother to her child -----

23. Do you think HIV/AIDS can be cured by continue medicine?

1. Yes -----
2. No -----
3. Not sure -----

24. Can one generally identify a person, if he/she is infected just by looking at?

1. Yes -----
2. No -----

25. Misconception about transmission of HIV/AIDS :

1. Sharing same utensil/toilet/ clothes/swimming pool.....
2. By the bite of mosquito ....
3. Shaking hands .....
4. By kissing .....
5. All are not true .....

26. Do you have knowledge about STIs?

1. Yes -----
2. No -----

27. Do you know the symptoms of STI?

1. Yes -----
2. No -----

28. If ,Yes which of the symptoms

1. Frothy vaginal discharge -----
2. Ulcer/sore around genital area -----
3. Burning sensation/pain while urinating /sexual intercourse -----
4. Syphilis /Gonorrhoea -----
5. Lower abdominal pain -----
6. Vaginal itching ---



29. Are you currently experiencing above symptoms?

1. Yes ----- 2. No -----

30. Do you receive any treatment when occurred?

1. Yes ----- 2. No -----

31. In your opinion who are the people at very high risk of getting HIV/AIDS?

1. Sex with multiple partners ----- 2. Commercial sex workers -----3. Drug users -----

4. Those people who donot use condom ----- 5. People returning from foreign country --

32. Do you have participated in any previous orientation program on HIV/AIDS awareness?

1. Yes ----- 2. No -----

**Thank you very much for your valuable time.**