AIDS – Related Knowledge, Attitude, Behavior and Practices: A survey of different areas of Dhaka city

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ABSTRACT

Bangladesh initiated an early response to the HIV epidemic starting in the mid-1980s. Since then, the response has been enhanced considerably, and many HIV-prevention interventions among the most at-risk populations and the general youth are being undertaken. Alongside prevention activities, gathering of data has been a key activity fostered by both the Government and individual development partners. This paper reviews available sources of data, including routine surveillance (HIV and behavioral among most at-risk populations), general population surveys, and various research studies with the aim to understand the dynamics of the HIV epidemic in Bangladesh.

Methods: There are many different ways to conduct a survey based research. The most common methods are telephone surveys, one-on-one interviews, written surveys sent by mail, or email surveys (Online surveys). Each method can be effective if administered in the right situation, we used both online surveys and one-on-one interviews method to collect our Data.

Results: A total number of 350 Volunteers were sampled and they are from different occupation like government officer, private service holder, businessmen, student, housewife, salesman & illiterate people were interviewed with a questionnaire to know about the knowledge, perception and behavior about HIV/AIDs. It has been found that **89%** respondents have been heard about HIV/AIDs and only **11%** did not hear. **66%** of them also know the meaning of HIV/AIDs and **34%** does not know. It is surprising where huge educated persons may not able to elaborate the meaning of HIV/AIDS. **65%** of the respondents earned knowledge about HIV/AIDs from the media. Most of them thought that there have no treatments of HIV/AIDs. The percentage is about **82%**. And **38%** of them thought blood transfusion is the cause of HIV/AIDs spreading. And surprisingly, only **79%** of the respondents donate blood. There about **15%** of the respondents are not careful about needles, syringes while donating blood and **85%** are careful. **66%** of the respondents didn't have any physical relation where **33%** have and among them **9%** have illegal physical relation, **15%** people didn't use condom during sex. It is news of great risk that only **30%** of them know how to use condom and about **60%** doesn't know. **26%** thought that HIV/AIDs can be transmitted from casual contact and **74%** said no.

It has been found that **78%** answered that a person should not be isolated from the society who has HIV/AIDs while **22%** answered yes. But about **83%** of the population is helpful to the HIV/AIDs patients and **17%** avoid them. A child should be allowed in the school, college and university (indirect HIV/AIDs patients); **89%** agreed and **11%** disagreed. **70%** of respondents said that HIV/AIDs should not be discriminated in job, school, college and university where **30%** said yes. Perception of the respondents was good enough. **90%** of the respondents agreed that HIV/AIDS education in School, College and University level may be a helpful way to increase awareness about HIV/AIDS risks in the young generations and only **10%** disagreed. **51%** respondents thought that free treatment and test will decrease the HIV/AIDs spreading and **49%** believed that only awareness can do that. People having lots of misconception may be removed by increasing awareness. And which would be the best way to increase awareness. **45%** said that media and is the best way.

Conclusion: The result of this study revealed that although level of Perception is high but the Behavior is not so good among the people in Dhaka city. There is still room for improvement. There are still misconceptions regarding HIV transmission and prevention. There is need to stress the importance of providing proper care and treatment for the people living with HIV and AIDS and a more urgent need to provide coverage of antiretroviral therapy for HIV infected people. NGOs and civil society organizations, along with the government and individuals should work together in order to ensure universal coverage.

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Declaration by the Research Scholar

This is to certify that the thesis entitled_____, submitted by me to the Department of Pharmacy, East West University for the requirement of award of the degree of Bachelor of Pharmacy (Honors) is a bonafide record of research work carried out by me under the supervision of K.M. Shams-Ud-Doha, Lecturer, Dept. of Pharmacy, East West University. The contents of this thesis, in full or in parts, have not been submitted to any others Institute or University for the award of any degree or diploma.

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Thesis Certificate

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Acronyms

AAS- Ashar Alo Society
ADB- Asian Development Bank
AIDS- Acquired Immune Deficiency Syndrome
ART- Antiretroviral Therapy
ARV- Antiretroviral
BCC- Behavior Change Communication
BSS- Behavioral and Serological Surveillance
CAAP- Confidential Approach to AIDS Prevention
CBO- Community Based Organization
CSW- Commercial Sex Worker
DFID- Department for International Development, UK
DGHS- Director General of Health Services
DIC- Drop-In Centre
FBO- Faith Based Organization
FHI- Family Health International
FSW- Female Sex Worker
GFATM- The Global Fund to fight AIDS, Tuberculosis and Malaria
GOB- Government of Bangladesh
HAPP- HIV/AIDS Prevention Project
HATI- HIV & AIDS Targeted Interventions
HIV- Human Immunodeficiency Virus
HNPSP- Health Nutrition Population Sector Programme
ICDDRB- International Centre for Diarrheal Disease Research Bangladesh
IDU- Injecting Drug User
IEC- Information Education Communication
M&E- Monitoring and Evaluation
MAB- Mukto Akash Bangladesh
MARP- Most At Risk Population
MDG- Millennium Development Goal

MIS- Management Information System

MOHA- Ministry of Home Affairs

MOHFW- Ministry of Health and Family Welfare

MOI- Ministry of Information

MOLE- Ministry of Labor and Employment

MOSW- Ministry of Social Welfare

MOWCA- Ministry of Women and Children Affairs

MSA- Management Support Agency

MSM- Men who have Sex with Men

MSW- Male Sex Worker

NAC- National AIDS Committee

NASP- National AIDS/STD Programme

NGO- Non Government Organization

NOP- National Operational Plan for HIV/AIDS 2006 - 2010

NSP- National Strategic Plan for HIV/AIDS 2004 - 2010

OI- Opportunistic Infection

OST- Oral Substitution Therapy

PAF- Project Acceleration Funds

PEP- Post Exposure Prophylaxis

PLHA- People Living with HIV/AIDS

PPTCT- Prevention of Parent -to-Child Transmission

RTI- Reproductive Tract Infection

SBTP- Safe Blood Transfusion Program

SCF- Save the Children USA

STD- Sexually Transmitted Disease

STI- Sexually Transmitted Infection

TA- Technical Assistance

TSF- Technical Support Facility

TSNA- Technical Support Needs Assessment

TSP- Technical Support Plan

TWG- Technical Working Group

UNAIDS- Joint United Nations Programme on HIV/AIDS

UNDP- United Nations Development Programme

UNFPA- United Nations Population Fund

UNGASS -United Nations General Assembly Special Session

UNICEF- United Nations Children's Fund

UNODC- United Nations Office on Drugs and Crime

USAID- US Agency for International Development

VCT- Voluntary Counseling and Testing

WB- World Bank

WHO- World Health Organization

1.1 Introduction:

Every day thousands of people around the world become newly infected with HIV .The virus and diseases are often referred together as HIV/AIDS. The disease is a major health problem in many parts of the world, and is considered a pandemic, a disease outbreak that is not only present over a large area but is actively spreading. In 2009, the World Health Organization (WHO) estimated that there are 33.4 million people worldwide living with HIV/AIDS, with 2.7 million new HIV infections per year and 2.0 million annual deaths due to AIDS. In 2007, UNAIDS estimated: 33.2 million people worldwide had AIDS that year; AIDS killed 2.1 million people in the course of that year, including 330,000 children, and 76% of those deaths occurred in sub-Saharan Africa. According to UNAIDS 2009 report, worldwide some 60 million people have been infected since the start of the pandemic, with some 25 million deaths, and 14 million orphaned children in southern Africa alone. Genetic research indicates that HIV originated in west-central Africa during the late nineteenth or early twentieth century. AIDS was first recognized by the U. S. Centers for Disease Control and Prevention in 1981 and its cause, HIV, identified in the early 1980s. Although treatments for HIV/AIDS can slow the course of the disease, there is no known cure or HIV vaccine. Antiretroviral treatment reduces both the deaths and new infections from HIV/AIDS, but these drugs are expensive and the medications are not available in all countries. Due to the difficulty in treating HIV infection, preventing infection is a key aim in controlling the AIDS pandemic, with health organizations promoting safe sex and needle-exchange programs in attempts to slow the spread of the virus. *(Wikipedia, 2012)*

1.2 AIDS:

Acquired immune deficiency syndrome or acquired immunodeficiency syndrome (AIDS) is a disease of the human immune system caused by the human (HIV).The illness interferes with the immune system making people with AIDS much more likely to get infections, including opportunistic infections and tumors that do not affect people with working immune systems. This susceptibility gets worse as the disease continues. *(Wikipedia, 2012)*

1.3 HIV:

HIV is transmitted in many ways, such as anal, vaginal or oral sex, blood transfusion, contaminated hypodermic needles, exchange between mother and baby during pregnancy, childbirth, and breastfeeding. It can be transmitted by any contact of a mucous membrane or the bloodstream with a bodily fluid that has the virus in it, such as the blood, semen, vaginal fluid, pre seminal fluid, or breast milk from an infected person. *(Wikipedia, 2012)*

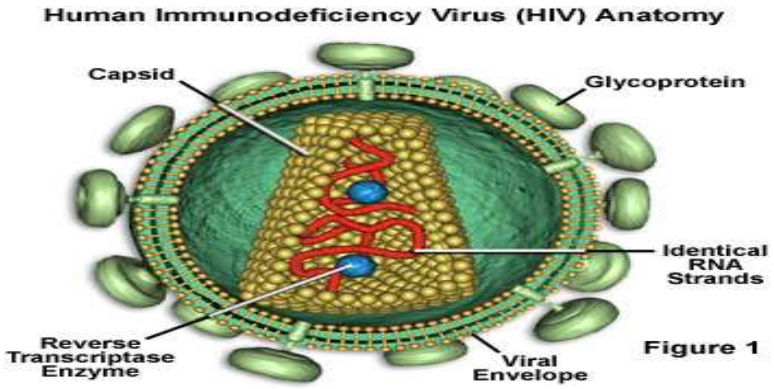

Fig 1.3.1: Anatomy of a Human Immunodeficiency Virus (HIV).

1.4 Retrovirus:

The genome of retroviruses consists of RNA not DNA. HIV-1 and HIV-2, the agents that cause AIDS, are retroviruses. A retrovirus is an RNA virus that is duplicated in a host cell using the reverse transcriptase enzyme to produce DNA from its RNA genome. The DNA is then incorporated into the host's genome by an integrase enzyme. The virus thereafter replicates as part of the host cell's DNA. Retroviruses are enveloped viruses that belong to the viral family Retroviridae. A special variant of retroviruses are endogenous retroviruses which are integrated into the genome of the host and inherited across generations. The virus itself stores its nucleic acid in the form of mRNA (including the 5'cap and 3'PolyA inside the virion) genome and serves as a means of delivery of that genome into cells it targets as an obligate parasite, and constitutes the infection. Once in the host's cell, the RNA strands undergo reverse transcription in the cytoplasm and are integrated into the host's genome, at which point the

retroviral DNA is referred to as a provirus. It is difficult to detect the virus until it has infected the host. *(Wikipedia, 2012)*

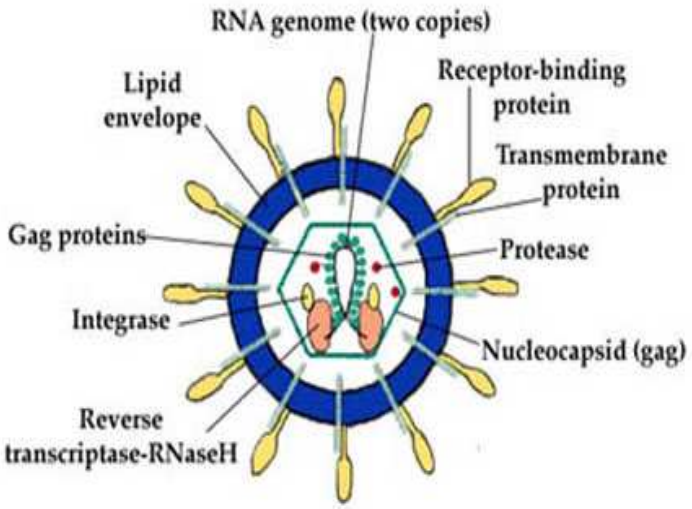

Fig1.4.1: Anatomy of a Retrovirus.

1.5 HIV/AIDS in ASIA:

In the early to mid-1980s, while other parts of the world were beginning to deal with serious HIV and AIDS epidemics, Asia remained relatively unaffected. By the early 1990s, however, AIDS epidemics had emerged in several Asian countries and by the end of the decade; HIV was spreading rapidly in many areas of the continent.

Today, around 4.79 million people are living with HIV in South, East and South-east Asia. Although national HIV prevalence in most Asian countries is relatively low, the population of some countries is so vast that these low percentages actually represent very large numbers of people living with HIV. In India, for example, an estimated 0.1 percent of adults aged 15-49 are living with HIV, which seems low when compared to HIV prevalence in some parts of sub-Saharan Africa. However, with a population of around 1 billion, this actually equates to 2.3 million adults living with HIV in India. Nonetheless, the situation is improving; In South and South-East Asia, the estimated 270,000 new HIV infections in 2010 was 40 percent less than at the epidemic's peak in 1996 and in India the rates have fallen by 56 percent. Although it is useful to understand the overall impact that AIDS is having on the Asian region as a whole, there is no single 'Asian epidemic'; each country in the region faces a different situation. Progress has been

made in countries such as Cambodia, Myanmar and Thailand, where there has been evidence of a decline in HIV prevalence. On the other hand, in Indonesia, Pakistan and Vietnam the number of people living with HIV has increased. There are also huge variations within countries. In China, for example, five provinces account for 53 percent of the people living with HIV. Some have warned that epidemics in Asia could escalate to the extent of rivaling those in some parts of Africa. Others, however, argue that Asia's epidemics are on a different trajectory to those found in Africa, as HIV infection in Asia is still largely concentrated among members of 'high-risk' groups. *(Wikipedia, 2012)*

1.6 How HIV transmitted in Asia:

There are three main HIV transmission routes in Asia:

- **Unprotected paid (and unpaid) sex:** Unprotected sex, both paid and unpaid, accounts for a significant share of new HIV infections in many Asian countries. A large number of men buy sex regularly and the level of condom use during paid sex in many countries is still low. These factors have contributed to a high HIV prevalence among sex workers and their clients across Asia. In addition, an increasing number of women who are married and considered 'low-risk' of HIV infection are becoming infected with HIV. Estimates suggest that around 25-40 percent of new HIV infections in several Asian countries are among wives and girlfriends of men who became infected through paid sex, having sex with other men or injecting drugs.
- **Injecting drug use**: Injecting drug use is a major driving factor in the spread of HIV throughout Asia, notably in China, Indonesia, Malaysia and Vietnam. In China, nearly half of all people infected with HIV are believed to have become infected through injecting drug use. There is often an overlap between communities of IDUs and communities of sex workers in Asia, as those who sell sex may do it to fund a drug habit, or they may have become involved in sex work first before turning to drug use. *(Avert,2011)*
- **Sex between men:** Sex between men accounted for some of the earliest recorded cases of HIV in Asia, and transmission through this route is still a prominent feature of many countries' epidemics. Most men who have sex with men (MSM) in Asia do not identify

themselves as gay because of cultural norms that discourage homosexuality; in some cases they may even be heads of families, with children. This means that MSM can serve as a 'bridge' for HIV to spread into the broader population. HIV outbreaks are becoming evident among MSM in Cambodia, China, Nepal, Pakistan, Thailand and Vietnam. Mother-to-child transmission is also a significant HIV transmission route in Asia. At the end of 2010, it was estimated that 150,000 children in South and South-East Asia, and 8,000 children in East Asia, were living with HIV, most of who became infected through mother-to-child transmission. *(Avert,2011)*

1.7 HIV prevention in Asia:

Asia has been the base for some extremely successful large-scale HIV prevention programs. Well-funded, politically supported campaigns in Thailand and Cambodia have led to significant declines in HIV-infection levels, and HIV prevention aimed at sex workers and their clients has played a large role in these achievements. In Tamil Nadu, India, HIV prevention initiatives have had a substantial impact. High-profile public campaigns discouraged risky sexual behavior, made condoms more widely available, and provided STI testing and treatment for people who needed them. These efforts resulted in a large decline in risky sex. *(Avert, 2011)*

Successes such as these prove that interventions can change the course of Asia's AIDS epidemics. As HIV infection rates continue to grow however, it's clear that more needs to be done. The groups most at risk of becoming infected – sex workers, IDUs, and MSM – are all too often being neglected. It is suggested that in order for Asia's epidemic to stabilize, interventions should cover between 60 and 80 percent of individuals considered high risk. For instance, although injecting drug use is one of the most common HIV transmission routes in Asia, it is estimated that less than one in ten. IDUs in the region have access to prevention services. Similarly men who have sex with men are overlooked and poorly monitored by most governments, even though it is firmly established that this group play a significant role in some countries' epidemics. Despite this, globally, the South and South East Asian region performed the worst in terms of the delivery of HIV prevention to MSM. *(Avert, 2011)*

In countries without laws to protect sex workers, drug users, and men who have sex with men, only a fraction of the population has access to prevention. Conversely, in countries with legal protection and the protection of human rights for these people, many more have access to services. As a result, there are fewer infections, less demand for antiretroviral treatment, and fewer deaths. Not only is it unethical not to protect these groups: it makes no sense from a health perspective."Secretary-General Ban Ki-moon, speaking at the opening address to the International AIDS Conference

It is not only legal barriers that are preventing people from accessing effective HIV prevention; problems also arise when prevention programs do not contain information that will be most useful. For example, young people in Asia are generally not taught about the kinds of behaviors that put this group most at risk: unprotected sex through sex work, injecting drug use, and sex between men. Instead they focus on heterosexual transmission and reproductive health, which have a limited impact on preventing new HIV infections among young people in Asia.

The coverage of prevention of mother-to-child transmission (PMTCT) services is also very low in Asia. In East, South and South-East Asia, around 30% of pregnant women were offered an HIV test in 2010. This was a great improvement compared to the 18% of 2009, but still a very low percentage compared to other regions of the world such as Eastern Europe and Central Asia (59%), Eastern and Southern Africa (61%) and Latin America and the Caribbean (61%). In 2010 across East, South and South-East Asia, only 16% of HIV-infected pregnant women received ARVs (excluding single-dose nevirapine) to prevent mother-to-child transmission of HIV. *(Avert, 2011)*

Due to the stigma that often surrounds those groups most at risk of HIV infection, coverage of HIV voluntary counseling and testing (VCT) services in South-East Asia remains very low. An estimated 0.1% of the adult population in the region received testing and counseling in 2005. Certain countries are making progress, however; testing services in India have been expanded with about 5135 testing centers now open to the public Even so, far more need to be done across Asia to ensure VCT is available to those most at risk of acquiring HIV. *(Avert, 2011)*

1.8 Antiretroviral treatment in Asia

The availability of antiretroviral treatment more than tripled between 2003 and 2006 in Asia. Although this seems encouraging, only 39% of people in East, South and South-East Asia who are in need of HIV treatment are receiving it. In addition, access to HIV treatment varies widely across the region. Thailand and Cambodia have estimated treatment coverage of 67% and 92% respectively, whilst estimated treatment coverage in Malaysia and the Philippines is 36% and 51%. *(Avert, 2011)*

A major barrier to treatment access is the high cost of antiretroviral drugs, as both first- and second-line drugs are still unaffordable to many governments. Cheaper HIV drugs are now produced by a number of pharmaceutical manufacturers in Asia, and together with the increasing availability of lower-cost branded ARVs, it will be easier for governments to obtain and distribute the drugs. Yet even where drugs are available, the poor state of healthcare in many Asian countries, particularly a shortage of trained doctors, is hindering governments' abilities to organize life-long treatment programs for millions of people living with HIV. *(Avert, 2011)*

1.9 Types of HIV/AIDS:

There are two species of HIV known to exist:

- HIV-1
- HIV-2

HIV-1 is the virus that was initially discovered and termed both LAV and HTLV-III. It is more virulent, more infective, and is the cause of the majority of HIV infections globally. 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. *(Wikipedia, 2012)*

1.10 Causes

Important facts about the spread of AIDS include:

AIDS is the sixth leading cause of death among people ages 25 - 44 in the United States, down from number one in 1995.The World Health Organization estimates that more than 25 million people worldwide have died from this infection since the start of the epidemic. In 2008, there

were approximately 33.4 million people around the world living with HIV/AIDS, including 2.1 million children under age 15.Human immunodeficiency virus (HIV) causes AIDS. The virus attacks the immune system and leaves the body vulnerable to a variety of life-threatening infections and cancers. Common bacteria, yeast, parasites, and viruses that usually do not cause serious disease in people with healthy immune systems can cause fatal illnesses in people with AIDS.HIV has been found in saliva, tears, nervous system tissue and spinal fluid, blood, semen (including pre-seminal fluid, which is the liquid that comes out before ejaculation), vaginal fluid, and breast milk. However, only blood, semen, vaginal secretions, and breast milk has been shown to transmit infection to others.

The virus can be spread (transmitted):

- Through sexual contact - including oral, vaginal, and anal sex.
- Through blood - Via blood transfusions (now extremely rare in the U.S.) or needle sharing.
- From mother to child - A pregnant woman can transmit the virus to her fetus through their shared blood circulation, or a nursing mother can transmit it to her baby in her breast milk.

Other methods of spreading the virus are rare and include accidental needle injury, artificial insemination with infected donated semen, and organ transplantation with infected organs.

HIV infection is NOT spread by:

- Casual contact such as hugging
- Mosquitoes
- Participation in sports
- Touching items that were touched by a person infected with the virus

AIDS and blood or organ donation:

- AIDS is NOT transmitted to a person who DONATES blood or organs. People who donate organs are never in direct contact with people who receive them. Likewise, a person who donates blood is never in contact with the person receiving it. In all these procedures, sterile needles and instruments are used.

- However, HIV can be transmitted to a person RECEIVING blood or organs from an infected donor. To reduce this risk, blood banks and organ donor programs screen donors, blood, and tissues thoroughly.
- People at highest risk for getting HIV include:
- Injection drug users who share needles.
- Infants born to mothers with HIV who didn't receive HIV therapy during pregnancy.
- People engaging in unprotected sex, especially with people who have other high-risk behaviors, are HIV-positive, or have AIDS.
- People who received blood transfusions or clotting products between 1977 and 1985 (before screening for the virus became standard practice)Sexual partners of those who participate in high-risk activities (such as injection drug use or anal sex) .*(Avert, 2011)*

1.11 The Stages of HIV Infection:

The "Window" Period:

This period refers to the time between the first exposure to HIV and "seroconversion," that is the production of antibodies by the immune system in response to HIV infection. It is only at this point that a blood test will be positive and this may take anywhere from six weeks to six months after the initial infection with HIV. Since there are no obvious symptoms of infection, a person does not know he or she is infected but can nonetheless infect other people. *(NIICHRO, 2004)*

The "Asymptomatic" Period:

During this period, which may last several years, HIV works silently in the carrier host and slowly but surely destroys the T4 cells. There usually are no symptoms or there may be swelling of the lymph nodes (neck and armpits, for example). *(NIICHRO, 2004)*

The "Symptomatic" Period:

As the immune system is weakened by the virus, various symptoms develop. Those can include fever, diarrhea, drenching night sweats, persistent tiredness, weight loss, and several infections. *(NIICHRO, 2004)*

Acquired Immune Deficiency Syndrome:

AIDS is the last stage in HIV infection. At this stage, a person has usually been living with HIV for many years and the immune system is seriously damaged. The onset of AIDS is marked by

the emergence of severe "opportunistic" infections which would not develop in an individual with a healthy immune system. These infections are not directly caused by HIV but are the consequences of HIV's weakening of the immune system. Full-blown AIDS is therefore diagnosed by the presence of one or more specific diseases which are caused by organisms common in the environment. Such diseases include:

Pneumocystis carinii, which causes a severe form of pneumonia and is found in about 50 per cent of AIDS patient, however, tend to "develop bacterial pneumonia before PCP. Persons with AIDS also often develop Kaposi's sarcoma, a kind of skin cancer, although this is very rare in women patients. *(NIICHRO, 2004)*

Toxoplasmosis, a parasite that infects the brain; cryptosporidium, a protozoan infection that causes diarrhea, Herpes simplex I and II viruses, which cause sores on the lips or genitals that do not heal in the usual seven to fourteen days; Candida Albicans, which causes vaginitis in otherwise healthy women, is sometimes found in the throat and lungs of people with AIDS. All the above conditions and several others contribute to an AIDS diagnosis because they are rarely found in people with healthy immune systems (Idem). In most cases, one of these infections will eventually cause the death of the person living with AIDS. There is however, some variation in the severity of symptoms from one individual to another and drugs are now available that can reduce HIV's damage to the immune system and prolong life. *(NIICHRO, 2004)*

1.12 Mechanism of Infection of HIV/AIDS:

HIV primarily infects cells with CD4 cell-surface receptor molecules, using them to gain entry. Many cell types share common epitopes with this protein, though CD4 lymphocytes play a crucial role. In macrophages and in some other cells lacking CD4 receptors, such as fibroblasts, an Fc receptor site or complement receptor site may be used instead for entry of HIV. Cells of the mononuclear phagocyte system, principally blood monocytes and tissue macrophages, T lymphocytes, B lymphocytes, natural killer (NK) lymphocytes, dendritic cells (Langerhans cells of epithelia and follicular dendritic cells in lymph nodes), hematopoietic stem cells, endothelial cells, microglial cells in brain, and gastrointestinal epithelial cells are the primary targets of HIV infection. After entering the body, the viral particle is attracted to a cell with the appropriate CD4 receptor molecules where it attaches by fusion to a susceptible cell membrane or by endocytosis

and then enters the cell. The probability of infection is a function of both the number of infective HIV virions in the body fluid which contacts the host as well as the number of cells available at the site of contact that have appropriate CD4 receptors. *(WebPath, 2012)*

Within the cell, the viral particle uncoats from the envelope to releases its RNA. The enzyme product of the pol gene, reverse transcriptase that is bound to the HIV RNA, provides for reverse transcription of RNA to proviral DNA. It is this HIV proviral DNA which is then inserted into host cell genomic DNA by the integrase enzyme. Once the HIV proviral DNA is within the infected cell's genome, it cannot be eliminated or destroyed except by destroying the cell itself. The HIV provirus is then replicated by the host cell. The infected cell can then release virions by surface budding, or infected cells can undergo lysis with release of new HIV virions which can then infect additional cells. Antibodies formed against HIV are not protective, and a viremic state can persist despite the presence of even high antibody titers. *(WebPath, 2012)*

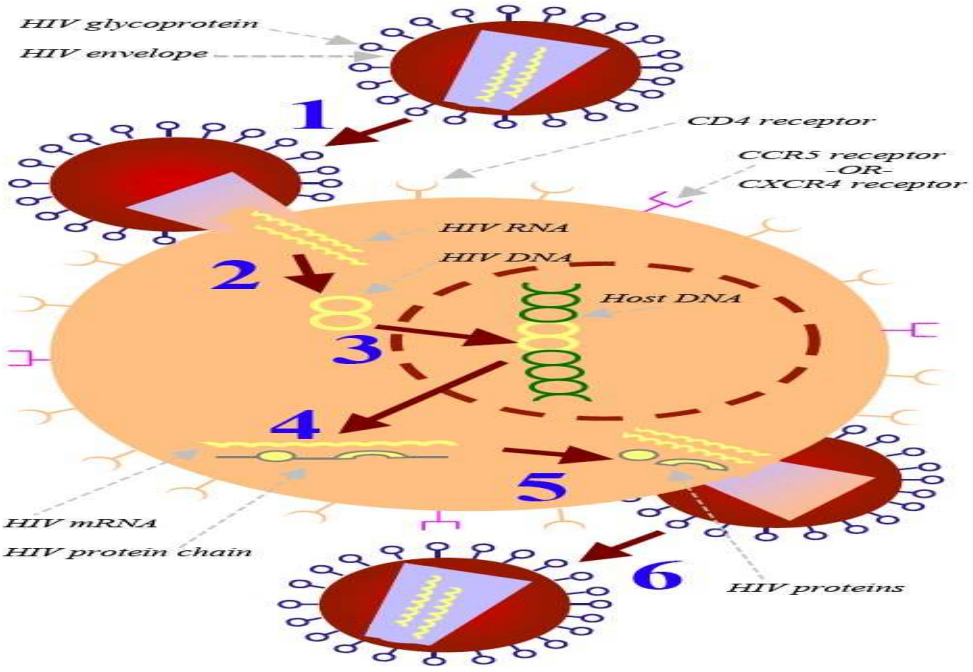

Fig1.12.1: Mechanism of infection of HIV/AIDS.

Primary HIV infection may go unnoticed in at least half of cases or produce a mild disease which quickly subsides, followed by a long clinical "latent" period lasting years. Prospective studies of acute HIV infections show that fever, lymphadenopathy, pharyngitis, diffuse erythematous rash, arthralgia/myalgia, diarrhea, and headache are the commonest symptoms seen with acute HIV

infection. These symptoms diminish over 1 to 2 months. The symptoms of acute HIV infection resemble an infectious mononucleosis-like syndrome. Symptomatic acute HIV infection is more likely to occur in persons who acquired HIV infection through sexual transmission. *(WebPath, 2012)*

Generally, within 3 weeks to 3 months the immune response is accompanied by a simultaneous decline in HIV viremia. Both humoral and cell mediated immune responses play a role. The CD4 lymphocytes rebound in number, but not to pre-infection levels. Seroconversion with detectable HIV antibody by laboratory testing accompanies this immune response, sometimes in as little as a week, but more often in two to four weeks. Prolonged HIV-1 infection without evidence for seroconversion, however, is an extremely rare event. HIV infects definable population subgroups ("risk groups"). The transmission of HIV is a function of where the virus appears in the body and how it is shed. HIV can be present in a variety of body fluids and secretions, but the presence of HIV in genital secretions and in blood, and to a lesser extent breast milk, is significant for spread of HIV. However, the appearance of HIV in saliva, urine, tears, and sweat is of no major clinical importance, as transmission of HIV through these fluids does not routinely occur, primarily because of the low concentration of HIV in this fluids. *(WebPath, 2012)*

HIV is primarily spread as a sexually transmissible disease. Transmission of HIV can occur from male to male, male to female, and female to male. Female to female transmission remains extremely rare, though women with same-sex contact are often bisexual and have additional risk factors for HIV infection. The rate of HIV transmission with sexual intercourse is much lower than with other sexually transmitted diseases-approximately 0.3% per sexual contact with an HIV-infected person. However, some persons have become HIV-infected after a single sexual contact, while other persons have remained uninfected after hundreds of contacts. *(WebPath, 2012)*

Sexual contact with persons, whose HIV viral load is greater, either with early infection or in the late stage of clinical AIDS, increases the transmission risk. The presence of cervical ectopia, oral contraceptive use, or pregnancy in women, intact foreskin in men, and genital ulcer disease in either sex increases the risk for HIV infection. Genital ulcers provide a more direct route to lymphatics draining to lymph nodes containing many CD4 lymphocytes and follicular dendritic cells. Tissue trauma during intercourse does not appear to play a role in HIV transmission. HIV

can be transmitted by parenteral exposure, which is the most highly efficient method of HIV transmission--close to 90%. There are many more peripheral blood mononuclear cells capable of either harboring or becoming infected by HIV in blood than are present in other body fluids or secretions. The primary risk group for HIV transmission via blood is intravenous drug users sharing infected needles. Less common practices of blood comingling or use of instruments such as tattoo needles not properly disinfected also carries a potential risk. Health care workers with percuteneous exposures to HIV-containing blood, however, are infected fewer than 1 in 300 times. Screening of blood products for HIV has almost eliminated HIV transmission by this means. *(WebPath, 2012)*

HIV infection can also be acquired as a congenital infection perinatally or in infancy. Mothers with HIV infection can pass the virus transplacentally, at the time of delivery through the birth canal, or through breast milk. Congenital AIDS occurs, on average, in about one fourth of babies born to HIV-1 infected mothers, with actual rates of transmission varying from 7 to 71%, depending upon the presence of risk factors for transmission during the course of HIV infection and pregnancy. *(WebPath, 2012)*

1.13 Symptoms

AIDS begins with HIV infection. People who are infected with HIV may have no symptoms for 10 years or longer, but they can still transmit the infection to others during this symptom-free period. If the infection is not detected and treated, the immune system gradually weakens and AIDS develops. Acute HIV infection progresses over time (usually a few weeks to months) to asymptomatic HIV infection (no symptoms) and then to early symptomatic HIV infection. Later, it progresses to AIDS (advanced HIV infection with CD4 T-cell count below 200 cells/mm3). *(The New York Times, 2012)*

Almost all people infected with HIV, if they are not treated, will develop AIDS. There is a small group of patients who develop AIDS very slowly, or never at all. These patients are called nonprogressors, and many seem to have a genetic difference that prevents the virus from significantly damaging their immune system. *(The New York Times, 2012)*

The symptoms of AIDS are mainly the result of infections that do not normally develop in people with a healthy immune system. These are called opportunistic infections.

People with AIDS have had their immune system damaged by HIV and are very susceptible to these opportunistic infections. Common symptoms are:

- Chills
- Fever
- Sweats (particularly at night)
- Swollen lymph glands
- Weakness
- Weight loss

At first, infection with HIV may produce no symptoms. Some people, however, do experience flu-like symptoms with fever, rash, sore throat, and swollen lymph nodes, usually 2 - 4 weeks after contracting the virus. Some people with HIV infection stay symptom-free for years between the times when they are exposed to the virus and when they develop AIDS. *(The New York Times, 2012)*

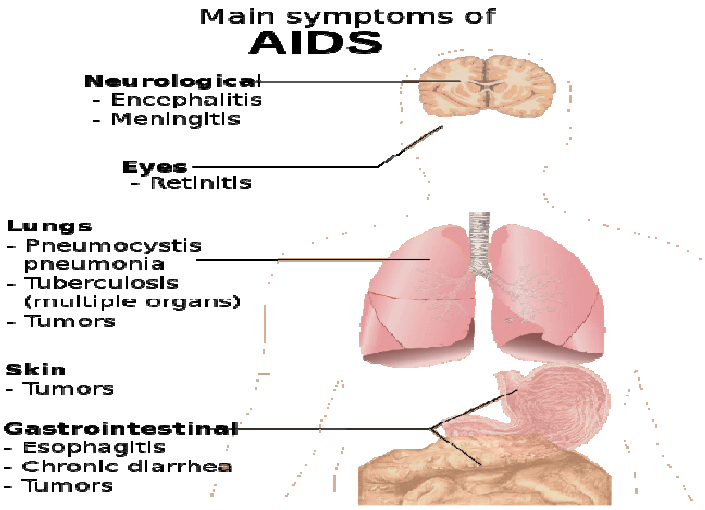

Fig1.13.1: Main symptoms of Aids

1.14 Exams and Tests

CD4 cells are a type of T cell. T cells are cells of the immune system. They are also called "helper cells."

The following is a list of AIDS-related infections and cancers that people with AIDS may get as their CD4 count decreases. In the past, having AIDS was defined as having HIV infection and getting one of these other diseases. Today, according to the Centers for Disease Control and

Prevention, a person may also be diagnosed with AIDS if they are HIV-positive and have a CD4 cell count below 200 cells/mm3, even if they don't have an opportunistic infection.

AIDS may also be diagnosed if a person develops one of the opportunistic infections and cancers that occur more commonly in people with HIV infection. These infections are unusual in people with a healthy immune system.

Many other illnesses and their symptoms may develop, in addition to those listed here.

The following illnesses are common with a CD4 count below 350 cells/mm3:

- Herpes simplex virus -- causes ulcers/small blisters in the mouth or genitals, happens more often and usually much more severely in an HIV-infected person than in someone without HIV infection
- Herpes zoster (shingles) -- ulcers/small blisters over a patch of skin, caused by reactivation of the varicella zoster virus, the same virus that causes chickenpox
- Kaposi's sarcoma -- cancer of the skin, lungs, and bowel due to a herpes virus (HHV-8). It can happen at any CD4 count, but is more likely to happen at lower CD4 counts, and is more common in men than in women.
- Non-Hodgkin's lymphoma -- cancer of the lymph nodes
- Oral or vaginal thrush -- yeast (typically Candida albicans) infection of the mouth or vagina
- Tuberculosis -- infection by tuberculosis bacteria mostly affects the lungs, but can also affect other organs such as the bowel, lining of the heart or lungs, brain, or lining of the central nervous system (brain and spinal cord) Common with CD4 count below 200 cells/mm3:
- Bacillary angiomatosis -- skin sores caused by a bacteria called*Bartonella,* which may be caused by cat scratches
- Candida esophagitis -- painful yeast infection of the esophagus
- *Pneumocystis jiroveci pneumonia* , "PCP pneumonia," previously called *Pneumocystis carinii* pneumonia, caused by a fungus Common with CD4 count below 100 cells/mm3:
- AIDS dementia -- worsening and slowing of mental function, caused by HIV
- Cryptococcal meningitis -- fungal infection of the lining of the brain

- Cryptosporidium diarrhea -- Extreme diarrhea caused by a parasite that affects the gastrointestinal tract
- Progressive multifocal leukoencephalopathy -- a disease of the brain caused by a virus (called the JC virus) that results in a severe decline in mental and physical functions
- Toxoplasma encephalitis -- infection of the brain by a parasite, called *Toxoplasma gondii* , which is often found in cat feces; causes lesions (sores) in the brain
- Wasting syndrome -- extreme weight loss and loss of appetite, caused by HIV itself Common with CD4 count below 50/mm3:
- Cytomegalovirus infection -- a viral infection that can affect almost any organ system, especially the large bowel and the eyes
- Mycobacterium avium -- a blood infection by a bacterium related to tuberculosis

In addition to the CD4 count, a test called HIV RNA level (or viral load) may be used to monitor patients. Basic screening lab tests and regular cervical Pap smears are important to monitor in HIV infection, due to the increased risk of cervical cancer in women with a compromised immune system. Anal Pap smears to detect potential cancers may also be important in both HIV-infected men and women. *(The New York Times, 2012)*

1.15 Treatment

There is no cure for AIDS at this time. However, a variety of treatments are available that can help keep symptoms at bay and improve the quality of life for those who have already developed symptoms.

Antiretroviral therapy suppresses the replication of the HIV virus in the body. A combination of several antiretroviral drugs, called highly active antiretroviral therapy (HAART), has been very effective in reducing the number of HIV particles in the bloodstream. This is measured by the viral load (how much free virus is found in the blood). Preventing the virus from replicating can improve T-cell counts and help the immune system recover from the HIV infection. (The New York Times, 2012)

HAART is not a cure for HIV, but it has been very effective for the past 12 years. People on HAART with suppressed levels of HIV can still transmit the virus to others through sex or by

sharing needles. There is good evidence that if the levels of HIV remain suppressed and the CD4 count remains high (above 200 cells/mm3), life can be significantly prolonged and improved.

However, HIV may become resistant to one combination of HAART, especially in patients who do not take their medications on schedule every day. Genetic tests are now available to determine whether an HIV strain is resistant to a particular drug. This information may be useful in determining the best drug combination for each person, and adjusting the drug regimen if it starts to fail. These tests should be performed any time a treatment strategy begins to fail, and before starting therapy. When HIV becomes resistant to HAART, other drug combinations must be used to try to suppress the resistant strain of HIV. There are a variety of new drugs on the market for treating drug-resistant HIV.

Treatment with HAART has complications. HAART is a collection of different medications, each with its own side effects. Some common side effects are:

- Collection of fat on the back ("buffalo hump") and abdomen
- General sick feeling (malaise)
- Headache
- Nausea
- Weakness

When used for a long time, these medications increase the risk of heart attack, perhaps by increasing the levels of cholesterol and glucose (sugar) in the blood.

Any doctor prescribing HAART should carefully watch the patient for possible side effects. In addition, blood tests measuring CD4 counts and HIV viral load should be taken every 3 months. The goal is to get the CD4 count as close to normal as possible, and to suppress the amount of HIV virus in the blood to a level where it cannot be detected. *(The New York Times, 2012)*

Other antiviral medications are being investigated. In addition, growth factors that stimulate cell growth, such as erthythropoetin (Epogen, Procrit, and Recomon) and filgrastim (G-CSF or Neupogen) are sometimes used to treat AIDS-associated anemia and low white blood cell counts. Medications are also used to prevent opportunistic infections (such as Pneumocystis jiroveci pneumonia) if the CD4 count is low enough. This keeps AIDS patients healthier for longer periods of time. Opportunistic infections are treated when they happen. *(The New York Times, 2012)*

Support Groups

Joining support groups where members share common experiences and problems can often help the emotional stress of devastating illnesses. *(The New York Times, 2012)*

Outlook (Prognosis)

Right now, there is no cure for AIDS. It is always fatal without treatment. In the U.S., most patients survive many years after diagnosis because of the availability of HAART. HAART has dramatically increased the amount of time people with HIV remain alive. Research on drug treatments and vaccine development continues. However, HIV medications are not always available in the developing world, where most of the epidemic is raging. *(The New York Times, 2012)*

Possible Complications

When a person is infected with HIV, the virus slowly begins to destroy that person's immune system. How fast this occurs differs in each individual. Treatment with HAART can help slow or halt the destruction of the immune system.

Once the immune system is severely damaged, that person has AIDS, and is now susceptible to infections and cancers that most healthy adults would not get. However, antiretroviral treatment can still be very effective, even at that stage of illness. *(The New York Times, 2012)*

When to Contact a Medical Professional

Call should be made to the health care provider if any person have any of the risk factors for HIV infection, or develop symptoms of AIDS. By law, the results of HIV testing must be kept confidential. The health care provider will review results of the testing with that person.

(The New York Times, 2012)

1.16 Prevention

- Reduce the chance of catching or spreading HIV, and other sexually transmitted diseases should be learned.

- Illicit drugs should not be used and needles or syringes should not be shared. Many communities now have needle exchange programs, where a person can get rid of used syringes and get new, sterile ones. These programs can also provide referrals for addiction treatment.
- Contact with another person's blood should be avoided. It is necessary to wear protective clothing, masks, and goggles when caring for people who are injured.
- Anyone who tests positive for HIV can pass the disease to others and should not donate blood, plasma, body organs, or sperm. Infected people should tell any sexual partner about their HIV-positive status. They should not exchange body fluids during sexual activity, and should use preventive measures (such as condoms) to reduce the rate of transmission.
- HIV-positive women who wish to become pregnant should seek counseling about the risk to their unborn child, and methods to help prevent their baby from becoming infected. The use of certain medications dramatically reduces the chances that the baby will become infected during pregnancy.
- The Public Health Service recommends that HIV-infected women in the United States avoid breast-feeding to prevent transmitting HIV to their infants through breast milk.
- Safer sex practices, such as latex condoms, are highly effective in preventing HIV transmission. HOWEVER, there is a risk of acquiring the infection even with the use of condoms. Abstinence is the only sure way to prevent sexual transmission of HIV.

HIV-positive patients who are taking antiretroviral medications are less likely to transmit the virus. For example, pregnant women who are on effective treatment at the time of delivery, and who have undetectable viral loads, give HIV to their baby less than 1% of the time, compared with 13% to 40% of the time if medications are not used.

If anyone believes that he/she has been exposed to HIV, then he/she should seek medical attention immediately. There is some evidence that an immediate course of antiviral drugs can reduce the chances that you will be infected. This is called post-exposure prophylaxis (PEP), and it has been used to prevent transmission in health care workers injured by needle sticks. There is less information available about how effective PEP is for people exposed to HIV through sexual activity or injection drug use, but it appears to be effective. If anyone believes that he/she has

been exposed, then he/she should discuss the possibility with a knowledgeable specialist as soon as possible. Anyone who has been sexually assaulted should consider the potential risks and benefits of PEP. *(The New York Times, 2012)*

2.1 HIV/AIDS in BANGLADESH

The first case of HIV/AIDS in Bangladesh was detected in 1989. Since then 2008 cases of HIV/AIDS have been reported (as of end November 2010). However UNAIDS estimates that the number of people living with HIV in the country by end 2009 may be as high as 6800 which is within the range of the low estimate by UNICEF's State of the World's Children Report 2009. The prevalence of HIV among the general population in Bangladesh is less than 1%, however, high levels of HIV infection have been found among injecting drug users (7% in one part of the capital city, Dhaka). Due to the limited access to voluntary counseling and testing services and stigma attached to HIV and AIDS, very few Bangladeshis are aware of their HIV status. Although still considered as a HIV low prevalence country, Bangladesh remains extremely vulnerable to an HIV epidemic, given its dire poverty, overpopulation, gender inequality and high levels of transactional sex and a sex network which includes population among which a concentrated epidemic had been established. It is estimated that without any intervention the prevalence in the general adult population could be as high as 2% in 2012 and 8% by 2025.The emergence of a generalized HIV epidemic would be a disaster that Bangladesh could ill-afford as it could further compound the existing poverty and quickly negate some of its development gains. *(Azim et al., 2008)*

Bangladesh is in the unique position to succeed where several other developing countries have not: to keep the AIDS epidemic from expanding beyond this current level by initiating comprehensive and strategically viable preventative measures, avoiding a gradual spread of HIV infection from high-risk groups to the general population.

Injecting drug users, sex workers and men having sex with men are considered most at-risk groups to HIV infection in Bangladesh. It is estimated that between 20,000 – 40,000 people in Bangladesh inject drugs, 57% borrow needles and only one in three used sterile equipment. This percentage is much higher in female injecting drug users (74%). More than half (57%) of injecting drug users (IDUs) are married and most IDUs are sexually active (with an average of two partners). In Bangladesh capital city, Dhaka, the HIV rate among IDUs is 6.4%. Commercial sex work occurs in Bangladesh as it does in other Asian countries. Most married men who have unprotected sex with sex workers continue to have unprotected sex with their wives, exposing

them to infection with HIV and other sexually transmitted diseases. Low condom use, risky behavior and general lack of understanding about HIV are not limited to clients of sex workers. In fact these traits are widespread and heighten the chances of a HIV epidemic in Bangladesh. Although many people have heard of HIV, their knowledge is limited in regards to how it is transmitted and how they can protect themselves. Nearly one in five ever-married women who had heard of AIDS did not know if there was any way to prevent it. This was lower for men, at 6%. *(Azim et al. 2008)*

Men having sex with men are largely hidden due to the powerful stigma and discrimination they face in Bangladesh. Many men who have sex with men are bi-sexual and do not necessarily identify themselves as such. Men buying sex from other men rarely use condoms and many continue to have sex with their wives. Migrant workers are another important group identified as a priority in the Bangladesh National Strategic Plan for HIV and AIDS 2005-2010. Approximately 250,000 people leave Bangladesh for employment every year. With limited awareness about HIV and AIDS which could negatively impact on their perception of individual HIV risk, there is a risk that they may get infected during their stay abroad and return to Bangladesh to transmit the virus to others especially their wives who could in turn transmit infection to their babies. Migrant workers account for a significant number of HIV cases in Bangladesh, primarily because they are subjected to mandatory HIV testing. According to the International Center for Diarrhea Disease Research (ICDDR), 47 of the 259 cases of people living with HIV between 2002-2004 were infected as a result of migration. Of these, 29 were males returning from abroad, seven were wives of migrant workers, and four were children of HIV-positive migrant workers. In 2004, data from the National AIDS/STD (Sexually Transmitted Disease) Program showed that 57 of the 102 newly reported HIV cases were among returning migrants. Data released by the National AIDS and STD Program (NASP), showed that 137 of a total of 343 new HIV cases recorded from November 2009 to October 2010 were migrant workers. *(Azim et al. 2008)*

According to the recent Children and AIDS, Third Stocktaking Report *2008* published by four UN agencies, only 16% of girls aged between 15 and 24 have a comprehensive knowledge of HIV in Bangladesh. There is a high level of misconception among youth. More than half believe

that HIV/AIDS can be spread by coughing or sneezing and 50% believe that HIV can be spread through sharing food or water with a HIV infected person. (Azim et al. 2008)

Although young Bangladeshis are at risk of HIV very few believe so 22% of unmarried males reported having premarital sex, almost 60% of whom had never used condoms. This has impacted on the rate of STIs; almost one in five men, and two in five adolescent boys, reported having at least one symptom of a sexually transmitted infection (STI) in a 2004 health survey.

Women also require special attention in HIV interventions in Bangladesh, given their social, economic and political status. Women are four times more likely to contract HIV than men. Women's lower social and cultural status also causes them to have less access to education, employment opportunities and health care, including opportunities for HIV tests, counseling and medical care. Women are often subjected to early marriage, sexual abuse and violence in intimate and marital relationships. An increasing number of women are forced to sell their bodies as the only way to survive and provide for their children. Men who buy sex from women are often reluctant to use condoms, as one man said: “Why should I use a condom when I am paying to get pleasure?” Because women have little negotiating power, even within their marriages, they may have unprotected sex with their spouses who might be engaging in one or more high-risk behaviors and be exposed to HIV. Data released by the National AIDS and STD Program (NASP), showed that 117 of a total of 343 new HIV cases recorded from November 2009 to October 2010 were women 82 of who were housewives. *(Azim et al. 2008)*

The actual HIV prevalence among the general population is not known; currently available surveillance data only covers high risk groups. This ambiguity is partly because voluntary and confidential counseling and testing (VCT) services are not widely available in Bangladesh. While HIV tests are available in some private health settings, data from these sources does not feed into the national HIV and AIDS data currently. In many cases there is no counseling support and no confidentiality guarantee for HIV tests carried out in both private and public health settings. People who tested positive to HIV had sometimes seen their names and other personal details published in the local or national media. Social values, lack of adequate information, the stigma attached to HIV and AIDS, and the lack of confidentiality are not conducive for people, especially the younger population, to seek out HIV tests. *(Azim et al. 2008)*

The number of pregnant women living with HIV needing antiretroviral to prevent mother-to-child transmission is estimated to be between 200 and 500.There is no comprehensive data on the actual number of children infected with HIV. Information available from Self Help Groups of People Living with HIV shows that a cumulative of 54 children had been registered so far.
All of the above factors are compounded by unsafe blood transfusions and the reuse of injection syringes; an increased rate of external and internal migration by people seeking work or a better economic environment; and the fear, stigma and secrecy attached to STIs. *(Azim et al. 2008)*

2.2 Risks and Vulnerabilities for HIV in Bangladesh

Injecting Drug Users (IDUs)

The most recent surveillance, in 2007, tested 6,508 drug users from 28 different cities. Overall HIV prevalence was 1.2%, with low rates found in drug users from five cities. However, a rate of 7% was reported in one neighborhood of Dhaka, where the largest concentration of IDUs is found (7,400 of the estimated 20,000–40,000 IDUs in Bangladesh). A four-year cohort study in Dhaka found a constant rate of new HIV infections (incidence) and falling incidence of hepatitis C (HCV), which suggests adoption of safer injection behaviors. There is concern for the high rates of HCV amongst IDUs in most cities, and the low levels of sound knowledge regarding HIV transmission and prevention. This area needs particular focus given that a recent rapid assessment carried out in 55 districts suggests that the number of IDUs is increasing nationally. *(Tasnim et al. 2009)*

Female sex workers (FSWs)

The number of part time or so-called “casual” sex workers is even more difficult to estimate. The sex trade has been shifting away from brothels to venues where there is less regulation including hotels, streets, and private homes. There is considerable movement of sex workers among venues and cities in response to client flow and law enforcement. The 8th round of surveillance of nearly 4,800 FSWs in 15 cities found low overall HIV prevalence (0.3%). HIV prevalence was below 1% at all sex worker sites except in a small border town in northwest Bangladesh, where 4 of

150 (2.7%) sex workers were HIV positive, and all of whom had crossed the border into India to sell sex. *(Tasnim et al. 2009)*

Male who have sex with male (MSM)

MSM are a heterogeneous group of men in their sexual behaviors, and many do not self-identify or fit neatly into any of the categories used by *kothi* (feminized males). Many MSM hide their sexual activities with other men, reject the term MSM, and simply identify themselves as "male". The estimated number of MSM (including men who sell sex to other men – MSW) in Bangladesh is between 40,000–150,000. This figure is widely considered to be a gross underestimate. Surveillance rounds and a 2006 study in Dhaka that used social networks to recruit the sample all found very low HIV in MSM, along with low rates of active syphilis. Large proportions of MSM and MSW, however, report STI symptoms (MSW more than MSM), as well as multiple sex partners (including women), group sex (often associated with violence) and very low condom use with all partners. MSM are highly networked, so if HIV were to emerge, it could spread very rapidly in this population. *(Tasnim et al. 2009)*

Hijra

Hijra are highly marginalized and stigmatized, and suffer social exclusion starting in early childhood. Abuse – physical, verbal and sexual, is common even within their community.

Social and cultural changes are making it more difficult for *hijra* to earn an income through traditional ways, and about one third report having no option but to sell sex, an act which is not condoned within the *hijra* community. *Hijra* reported high client turnover and almost none reported to use condoms consistently. Group sex was common and often forced. HIV prevalence is less than 1%. Active syphilis rates are high, declined for some years, but have risen since 2004-05. Considerable proportions of *hijra* reported having STI symptoms. *(Tasnim et al. 2009)*

2.3 Other potential risk factors

Migration may be a factor in HIV transmission in Bangladesh. People whose work separated them from their spouse were much more likely to report non-marital sex, with very low condom use. International migration and its relation to HIV transmission need to be better understood.

Also of concern is the rising HIV prevalence rate in the states of India bordering Bangladesh (National Institute of Health and Family Welfare & National AIDS Control Organization, 2007) coupled with cross border mobility alongside practice of risky sex. Migrants, both international and cross border, have generally not been targeted by HIV prevention efforts in the past and there is little understanding as to how such targeted intervention could be implemented. Data suggest that HIV transmission from international migrant workers who have returned and are HIV positive has been mostly restricted to their spouses, although the extent of spousal transmission and couples in which one person is HIV positive and putting the other at high risk has not been assessed systematically in Bangladesh. A recently completed anthropological study reports on socio-cultural practices and the socio-economic context that would make indigenous women vulnerable to HIV. In the study sexual relations were noted to play a crucial role in obtaining and retaining employment as wage laborers. In fear of losing their work, the role of stigma contributes directly to their vulnerability. Children of sex workers, boys who appear more feminized and become labeled as hijra and street children are very vulnerable to violence and sexual abuse. MARPs are much more likely to report first sex at a very young age than the general population. Approximately 10% of men in Bangladesh report to having ever bought sex from female sex workers. Amongst sex workers, client turnover is high, with 80% of the surveyed men reporting to have visited one or more new sex worker in the past month. In the national survey of youth, almost 20% of unmarried males reported having premarital sex, and for 28% of them the last sex was with a sex worker. The reporting of consistent condom use amongst this group with FSWs, however, has risen from 14% (2005) to 48% (2008).About one in three (28%) young people who have ever had sex reported one or more symptoms of an STI in the past 12 months, but only a quarter sought cares from a trained provider. *(Tasnim et al. 2009)*

2.4 Bangladesh's Response to HIV and Evidence of Impact

Organizational Structure

The Government of Bangladesh (GoB) acted early in responding to the HIV epidemic, forming the National AIDS Committee (NAC) in 1985. This high-profile advisory body has the President as Chief Patron and is chaired by the Minister of Health and Family Welfare. The NAC is responsible for formulating major policies and strategies, supervising program implementation,

and mobilizing resources. A NAC Technical Committee (TC-NAC) of experts provides technical advice to the NAC and National AIDS/STD Program (NASP). The NASP, within the Directorate General of Health Services of the Ministry of Health and Family Welfare (MOHFW), is the main government body responsible for overseeing and coordinating prevention and control of HIV/AIDS, and ensuring that the National HIV/AIDS Strategy and national policies are implemented. Other ministries carry out HIV prevention and control activities through their core structures, with focal points appointed in key ministries and departments to collaborate and rationalize roles and responsibilities. *(Tasnim et al. 2009)*

Main response elements

Bangladesh responded early to HIV – before the first case was reported in the country. A series of national plans (beginning in 1988) has guided the response in Bangladesh. State-of-the-art surveillance and use of the epidemic data to make strategic and program decisions are strong points.

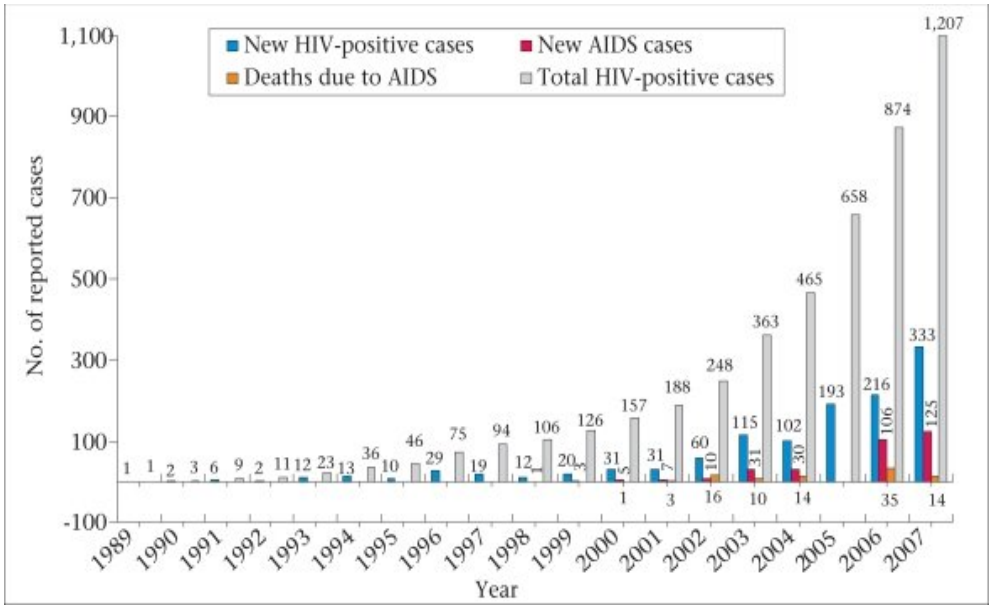

Fig 2.4.1: Total number of Aids patients in Bangladesh from 1989-2007

Consistent with the pattern of the epidemic in Bangladesh, much of the response focus has been on preventing HIV in groups whose drug injecting and/or unprotected sex with multiple partners put them at most risk for HIV and other STIs. Over the 20 years, a fairly comprehensive set of

policies, guidelines and strategic frameworks and a comprehensive panel of services for both targeted MARPs and the general population have been put in place. Some interventions have been recognized internationally as best practice.

Total HIV expenditures since 2000 is just more than US$127 million, the main funders being GFATM, World Bank funded project as well as the Health Sector Program, DFID funded project, USAID and the ADB. Most programs are implemented by the nongovernmental organizations (NGOs). *(Tasnim et al. 2009)*

Health system response:- Activities to prevent transmission in health care settings have focused on: training health care providers on Universal Precautions to prevent HIV in health care settings, and more recently, on provision of HIV-related clinical services, including voluntary counseling and testing (VCT) since 2002, management of STIs, antiretroviral therapy (ARV) and treatment for opportunistic infections. Steps have also been taken to improve the safety of Bangladesh's blood supply, with good progress made in shifting to voluntary blood donations. *(Tasnim et al. 2009)*

General population:- HIV awareness and prevention information have been provided through radio and television programs, workshops, concerts and print media, micro-credit groups, youth organizations and clubs; secondary schools, and communications and advocacy with opinion leaders, including working with imams to talk about AIDS in mosques. *(Tasnim et al. 2009)*

Condom promotion and distribution: - It is done by NGOs, some government facilities, and through creative social marketing to the general population as well as to specific groups. Condoms are widely advertised and sold at 300,000 sales outlets across the country and through 'peer agents'. *(Tasnim et al. 2009)*

Care and support for People with HIV: - VCT has been offered since 2002, although access is still very limited and the quality and range of services and waiting time for test results vary. Post counseling for people who test positive includes referral to PLHIV support groups, which now have well over 500 members. They provide counseling, home visits, referrals and some health

care free treatment for opportunistic infections, advice and information on positive living, and communications to the broader public to try and reduce stigma and discrimination. Only a few health facilities in Bangladesh (mostly in Dhaka) are able to treat HIV-related infections, or provide ART. In mid-2009, there were around 200 people on ART, estimated at only 3 percent of those who need treatment (the 1,495 confirmed HIV cases as of the end of 2008 were 12.5% of the estimated 12,000 people with HIV in Bangladesh.) *(Tasnim et al. 2009)*

Reasons for low condoms use: - Bangladesh has consistently documented low condom use by sex workers, although 2006-07 surveys of FSW and clients report increases. Inadequate knowledge about HIV transmission and services was associated with lower condom use among IDUs, FSWs, MSW, *hijra* and MSM, as was forced sex for FSWs and MSM. In most cases, MARPs who accessed prevention services were more likely to use condoms, and although clients and FSWs provided practical reasons (hurried sex acts, not enough condoms) as well as personal preferences and misconceptions about condoms and semen to explain not using them, when FSWs felt empowered to ask clients, there was increased likelihood of condom use. *(Tasnim et al. 2009)*

Building on strengths and addressing service gaps:- On the whole, the evidence indicates that HIV prevention programs for MARPs are working and need to be continued. The analysis also points to ways that existing services could be improved. *(Tasnim et al. 2009)*

***Understanding and adapting to local contexts and client needs*:-** Drug taking or selling sex behaviors are practiced by MARPs within particular structures and situations, to which services may need to be adapted. Situations vary and can change with time, making local knowledge and flexibility essential. Involvement of local groups especially MARPs themselves in the design and implementation of programs can greatly enhance success. For programs to succeed, they must also recognize that clients attend to their immediate and urgent concerns (shelter, food, drugs, violence) before paying attention to the more distant and abstract fear of HIV. Also, many MARPs face multiple HIV risks, which need to be addressed in a more integrated way. For IDUs, safe injections are critical but safe sex needs more emphasis especially for HIV positive

people. Better linkages between harm reduction services for IDUs and drug treatment and rehabilitation facilities are needed. *(Tasnim et al. 2009)*

Regular evaluation of ongoing HIV prevention programs:- HIV intervention programs for IDUs and female sex workers have been expanded considerably to cover more than half of Bangladesh. Interventions appear to be working better in some areas than others. It is very important to have independent evaluations of ongoing programs at regular intervals (not just at the end of the funding support period), and to use the information from the evaluation to modify and improve services. Bangladesh has good HIV surveillance, but could do more to monitor program progress and use operational research studies to understand what is working and what isn't and how to make programs even more effective. There are major gaps in information in some key areas (such as international and cross border migrants), and updated estimates are needed of the numbers of MARPs. Studies piloting innovative prevention designs through operations research are needed, also frequent triangulation of data to be alert to changes in the HIV scenario in Bangladesh that should trigger changes in program emphasis. Novel methods need to be tried to access the more hidden populations such as residence based female sex workers and MSM. Using networks of MARPs is a promising method. *(Tasnim et al. 2009)*

Mobility: More information is needed about cross border mobility including what occurs during cross border movements, the extent of HIV risk, and what might be done. Again, involvement of the target population in designing and implementing any intervention would be advisable. *(Tasnim et al. 2009)*

Coordination and planning:- Inadequate resources (personnel, funding, infrastructure, etc.) for the NASP have been a constraint on the effective planning and coordination of the national response to HIV in Bangladesh. This has been evident in interruptions in service delivery at the field level as well as inadequate, inappropriate and irregular supplies of materials (condoms, lubricants, sterile injection equipment, and STI drugs). Smooth coordination among the many funders, hundreds of implementers, and multiple ministries whose engagement is needed to ensure that law enforcement and other key services are in place, is a difficult challenge, and has sometimes hindered service provision. In addition, some of the needs of MARPs are beyond the

scope of HIV prevention services, such as legal support, and may be better served by others -- but linkages to other service providers are often lacking. Appropriate resources need to be provided to enhance the capacity of NASP to carry out strategic planning and coordination and engage the sectors that are important to the success of interventions, and to providing environments that enable MARPs to practice safe behaviors, and service providers to provide services effectively. *(Tasnim et al. 2009)*

2.5 Structural Factors Affecting HIV Interventions

Structural factors have been defined as "barriers to, or facilitators of an individual's HIV prevention behaviors; they may relate to economic, social, policy, organizational or other aspects of the environment Structural factors act at both the macro and intermediate levels. Macro-level factors are those broad social structural characteristics that, like socioeconomic status and gender inequality, affect vulnerability to HIV but are beyond the control of individuals. Intermediate level factors are more closely linked to individual behaviors such as laws or policies that limit access to prevention services. *(Tasnim et al. 2009)*

2.6 Macro Level Factors

Economic factors

Economic development has been linked to HIV vulnerability globally and in country-specific studies. In Bangladesh, this has not been explored but evidence from some studies shows the impact of economic circumstances on risks of HIV among certain groups. *(Tasnim et al. 2009)*

Selling sex in public venues increases vulnerability to HIV

Vulnerability to HIV is enhanced in poorer sex workers because of the adverse conditions under which they work. Sex workers (female, male and *hijra)* who sell sex in open public venues such as parks and streets usually do so because they are poor. These open venues are not safe law enforcement agents and local *mastan* often harass them and sometimes take their money or have forced sex without any payment, or take bribes. Clients are also harassed so they are always in a hurry and condom use becomes difficult as it involves additional time. Weather conditions can also make transactions difficult; when it is raining, client numbers decline and sex workers

accept whatever client is available without considering their willingness to use a condom. *(Tasnim et al. 2009)*

Increasing food prices increase HIV vulnerability *of sex workers*

Global food prices have more than doubled since 2002, and have increased most dramatically since 2006. There were rapid increases in the price of essential items in Bangladesh. Recently, sex workers reported that the increasing cost of daily commodities had reduced the flow of clients and some clients did not want to pay their usual fees. As a result, their income had decreased and they had to sacrifice the consumption of certain goods and services, especially luxury goods which for them include condoms. Their economic vulnerability and the decreased number of clients also led some sex workers to deliberately avoid condoms and agree to have anal sex. *(Tasnim et al. 2009)*

Homeless IDUs and vulnerability to infections

Homeless IDU are more than five times as likely as IDU who have a fixed address to be HIV positive. It is not clear whether drug use leads to homelessness or vice versa from available data. However, the vulnerability of IDUs living in unstable conditions has been documented in multiple settings including Vancouver, Baltimore. Also, relapse following drug treatment was found to be associated with homelessness in male IDUs. *(Tasnim et al. 2009)*

Mobility

Mobility is a key structural factor that has been linked to increased HIV incidence and vulnerability globally. Migration, both internal and external, is a facet of the Bangladeshi economy. Rural-urban migration has grown rapidly since the mid-1970s, largely as a means of poverty alleviation and income maximization for poor, rural families but it has been facilitated by a shift to an export-oriented economy. Bangladesh is also a labor-sending country to multiple international destinations (especially the Middle East). Bangladeshi migrant workers suffer problems found among other internal and international migrant groups including socioeconomic and power inequalities, limited social capital, loneliness, and coping with different cultural norms relating to sex. The high numbers of international migrant workers among those testing

positive for HIV (see section on "HIV infection in international migrant workers") reflect this vulnerability. *(Tasnim et al. 2009)*

Gender

Gender influences vulnerability to HIV and the effect of interventions for prevention, care and treatment. Two cases in Bangladesh, female IDUs and MSM and *hijra*, highlight the increased vulnerability that results from gender norms. *(Tasnim et al. 2009)*

2.7 Intermediate Level Factors

As noted above, intermediate level factors are more closely linked to individual behaviors such as laws or policies that limit access to prevention services A number of the factors that have been explored in Bangladesh, like violence and the law, are relevant to a range of MARPs while others, like power structures of the sex trade are specific to a single group. *(Tasnim et al. 2009)*

2.8 Legal factors

The Narcotics Control Act: Barriers to harm reduction intervention for IDUs

According to Article 18 of the Bangladesh constitution: "Public health and morality (1) The state and in particular shall adopt effective measures to prevent the consumption, except for medical purposes or for such other purposes as may be prescribed by law, of alcoholic and other intoxicating drinks and of drugs which are injurious to health." The Narcotics Control Act (NCA), passed in 1990, made drug use a criminal offense, made drug users criminals, and called for mandatory treatment of drug users. The act gave law enforcement agents control over drug sales and use and gave provision for harassment of drug sellers and users. However, the national AIDS policy recognizes harm reduction approaches and the NASP incorporated harm reduction services for IDUs in its strategic plan 2004-2010. Bangladesh started its NSP for IDUs in the late 1990s, expanded it over the years and has now approved a pilot of OST. However, law reform remains an urgent need in order to facilitate intervention activities with drug users. *(Tasnim et al. 2009)*

According to NGO staff, the NCA has limited access to prevention services in two main ways. First, although the act does not prohibit possession of injection paraphernalia (needles, syringes, bleach), distribution of paraphernalia is interpreted as helping an individual to use drugs, or helping a person to commit a crime. Law enforcement agents physically search people, particularly NGO staff, for drugs, needle and syringes. This makes it difficult for staff working in harm reduction programs to carry disposable needles and syringes in their bags. Second, the act makes it illegal to rent premises, means of transport or equipment for the commission of an offense. *(Tasnim et al. 2009)*

Legal ambiguity around the sex trade acts as a barrier to effective interventions

A number of laws and ordinances are used to limit and control sex workers in Bangladesh but the ambiguity in these laws leaves sex workers in a vulnerable position and at the mercy of law enforcement. Laws and ordinances that refer explicitly to prostitution include the constitution (article 18, subsection 2), which says that "The State shall adopt effective measures to prevent prostitution and gambling**"**; Metropolitan police ordinances in a number of major cities that allow punishment of anyone who "endeavors to attract attention for the purposes of prostitution, or even solicits or molests any person for the purposes of prostitution"; and the Bengal Suppression of Immoral Traffic Act 1933, which refers explicitly to females under age 18 and to any "promiscuous sexual act that is bought, whether for money or for kind." The Bangladesh penal code 290, which refers to "public nuisances," is also applied to sex workers. Although it does not specifically refer to sex work, it addresses trades or professions that are hazardous for the public health or create uncomfortable situations for common people and is used by the police to harass and punish sex workers. *(Tasnim et al. 2009)*

Violence

The intersection between violence and HIV vulnerability has been most well studied with regard to domestic violence. However, data from multiple studies and from BSS in Bangladesh highlight the high risk of violence faced by MARPs. There are similarities with domestic violence, namely: (1) forced or coercive sexual intercourse, (2) by limiting ability to negotiate safe sexual behaviors, and (3) establishing a pattern of sexual risk taking among individuals

assaulted in childhood and adolescence. For example, as noted in the section on "Determinants of unsafe sex among MSM, MSW and *hijra*", having experienced forced sex was associated with MSM not using condoms when buying sex from other males. This section reports data on perpetrators and rates of violence directed at MARPs in Bangladesh and provides some qualitative data that highlight the impact of violence on particular risk groups. *(Tasnim et al. 2009)*

Modernization in communications and networking

Access to information technology in Bangladesh has undergone a recent transformation. For example, the percentage of persons who subscribe to mobile phone service grew from less than 1% in 2000 to over 12% in 2006 (World Bank, 2008). Access to television has also grown; the number of women of reproductive age reporting that they watch television at least once per week increased from 17.8% in 1993/1994 (National Institute of Population Research and Training (NIPORT), Mitra and Associates, & ORC Macro, 2000) to 45.6% in 2004 (National Institute of Population Research and Training (NIPORT). Levels of access are higher in urban areas and for men (National Institute of Population Research and Training. The greater access to information that this technology affords is relevant to HIV interventions for MARPs and the general population. Greater access to television provides a channel for BCC. In fact, national surveys of youth have highlighted that television is their preferred means of communication for HIV messages (NASP, 2007b; NASP, Save the Children USA, & ICDDRB, 2009e (forthcoming).

Most sex workers in hotels and residences, and a few on the streets, use mobile phones to contact their clients and many clients use their mobile phones to contact a sex worker who is known to them. The use of mobile phones has an enormous impact on the sex trade, particularly in establishing networks among sex workers, between sex workers and clients, and on the power structure of the sex trade. Most sex workers reported a positive impact of mobile phones on their lives as well as on their ability to contact clients. Mobile phone technology has made communication easier and increased the ability of sex workers to keep their venues hidden because it is easy to inform clients of their new location. No clients mentioned any negative aspects, however, NGO service providers clearly acknowledged the benefits of mobile phones to sex workers but noted that difficulties were posed for interventions. Because sex workers are

more mobile and change residences often, they are more difficult for NGOs to reach. Unless the sex worker informs the staff of the new location, the NGO will not be able to locate her. However, mobile technology also offers a potential mechanism by which to reach sex workers. *(Tasnim et al. 2009)*

Lack of opposition to HIV in the curriculum for secondary schools

An HIV/AIDS curriculum for class VI - XII was first implemented in Bangladesh in 2007. The introduction of the curriculum included a teacher training program that initially targeted teachers in 21 districts. A rapid assessment of the teacher-training program (NASP, Save the Children USA, & ICDDRB, 200h (forthcoming)) assessed the community response given evidence that this is an important factor in the success of such programs. As part of the assessment, teachers who taught HIV classes in the school were asked about the response they received from the community, school managing committee and other teachers. Less than 1% of teachers reported opposition to teaching HIV/AIDS from different community groups. Holding the recommended meetings with community members about the HIV instruction was positively associated with support from parents and school managing committees. *(Tasnim et al. 2009)*

Community reactions to HIV prevention messages in religious sermons

As part of an operations research study designed to better understand how to best prepare imams to participate in HIV prevention (NASP, Save the Children USA, & ICDDRB, 2009j (forthcoming), focus group discussions (FGDs) were held with imams after they had provided HIV prevention messages in their mosques. These results as well as a survey of the imam participants showed high levels of community acceptance for HIV prevention through the mosque, albeit with a few exceptions. The imams viewed community support as enabling their participation in HIV prevention while in the two cases where an imam faced community resistance, this negatively affected his participation. Most of the imams said that HIV prevention was strongly supported by their communities. One imam noted that some community members came to him after the sermon and praised him. *(Tasnim et al. 2009)*

2.9 National HIV Response in Bangladesh

Oversight and Coordination

The National AIDS Committee (NAC) was formed in 1985 with the President of Bangladesh as Chief Patron, and the Minister of Health and Family Welfare as Chair. The NAC is an advisory body responsible for formulating major policies and strategies on HIV/AIDS in Bangladesh, supervising program implementation, and mobilizing resources. A Technical Committee (TC-NAC) of experts provides technical advice to the NAC and the NASP, and forms technical sub-committees as needed. The National AIDS/STD Program (NASP) is the main government body responsible for overseeing prevention and control of HIV/AIDS, ensuring that the National HIV/AIDS Strategy and national policies are implemented. The NASP is within the Directorate of Health Services of the MOHFW. Other ministries carry out HIV prevention and control activities through their core administrative structures, and the 16 HIV/AIDS focal points were appointed in key ministries and departments to collaborate and rationalize roles and responsibilities. *(Tasnim et al. 2009)*

The National STD/AIDS Network of 235 member NGOs in Bangladesh working on different aspects of HIV and AIDS was formed in 1993. The Network is mandated to speak for its members in national decision-making processes, represent Bangladesh and its members at regional and international forum and events, facilitate coordination among its members, disseminate news and information on policy issues and successful interventions, and provide training for members. A Country Coordination Mechanism (CCM) was set up in 2002 in response to GFATM requirements, to decide matters related to projects supported by the GFATM. Current CCM members represent the government, NGOs, the private sector, civil society (including people with HIV and TB, and young people's organizations and movements), academicians and development partners. The Secretary of Health chairs the meetings. *(Tasnim et al. 2009)*

National Plans and Policies

A series of national plans guided the response in Bangladesh. The initial 1988 'Short Term Plan' for HIV prevention focused on determining HIV prevalence and developing prevention

measures, particularly in the health sector. The 3-year 'Medium Term Plan' formulated in 1989 included development of surveillance and laboratory diagnostic capacity. Bangladesh was the first country in the region to adopt a comprehensive national policy on HIV-AIDS and STDs (in 1997), and then also developed the first National Strategic Plan for HIV/AIDS, 1997-2002. *(UNAIDS, 2008)*

Technical Support Interventions	Estimated Costs ($US)
Cross cutting issues	137,310
Provide support and services to priority groups of people	41,875
Prevent vulnerability to HIV infection in Bangladesh society	56,225
Promote safe practices in the healthcare system	75,900
Provide care and support services to PLHA	45,025
Minimize the impact of the HIV/AIDS epidemic	92,050
Management and implementation of the TSP	6,600
Total	$454,985

Table2.9.1: Budget for the Technical Support Plan activities 2008-09

Strengthening support for street children and vulnerable women

In Bangladesh on HIV has focused on previously defined most -at-risk persons (MARPs), injecting drug users, sex workers and external migrants, however, available evidence suggest s that other groups (including day laborers, domestic workers, partners of external migrants, partners of sex worker clients and partners of IDUs) may also be exposed to risk, increasing their

vulnerability to HIV infection. Conduct desk research to identify vulnerable groups, their behaviors and best practices to feed into the revision of the NSP. *(UNAIDS, 2008)*

Reducing vulnerability associated with cross-border travel and unofficial migration.

The Ministry of Women and Children's Affairs has developed a pilot project in three districts on the border with India to support HIV prevention particularly amongst migrant populations. This initiative should be scaled up requiring financial and technical support. Support development of HIV prevention program in border areas incorporating lesson learned from MoWCA three pilot districts. *(UNAIDS, 2008)*

Reducing vulnerability to HIV infection in prisons

Prisoners are, in most countries, considered to be highly at risk to HIV due to behaviors such as sharing needles for in injecting drug use and unprotected anal sex and the low access to prevention, care and treatment services. In Bangladesh, there is evidence to show a considerable problem of intravenous drug use, however there is no data on HIV/AIDS person in prisons. Therefore, there is a need to build an evidence base to guide future programming. This risk assessment will be conducted according to the UNODC project proposal submitted to UNAIDS. *(UNAIDS, 2008)*

Ensure blood safety and implementation of 2002 blood safety act.

Promoting safe practices through screening of total blood supply in both public and private sector remains a challenge, even in the presence of appropriate law, and the number of public facilities is limited compared with the size of Bangladesh population. In the longer term, this will require a capacity needs assessment followed up by ongoing capacity development program of relevant staff. One of the more immediate problems is insufficient voluntary donation of blood to blood banks, exacerbated by the lack of integration of blood safety messages into public health campaigns. It was proposed first year technical support intervention is consultative meeting between responsible government agencies and stakeholders to develop an action plan and collaborating mechanisms to ensure that blood transfusion messaging is integrated into other public health campaigns. *(UNAIDS, 2008)*

3.1 World AIDS day

World AIDS Day, observed on 1 December every year, is dedicated to raising awareness of the AIDS pandemic caused by the spread of HIV infection. Government and health officials observe the day, often with speeches or forums on the AIDS topics. Since 1995, the President of the United States has made an official proclamation on World AIDS Day. Governments of other nations have followed suit and issued similar announcements. world AIDS Day was first conceived in August 1987 by James W. Bunn and Thomas Netter, two public information officers for the Global Program on AIDS at the World Health Organization in Geneva, Switzerland. Bunn and Netter took their idea to Dr. Jonathan Mann, Director of the Global Program on AIDS (now known as UNAIDS). Dr. Mann liked the concept, approved it, and agreed with the recommendation that the first observance of World AIDS Day should be 1 December, 1988.Bunn, a broadcast journalist on a leave-of-absence from his reporting duties at KPIX-TV in San Francisco, recommended the date of 1 December believing it would maximize coverage by western news media. Since 1988 was an election year in the U.S. Bunn suggested that media outlets would be weary of their post-election coverage and eager to find a fresh story to cover. Bunn and Netter determined that 1 December was long enough after the election and soon enough before the Christmas holidays that it was, in effect, a dead spot in the news calendar and thus perfect timing for World AIDS Day. *(Wikipedia, 2012)*

Fig 3.1.1 - World Aids Day

On 18 June, 1986 “AIDS Lifeline” (a community education project initiated by Bunn and KPIX Special Projects Producer Nancy Saslow) was honored with a Presidential Citation for Private Sector Initiatives presented by President Ronald Reagan. Because of his role in "AIDS Lifeline"

Bunn was asked by Dr. Mann, on behalf of the U.S. government, to take a two-year leave-of-absence to join Dr. Mann, an epidemiologist for the Centers for Disease Control, and assist in the creation of the Global Program on AIDS for the United Nations' World Health Organization. Mr. Bunn accepted and was named the first Public Information Officer for the Global Program on AIDS.UNAIDS created the World AIDS Campaign in 1997 to focus on year-round communications, prevention and education. In its first two years, the theme of World AIDS Day focused on children and young people. These themes were strongly criticized at the time for ignoring the fact that people of all ages may become infected with HIV and suffer from AIDS. But the themes drew attention to the HIV/AIDS epidemic, helped alleviate some of the stigma surrounding the disease, and helped boost recognition of the problem as a family disease. In 2004, the World AIDS Campaign became an independent organization. Each year, Popes John Paul II and Benedict XVI have released a greeting message for patients and doctors on World AIDS Day. *(Wikipedia, 2012)*

1988	Communication
1997	Children Living in a World with AIDS
1999	Listen, Learn, Live: World AIDS Campaign with Children & Young People
2000	AIDS: Men Make a Difference
2004	Women, Girls, HIV and AIDS
2008	Stop AIDS. Keep the Promise – Lead – Empower – Deliver
2010	Universal Access and Human Rights
2011	Getting to Zero

Table3.1.1 - World Aids day theme from 1988-2011 *(Wikipedia, 2012)*

4.1 Role of Media

The media have a pivotal role to play in the fight against AIDS. It is often said that education is the vaccine against HIV. Many media organizations are rising to the challenge by promoting awareness of HIV/AIDS and educating listeners and viewers about the facts of the epidemic and how to stop it. According to national surveys conducted in the United States, 72% of Americans identify television, radio and newspapers as their primary source of information about HIV/AIDS, more than doctors, friends and family. Similar statistics have also been reported in the United Kingdom and elsewhere in the world. In a survey carried out in India more than 70% of respondents said they had received their information about HIV/AIDS from television. Clearly, media organizations have an enormous influence in educating and empowering individuals to avoid contracting HIV. Doing so with maximum efficiency, however, requires a clear understanding of the challenges and the obstacles to widespread and effective HIV-prevention education. *(UNAIDS, 2004)*

Fig4.1.1 - Sign of Aids prepared by NGO's workers in Bangladesh

4.2 Talking about it

One of the most obvious roles of media is to open channels of communication and foster discussion about HIV and interpersonal relationships. Addressing HIV/AIDS in entertainment programs can have an enormous impact on a society at risk. A number of researchers have noted that the Radio Tanzania soap opera Twende na Wakati (Let's Go with the Times), which was first broadcast in 1993, has greatly increased listeners' willingness to discuss issues related to the virus. In short, the show got people talking. After the program had been aired for several seasons, evaluations reported that 65% of respondents said they had spoken to someone about Twende na Wakati and more than 8 in 10 reported having adopted an HIV-prevention measure as a result of listening to the show. Uganda has dramatically reduced its HIV infection rate, primarily through efforts to encourage frank and open discussion of the disease, its causes, and how to prevent it. The media have helped facilitate this discourse. *(UNAIDS, 2004)*

4.3 Creating a supportive and enabling environment

Mass media can be instrumental in breaking the silence that surrounds the disease and in creating an environment that encourages discussion of how individuals can protect themselves and change their behavior, if necessary. While this may mean combating existing social norms, values and conditions, it is not necessarily as difficult and daunting as it might appear. There are numerous examples in which media interventions have made positive changes in society. For instance, the Indian village, Lutsaan, turned its back on the dowry system after listening communally to a radio soap opera broadcast on All India Radio called Tinka Tinka Sukh (Little steps to a Better Life). *(UNAIDS, 2004)*

4.4 Challenging stigma and discrimination

HIV-related stigma and discrimination are major barriers to effective prevention and, in fact, have been identified as major risk factors for HIV transmission. A number of media campaigns have focused on the need to overcome prejudice and encourage solidarity with people who are infected with, or affected by, the virus. *(UNAIDS, 2004)*

South Africa's Sesame Street, known as Takalani Sesame, has demonstrated that it is never too early to challenge HIV/AIDS-related stigma. Kami (the Tswana word for 'acceptance') is an

energetic and lively golden muppet with ginger hair, who joined the show in September 2002. Kami also happens to be HIV-positive. The show has included storylines wherein Kami has had to cope with being ostracized at school because of her status but has overcome the prejudice of her friends and taught them the value of tolerance. *(UNAIDS, 2004)*

4.5 Promoting HIV/AIDS services

Collaboration between broadcasters, grass-roots organizations, service providers and government agencies can help to ensure that vital services, such as counseling and testing, condom provision, and even treatment and care, are available on the ground.

The weekly award-winning television soap SIDA dans la Cité (AIDS in the City), produced in Côte d'Ivoire and shown on Ivorian Radio and Television (RTI) and across French West Africa, is a good example of how the promotion of condoms can be linked directly to their subsequent availability. The series revolves around the life of a family affected by HIV/AIDS and is produced as the key part of a condom social marketing campaign by Population Services International (PSI), Côte d'Ivoire and a local partner. PSI promotes condom use through the program and makes sure that condoms are available to the audience. A survey found that those who had seen 10 or more episodes of the show were significantly more likely to have used a condom than were non-viewers. *(UNAIDS, 2004)*

Broadcasters can also join with partners to educate about HIV/AIDS and publicize the availability of services. The Kaiser Family Foundation, for example, partners with top media companies, such as Black Entertainment Television and Univision, the leading Spanish-language television company in the United States, targets to reach key populations- African, American and Latino youths, respectively. These extensive public education partnerships promote dedicated toll-free hotlines and websites to direct viewers seeking more information to local HIV counselors or testing centers. Collectively, these efforts connect hundreds of thousands of young people with services every year. *(UNAIDS, 2004)*

4.6 Educating and entertaining

To be effective, messaging about HIV/AIDS must be both educational and entertaining. These two goals should not be mutually exclusive. A number of programs have served to inform their

audiences about the virus while, at the same time, achieving market success. In India, Doordarshan, the national television service, the National AIDS Control Organization (NACO) and the BBC World Service Trust, (the international development arm of the British Broadcasting Corporation), joined forces in 2002 to launch the country's first-ever mass media campaign to increase awareness of HIV/AIDS. The campaign has been largely based on education through entertainment, with two key strands being the popular interactive detective series Jasoos (Detective)Vijay and the award-winning weekly 'reality' youth show, Haath se Haath Milaa (Let's Join Hands) etc. *(UNAIDS, 2004)*

Fig 4.6.1 Aids awareness Posters/Advertise commonly used in Bangladesh

4.7 Putting HIV/AIDS on the news agenda and encouraging leaders to take action

Another key area for media involvement in AIDS education efforts is ensuring that the topic is kept at the top of the news agenda. In recent years, several leading broadcasters from around the world have found innovative ways to report on the epidemic.

The BBC World Service launched a two-week season of programming, including news reports, documentaries, and online coverage of the epidemic to mark World AIDS Day 2003. The company's high-profile interviews with several world leaders and celebrities, along with phone-ins and 'web chats' with other public figures, generated broad coverage of HIV for audiences around the world. *(UNAIDS, 2004)*

The Chinese national station, China Central Television (CCTV), broadcast some 230 news items on HIV/AIDS in the first 10 months of 2003.Since 1996, Spain's Radio television Espanola (RTVE) has also worked to keep discussion of the virus in the public domain. Each year, this has led to two months of special programming, aimed at raising awareness, in the lead-up to World AIDS Day. In the US, the Time Warner network, HBO, broadcast a five-part documentary series in the summer of 2003 entitled Pandemic: Facing AIDS. CNN has also run a special season of HIV-related programming, which included a large news component. The NTV Channel and the radio station Echo of Moscow (Gazprom) have also ensured that the virus has received widespread coverage and been kept near the top of the news agenda, whether through medical news programmes, reports about the epidemic, radio call-ins or studio discussions. Metro TV in Indonesia has consistently broadcast HIV/AIDS-related news and featured comment and analysis about the epidemic in talk-shows and documentaries. *(UNAIDS, 2004)*

4.8 Sharing resources, pooling material

Several successful campaigns have benefited from and fully utilized the opportunity of pooling resources with other outlets by sharing expertise and material.

MTV Staying Alive, the global, multi-partnership, mass media campaign targeting young people, has consistently offered its products rights-free to all other broadcasters. In 2002, this facility resulted in Staying Alive programs being aired on television stations serving some 800 million households worldwide when rebroadcasts on CCTV were added. In 2003, the documentary Meeting Mandela was watched across the world and the concert, launched by Nelson Mandela in association with MTV Staying Alive and other partners, reached up to 2 billion viewers, thanks in part to MTV encouraging rebroadcasts of the concert on other networks. *(UNAIDS, 2004)*

4.9 Capacity-building

Successful partnerships need not necessarily be with other media outlets. Broad, symbiotic alliances with NGOs, government departments and foundations, for instance, can bring significant benefits for both parties. Broadcasters can trade resources with campaign partners, such as access to airtime, and in return receive the expertise that partners have to offer on HIV advocacy. Creative teams on drama series can be briefed about useful messages and how a

specific audience might be reached, while editors, producers and reporters can be advised about the most pressing and relevant aspects of the HIV issue from a new perspective.

Again, as a result of the KNOW HIV/AIDS partnership, the Kaiser Family Foundation have offered the broadcaster expertise in terms of pinpointing key messages, giving access to up-to-date accurate information and building HIV knowledge within creative media teams. *(UNAIDS, 2004)*

Fig4.9.1 -Aids awareness posturing in a bus in Bangladesh

5.1 Antiretroviral drugs

Antiretroviral drugs are medications for the treatment of infection by retroviruses, primarily HIV. When several such drugs, typically three or four, are taken in combination, the approach is known as Highly Active Antiretroviral Therapy or HAART. The American National Institutes of Health and other organizations recommend offering antiretroviral treatment to all patients with AIDS. Because of the complexity of selecting and following a regimen, the severity of the side-effects and the importance of compliance to prevent viral resistance, such organizations emphasize the importance of involving patients in therapy choices, and recommend analyzing the risks and the potential benefits to patients with low viral loads. *(USFDA, 2012)*

There are different classes of antiretroviral drugs that act on different stages of the HIV life-cycle. Antiretroviral (ARV) drugs are broadly classified by the phase of the retrovirus life-cycle that the drug inhibits.

- Entry inhibitors (or fusion inhibitors) interfere with binding, fusion and entry of HIV-1 to the host cell by blocking one of several targets. Maraviroc and enfuvirtide are the two currently available agents in this class.
- CCR5 receptor antagonists are the first antiretroviral drugs which do not target the virus directly. Instead, they bind to the CCR5 receptor on the surface of the T-Cell and block viral attachment to the cell. Most strains of HIV attach to T-Cells using the CCR5 receptor. If HIV cannot attach to the cell, it cannot gain entry to replicate.
- Non-Nucleoside and nucleotide reverse transcriptase inhibitors (NNRTI) inhibit reverse transcription by being incorporated into the newly synthesized viral DNA strand as a faulty nucleotide. This causes a chemical reaction resulting in DNA chain termination.
- Nucleoside reverse transcriptase inhibitors (NRTI) mimic nucleotides and inhibit reverse transcriptase directly by binding to the enzymes polymerase site and interfering with its function.
- Protease inhibitors (PIs) target viral assembly by inhibiting the activity of protease, an enzyme used by HIV to cleave nascent proteins for the final assembly of new virions.
- Integrase inhibitors inhibit the enzyme integrase, which is responsible for integration of viral DNA into the DNA of the infected cell. There are several integrase inhibitors

currently under clinical trial, and raltegravir became the first to receive FDA approval in October 2007.

- Maturation inhibitors inhibit the last step in gag processing in which the viral capsid polyprotein is cleaved, thereby blocking the conversion of the polyprotein into the mature capsid protein (p24). Because these viral particles have a defective core, the virions released consist mainly of non-infectious particles. Alpha interferon is a currently available agent in this class. Two additional inhibitors under investigation are bevirimat and Vivecon. *(USFDA, 2012)*

5.2 Antiretroviral drugs used in the treatment of HIV infection (USFDA, 2012)

Drugs Used in the Treatment of HIV Infection

5.2.1 Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

Brand Name	Generic Name	Manufacturer Name	Approval Date	Time to Approval
Combivir	Lamivudine and zidovudine	GlaxoSmithKline	27-Sep-97	3.9 months
Emtriva	emtricitabine, FTC	Gilead Sciences	02-Jul-03	10 months
Epivir	lamivudine, 3TC	GlaxoSmithKline	17-Nov-95	4.4 months
Epzicom	abacavir and lamivudine	GlaxoSmithKline	02-Aug-04	10 months
Hivid	zalcitabine, dideoxycytidine, ddC	Hoffmann-La Roche	19-Jun-92	7.6 months
Retrovir	zidovudine, azidothymidine, AZT, ZDV	GlaxoSmithKline	19-Mar-87	3.5 months
Trizivir	abacavir, zidovudine, and lamivudine	GlaxoSmithKline	14-Nov-00	10.9 months

Truvada	tenofovir disoproxil fumarate and emtricitabine	Gilead Sciences, Inc.	02-Aug-04	5 months
Videx EC	enteric coated didanosine, ddI EC	Bristol Myers-Squibb	31-Oct-00	9 months
Videx	didanosine, dideoxyinosine, ddI	Bristol Myers-Squibb	9-Oct-91	6 months
Viread	tenofovir disoproxil fumarate, TDF	Gilead	26-Oct-01	5.9 months
Zerit	stavudine, d4T	Bristol Myers-Squibb	24-Jun-94	5.9 months
Ziagen	abacavir sulfate, ABC	GlaxoSmithKline	17-Dec-98	5.8 months

5.3 Non-nucleoside Reverse Transcriptase Inhibitors (NNRTIs)

5.3.1 Table - Non-nucleoside Reverse Transcriptase Inhibitors (NNRTIs)

Brand Name	**Generic Name**	**Manufacturer Name**	**Approval Date**	**Time to Approval**
Edurant	rilpivirine	Tibotec Therapeutics	20-May-11	10 months
Intelence	etravirine	Tibotec Therapeutics	18-Jan-08	6 months
Rescriptor	delavirdine, DLV	Pfizer	4-Apr-97	8.7 months
Sustiva	efavirenz, EFV	Bristol Myers-Squibb	17-Sep-98	3.2 months
Viramune (Immediate Release)	nevirapine, NVP	Boehringer Ingelheim	21-Jun-96	3.9 months

Viramune XR(Extended Release)	nevirapine, NVP	Boehringer Ingelheim	25-Mar-11	9.9 months

5.4 Protease Inhibitors (PIs)

Brand Name	**Generic Name**	**Manufacturer Name**	**Approval Date**	**Time to Approval**
Agenerase	amprenavir, APV	GlaxoSmithKline	15-Apr-99	6 months
Aptivus	tipranavir, TPV	Boehringer Ingelheim	22-Jun-05	6 months
Crixivan	indinavir, IDV,	Merck	13-Mar-96	1.4 months
Fortovase	saquinavir (no longer marketed)	Hoffmann-La Roche	7-Nov-97	5.9 months
Invirase	saquinavir mesylate, SQV	Hoffmann-La Roche	6-Dec-95	3.2 months
Kaletra	lopinavir and ritonavir, LPV/RTV	Abbott Laboratories	15-Sep-00	3.5 months
Lexiva	Fosamprenavir Calcium, FOS-APV	GlaxoSmithKline	20-Oct-03	10 months
Norvir	ritonavir, RTV	Abbott Laboratories	1-Mar-96	2.3 months
Prezista	darunavir	Tibotec, Inc.	23-Jun-06	6 months
Reyataz	atazanavir sulfate, ATV	Bristol-Myers Squibb	20-Jun-03	6 months
Viracept	nelfinavir mesylate, NFV	Agouron Pharmaceuticals	14-Mar-97	2.6 months

5.5 Fusion Inhibitors

Brand Name	Generic Name	Manufacturer Name	Approval Date	Time to Approval
Fuzeon	enfuvirtide, T-20	Hoffmann-La Roche & Trimeris	13-Mar-03	6 months

5.6Entry Inhibitors - CCR5 co-receptor antagonist

Brand Name	Generic Name	Manufacturer Name	Approval Date	Time to Approval
Selzentry	maraviroc	Pfizer	06-August	8 months

5.7 HIV integrase strand transfer inhibitors

Brand Name	Generic Name	Manufacturer Name	Approval Date	Time to Approval
Isentress	raltegravir	Merck & Co., Inc.	12--Oct-07	6 months

5.8 Combination therapy

The life cycle of HIV can be as short as about 1.5 days from viral entry into a cell, through replication, assembly, and release of additional viruses, to infection of other cells. HIV lacks proofreading enzymes to correct errors made when it converts its RNA into DNA via reverse transcription. Its short life-cycle and high error rate cause the virus to mutate very rapidly, resulting in a high genetic variability of HIV. Most of the mutations either are inferior to the parent virus (often lacking the ability to reproduce at all) or convey no advantage, but some of them have a natural selection superiority to their parent and can enable them to slip past defenses such as the human immune system and antiretroviral drugs. The more active copies of the virus the greater the possibility that one resistant to antiretroviral drugs will be made. *(USFDA, 2012)*

When antiretroviral drugs are used improperly, these multi-drug resistant strains can become the dominant genotypes very rapidly. Improper serial use of the reverse transcriptase inhibitors zidovudine, didanosine, zalcitabine, stavudine, and lamivudine can lead to the development of multi-drug resistant mutations. The mutations can include the V75I, F77L, K103N, F116Y, Q151M, and the M184V mutation. These mutations were observed before protease inhibitors had come into widespread use. The mutants retained sensitivity to the early protease inhibitor saquinavir. These mutants were also sensitive to the rarely used reverse transcriptase inhibitor foscarnet. Antiretroviral *combination therapy* defends against resistance by suppressing HIV replication as much as possible. Combinations of antiretroviral create multiple obstacles to HIV replication to keep the number of offspring low and reduce the possibility of a superior mutation. If a mutation that conveys resistance to one of the drugs being taken arises, the other drugs continue to suppress reproduction of that mutation. With rare exceptions, no individual antiretroviral drug has been demonstrated to suppress an HIV infection for long; these agents must be taken in combinations in order to have a lasting effect. As a result, the standard of care is to use combinations of antiretroviral drugs. Combinations usually comprise two nucleoside-analogue RTIs and one non-nucleoside-analogue RTI or protease inhibitor. This three drug combinations is commonly known as a triple cocktail.

Combinations of antiretroviral are subject to positive and negative synergies, which limit the number of useful combinations. In recent years, drug companies have worked together to combine these complex regimens into simpler formulas, termed fixed-dose combinations. For instance, two pills containing two or three medications each can be taken twice daily. This greatly increases the ease with which they can be taken, which in turn increases adherence, and thus their effectiveness over the long-term. Lack of adherence is a cause of resistance development in medication-experienced patients. Patients who maintain proper therapy can stay on one regimen without developing resistance. This greatly increases life expectancy and leaves more drugs available to the individual should the need arise. *(USFDA, 2012)*

Brand Name	Drug Names (INN)	Date of FDA Approval	Company
Combivir	zidovudine + lamivudine	September 26, 1997	GlaxoSmithKline
Trizivir	abacavir + zidovudine + lamivudine	November 15, 2000	GlaxoSmithKline
Kaletra	lopinavir + ritonavir	September 15, 2000	Abbott Laboratories
Epzicom (in USA) Kivexa (in Europe)	abacavir + lamivudine	August 2, 2004	GlaxoSmithKline
Truvada	Tenofovir+emtricitabine	August 2, 2004	Gilead Sciences
Atripla	efavirenz + tenofovir/emtricitabine	July 12, 2006	Gilead Sciences and Bristol-Myers Squibb

5.9 Regimens

Most current HAART regimens consist of three (3) drugs: 2 NRTIs + a PI/NNRTI/II. Initial regimens use "first-line" drugs with a high efficacy and low side-effect profile. Treatment guidelines for HIV-1 infected adults in the developed world (that is, those countries with access to all or most therapies and laboratory tests) have been provided by the International AIDS Society-USA (IAS-USA) since 1996. The IAS-USA is a 501 not-for-profit organization in the USA (and is not related to the worldwide International AIDS Society or IAS). The IAS-USA guidelines for antiretroviral therapy are developed by a volunteer panel of experts. Its last update was published in August 2008 in the Journal of the American Medical Association. In the 2008 update, the panel recommended that therapy be initiated before the CD4+ cell count declines to below 350/uL and be individualized for the particular patient's situation and comorbidities. For initial therapy, it recommends 2 NRTIs with an NNRTI, aritonavir-boosted PI or an integrase inhibitor. In antiretroviral therapy failure, the goal of subsequent treatment is suppression of HIV-1 RNA to below detection; the treatment should ideally have 3 new drugs to which the patient's virus is susceptible. Therapy in selected clinical situations is also described. The IAS-

USA also sponsors the development of guidelines for the use of drug resistance testing in patients with HIV-1 infection. *(USFDA, 2012)*

Another set of guidelines (distinct from those of the IAS-USA) are provided by an expert panel convened by the U.S. Department of Health and Human Services. The preferred initial regimens in the United States, as of June 2011 are:-

- Tenofovir/emtricitabine (a combination of two NRTIs) and efavirenz (a NNRTI). Efavirenz should not be given to pregnant women.
- Tenofovir/emtricitabine and raltegravir (an integrase inhibitor)
- Tenofovir/emtricitabine, ritonavir and darunavir (both latter are protease inhibitors)
- Tenofovir/emtricitabine, ritonavir and atazanavir (both latter are protease inhibitors) *(USFDA, 2012)*

5.10 Concern

There are several concerns about antiretroviral regimens:

- **Intolerance**: The drugs can have serious side-effects, particularly in advanced disease.
- **resistance**: If patients miss doses, drug resistance can develop,
- **Cost**: Providing anti-retroviral treatment is costly and resource-intensive, and the majority of the world's infected individuals cannot access treatment services.
- **Public health**: Individuals who fail to use antiretroviral properly can develop multi-drug resistant strains which can be passed onto others. *(USFDA, 2012)*

5.11 Adverse effects

Adverse effects of antiretroviral drugs vary by drug, by ethnicity, by individual, and by interaction with other drugs, including alcohol. Hypersensitivity to some drugs may also occur in some individuals. The following list is not complete, but includes several of the adverse effects experienced by patients taking some antiretroviral drugs:

- Abdominal pain (Ritonavir)
- Alopecia (INF-alpha)

- Anemia (AZT)
- Asthenia
- Diarrhea (Abacavir)
- Dizziness (Vertigo)
- Fanconi syndrome
- Flatulence (Tenofovir)
- Gynecomastia
- Headache (3TC overdose)
- Hepatitis
- Hyperbilirubinemia
- Hypercholesterolemia
- Hyperpigmentation (Emtricitabine)
- Ingrown nails (IDV)
- Insomnia (Emtricitabine)
- Jaundice
- Lipodystrophy / HIV-associated lipodystrophy
- Liver failure
- Malaise
- Mental confusion
- Migraines
- Mitochondrial toxicity
- Mood swings
- Myalgia (AZT overdose)
- Myopathy (AZT overdose)
- Nausea (AZT)
- Neutropenia (AZT)
- Nightmares (EFZ)
- Oral ulcers (ddC)
- Pancreatitis (ddI)
- Paresthesia (IDV)

- Peripheral neuropathy (ddI, ddC, d4T)
- Rash
- Renal failure or insufficiency (IDV, TDF)
- Somnolence (drowsiness)
- Stevens–Johnson syndrome
- Change in taste perception
- Vomiting (AZT)
- Xeroderma (dry skin) *(Wikipedia, 2012)*

LITERATURE REVIEW

6.1 SEX WORKERS IN BANGLADESH Impact of RDRS organization on the lives of sex workers

Katja Harapainen Thesis, Autumn 2007 Diaconia University of Applied Sciences Diak South Helsinki, Finland Degree Programme in Nursing Bachelor of Nursing.

The purpose of this thesis was to air the views of sex workers attending Rangpur Dinajpur Rural Service (RDRS) Bangladesh drop-in center. Firstly, the aim was to learn what kind of difficulties the sex workers had faced in their lives. Secondly, the objective was to collect information on what kind of support the sex workers received for their well-being and health from the RDRS Bangladesh drop-in center. Additionally, I studied how the sex workers saw their future. This thesis was done in collaboration with the organizations RDRS Bangladesh and Soroptimist International of Finland. This study was conducted using a qualitative research method with an ethnographical approach. The research data was collected by using half-structured thematic interviews, observation and examination of RDRS' documents. The research took place in autumn 2006 during my international work practice placement in Bangladesh. The data collection was done in Bangladesh, in the town of Saidpur where RDRS Bangladesh drop-in center for prostituted women was situated. I conducted two group interviews with 19 and 15 women aged 18-45 and six individual interviews. The data was analyzed in Finland by using the content analysis. The theory of Transcultural Nursing was used as a theoretical framework of this study. The results of the study showed that sex workers had had hard lives. They had faced e.g. extreme poverty, maltreatment, sexual abuse, and contempt. The sex workers emphasized the importance of the RDRS Bangladesh drop-in center in their lives. The drop-in center provided them a shelter, security, equal treatment, and opportunities for bathing, training, relaxing and health care. As future prospects they included hopes of ending prostitution and having a normal life without homelessness and contempt of fellow citizens. It can be concluded that RDRS Bangladesh drop-in center has had a substantial influence on the interviewed sex workers' lives. RDRS Bangladesh has done valuable work with prostituted women in the area. The sex workers seem to need holistic support and supervision to improve their well-being also in the future.

6.2 HIV vulnerabilities faced by women migrants From Bangladesh to the Arab states

This publication is the country report of the regional series titled: HIV vulnerabilities faced by Women migrants: from Asia to the Arab states. The regional report was undertaken by the UNDP Regional HIV and Development Program in Asia and the Pacific produced in close Collaboration with Coordination of Action Research for AIDS and Mobility in Asia (CARAM Asia) and Caritas Lebanon Migrant Center (CLMC), and support from UNAIDS, IOM and UNIFEM. The production of the Bangladesh report was supported by the UNDP Regional Centre in Colombo and UNDP Bangladesh.

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Data from the Bureau of Manpower, Employment, and Training (BMET) show that from 1976 to January 2007 the total number of Bangladeshis working abroad as short-term migrants stood at 5,613,752. In 2007 alone, 832,609 migrants left Bangladesh and sent back $6.5 billion in official Remittances. Between 2006 and 2007, an estimated 18,000 women migrated from Bangladesh. An increased in over the 14,000 in 2005-2006. Between 1991 and May 2007, BMET showed a total of just 69,967 women migrating to other Asian and Arab State countries. Of these, 22,826 went to Saudi Arabia, and 20,482 went to Dubai. Other major destinations, by number of Bangladeshi Women migrants, include Kuwait, Jordan, Malaysia, and Bahrain. From 1981 to 1998, the Government of Bangladesh repeatedly banned or restricted the outflow of unskilled women. That resulted in women migrants accounting for just one per cent of the total flow of registered migration up to 2003. When restrictions were lifted in 2003, the number of women officially migrating jumped to six per cent of the total by 2006. This official figure is probably

lower than the actual number, because it is estimated that only 40 per cent of women migrants use recruitment agencies. The rest are believed to make private arrangements with the help of relatives and friends living in the destination countries. The Ministry of Health and Family Welfare (MOHFW) refers to 1,207 registered HIV cases in December 2007. This is a sharp increase over the 363 cases registered in 2003. Overall, the (official) prevalence of HIV in the general population is low, at under 0.1 per cent. Migrant workers account for a significant number of HIV cases, primarily because they are subjected to mandatory HIV testing. It has been estimated that 51 per cent of the 219 confirmed HIV cases in 2002 were returning migrant workers.4 According to the International Centre for Diarrheal Disease Research, Bangladesh, 47 of the 259 people living with HIV between 2002 and 2004 were infected during their migration. Of these, 29 were males returning from abroad, seven were migrants' wives, and four were their children. In 2004, data from the MOHFW's National AIDS/STD Program showed that 57 of the 102 newly reported HIV cases were returning migrants. The links between migration and HIV/AIDS in Bangladesh need further investigation, especially as statistical data inadequately reflects or offers deeper insight into these complex connections.

6.3 Years of HIV in Bangladesh: Experiences and Way Forward

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Early and continued implementation of HIV prevention programs among most at risk populations, guided by data from regular surveillance and behavioral surveys have helped Bangladesh largely keep HIV at bay. HIV prevalence in Bangladesh remains low – less than 0.1% in the general population; below 1% amongst female and male sex workers (FSWs and MSWs), male who have sex with male (MSM) and transgendered people (Hijra) and just above 1% amongst Injecting Drug Users (IDUs) except for one neighborhood in Dhaka. Recent data suggest that there are two key areas for HIV in the country:

- Injecting Drug users: HIV prevalence has started to increase amongst IDUs in Dhaka, rising to 7% in 2007/08 in one neighborhood. This epidemic "hot spot" is clearly a priority.

- International returned migrant workers: This group accounts for the majority of passively reported cases of HIV in the country and may be a potential source of HIV transmission. The numbers are small but this area needs careful attention. Genetic analysis found that the HIV strains were different in each of these groups as of 2005. There is some overlap amongst SWs, as some inject drugs and some engage with migrant workers. A rising epidemic in one of these groups, therefore, could lead to a spread in others.

6.4 HIV/AIDS acquisition and transmission in Bangladesh: turning to the concentrated epidemic.

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A seventh round behavioral and serological surveillance found that the HIV epidemic had remarkably increased to 7% among intravenous drug users (IDU) in Central Bangladesh, indicating the urgent need to increase prevention. The main purposes of this study were to find out, by collecting data and the necessary information from sero-surveillances, published reports, and articles, what the prevalence of HIV/AIDS is, and what the acquisition and transmission routes are. In addition, trends in HIV-related risk behaviors among recognized high risk groups were observed, and estimations and projections of HIV transmission up to the year 2020 presented. The Estimation and Projection Package was used to estimate and project the HIV transmission. The study results reveal that Bangladesh is a low prevalence country which is turning into one with a concentrated epidemic due to the high HIV prevalence rate of IDU (7%) among the most-at-risk groups. Within this at-risk population, IDU have the highest prevalence rate of HIV transmission, followed by female sex workers, clients of sex workers, and men who have sex with men. If the transmission rate continues to increase, the situation will be uncontrolled. Therefore, there is an urgent need for a comprehensive prevention program to control the spread of HIV.

6.5 A HISTORY OF THE HIV/AIDS EPIDEMIC WITH EMPHASIS ON AFRICA

WORKSHOP ON HIV/AIDS AND ADULT MORTALITY
IN DEVELOPING COUNTRIES

Population Division
Department of Economic and Social Affairs
United Nations Secretariat
New York, 8-13 September 2003

In 1981, a new syndrome, the acquired immune deficiency syndrome (AIDS), was first recognized among homosexual men in the United States. By 1983, the etiological agent, the human immunodeficiency virus (HIV), had been identified. By the mid-1980's, it became clear that the virus had spread, largely unnoticed, throughout most of the world. The HIV/AIDS pandemic consists of many separate epidemics. Each epidemic has its own distinct origin, in terms of geography and specific populations affected, and involve different types and frequencies of risk behaviors and practices, for example, unprotected sex with multiple partners or sharing drug injection equipment. Countries can be divided into three states: generalized, concentrated and low.

Low

Principle: Although HIV infection may have existed for many years, it has never spread to significant levels in any sub-population. Recorded infection is largely confined to individuals with higher risk behavior: e.g. sex workers, drug injectors, men having sex with other men. This epidemic state suggests that networks of risk are rather diffuse (with low levels of partner exchange or sharing of drug injecting equipment), or that the virus has been introduced only very recently.

Numerical proxy: HIV prevalence has not consistently exceeded 5% in any defined subpopulation.

Concentrated

Principle: HIV has spread rapidly in a defined sub-population, but is not well-established in the general population. This epidemic state suggests active networks of risk within the subpopulation.

The future course of the epidemic is determined by the frequency and nature of links between highly infected sub-populations and the general population.

Numeric proxy: HIV prevalence consistently over 5% in at least one sub-population at highest risk, and prevalence below 1% in the general adult population (age 15-49 years) in urban areas.

Generalized

Principle: In generalized epidemics, HIV is firmly established in the general population.

Although sub-populations at high risk may continue to contribute disproportionately to the spread of HIV, sexual networking in the general population is sufficient to sustain an epidemic independent of sub-populations at higher risk of infection.

Numeric proxy: HIV prevalence consistently over 1% in pregnant women.

6.6 PROVIDING AIDS AWARENESS EDUCATION THROUGH VILLAGE BASED WOMEN'S ORGANIZATIONS

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6.7 ADOLESCENT KNOWLEDGE AND AWARENESS ABOUT AIDS/HIV AND FACTORS AFFECTING THEM IN BANGLADESH

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Adolescents are more vulnerable than adults of unplanned pregnancies, sexually transmitted diseases and HIV/AIDS. Among the adolescents, girls are more vulnerable to STDs including HIV/AIDS. Their knowledge about different diseases is very poor. This paper investigated adolescent's knowledge about sexually transmitted diseases including HIV/AIDS, its mode of transmission and ways of its prevention.

Methods: Cross sectional study design was adopted for this study. A multistage cluster sampling technique was used to select the sample. Data on 3362 female adolescents irrespective of their marital status was analyzed. **Results**: The study found that a large proportion of adolescents were not aware about sexually transmitted diseases and AIDS. More than half of the adolescents ever heard about AIDS respectively. On an average, about one tenth of them had better knowledge on AIDS in terms of mode of transmission and prevention. The multivariate logistic regression analysis revealed that adolescent age, years of schooling and knowledge on STDs appeared to be important predictors of the awareness about AIDS. $p<0.05$ **Conclusions**: Useful and fruitful media campaigns to educate the adolescents regarding the health consequences of STDs including HIV/AIDS and integrated approach is strongly suggested for creating knowledge and awareness to control the spread of HIV and AIDS among young people in Bangladesh.

6.8 Kaiser Family Foundation *2009 Surveys of Americans on HIV/AIDS: Summary of Findings on the Domestic Epidemic.*

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Kaiser Family Foundation's website at www.kff.org.

Fully half of Americans in 2009 say the federal government spends too little on HIV/AIDS in the United States, while nearly three in ten (28 percent) say spending is about right, and just 5 percent say the government spends too much. Perhaps as a reflection of the current economic climate, the share of the public that wants the federal government to spend more on HIV/AIDS domestically has decreased somewhat since 2006, returning to levels seen in 2004 and earlier. However, it is notable that since we began tracking this question in 1997, the share saying the government spends too little on HIV/AIDS has never dipped below half. When asked instead about federal government spending on HIV/AIDS compared with other diseases, roughly equal shares say spending on HIV/AIDS is too low (35percent) as say about right (36 percent), while just 7 percent say it is too high. African Americans are more likely than whites and Latinos to say the government should spend more on HIV/AIDS. The public is optimistic that spending on prevention will make a difference – six in ten say that more spending on HIV/AIDS prevention in the U.S. will lead to meaningful progress in slowing the epidemic, compared with three in ten (31 percent) who say it won't make much difference (shares that have been fairly consistent

since 2004 – data not shown). Fewer, but still about half (48 percent), believe spending more on HIV/AIDS treatment in the U.S. will lead to meaningful progress in slowing the epidemic, while nearly four in ten (38 percent) think it won't make much difference. African Americans and Latinos are more likely than whites to think spending on treatment will make a difference, and young adults are more likely than their older counterparts to think spending on prevention will lead to progress. The share of Americans naming HIV/AIDS as the most urgent health problem facing the nation also dropped precipitously between 2006 and 2009, from 17 percent to just 6 percent. It had been as high as 44 percent in 1995, declined until 2002, and remained fairly steady between 2002 and 2006 before this latest drop. While African Americans and Latinos are more likely than whites to name HIV/AIDS as the country's most urgent health problem, dramatic declines between 2006 and 2009 were observed for all groups. HIV/AIDS now ranks behind other diseases such as cancer (28 percent), heart disease (14 percent), obesity/nutrition disorders (14 percent), and diabetes (8 percent), as well as other health care-related concerns such as the uninsured (18 percent), health care costs (17 percent), and health care access (9 percent) as the most urgent health problem facing the nation.

7.1 Objective of this Research:

- To identify strategies to expand prevention services for Bangladeshi male & female at risk for HIV/AIDS.
- To investigate the level of knowledge of the University students of Dhaka city (representing the youths of the nation) of Bangladesh.
- To increase knowledge of HIV status and linkages to treatment.
- To increase community action for greater awareness, communication, and HIV testing for mass people.
- To identify the differences between the level of knowledge of male and female.
- To know the kind of perception about HIV/AIDS among the different classes of people of Dhaka city and their thinking towards risk behaviors that promote HIV/AIDS transmission.
- Possible reason for spreading HIV/AIDS in Bangladesh.
- Suggesting recommendations to stop spreading HIV/AIDS in Bangladesh based on the study results.
- To increase research on effective ways to reduce risk behaviors that lead to HIV infection.

METHOD AND MATERIAL

There are many different ways to conduct a survey. The most common methods are telephone surveys, one-on-one interviews, written surveys sent by mail, or email surveys (Online surveys). Each method can be effective if administered in the right situation. However, each method also has its own pros and cons and can be ineffective if used under the wrong circumstances. Selecting the right method is critical to the success of a survey project. I used both online surveys and one-on-one interviews method to collect our Data.

8.1 Data collection

As part of this research, data collection was carried out from November 2011 to February 2012 in different areas of Dhaka city. A total of 350 Volunteers were sampled and they are from different occupation like government officer, private service holder, businessmen, student, housewife, salesman & illiterate people were interviewed with a questionnaire to know about the knowledge, perception and behavior about HIV/AIDs. Even I conduct my research with the help of Internet (Gmail and Facebook) and collect data for my research purpose & the link is given below:

https://docs.google.com/spreadsheet/viewform?formkey=dFVUQWVLM19oZ2lmRXlsNDVTSm0wZGc6MQ

8.2 Sample Selection

In this research we tried to find out the knowledge of HIV/AIDS among the mass people like government officer, private service holder, businessmen, student, housewife and I also take the interview of the rickshaw puller and street vendors, beggar, garments workers and salesman. As I live in Dhaka city it was easy for me to communicate with them. So it is a very good source of my desired sample and for that this was my sample area.

8.3 Questionnaire development

Questionnaire is developed based on the study of different paper to know the knowledge, perception and behavior of the sample about HIV/AIDs.

Survey questionnaire mainly consists of three parts:

- Knowledge
- perception
- Behavior

Serial no:	**Date:**			**Area:**

RESPONDENT'S PROFILE

Name:	Marital status:
Age:	Religion:
Gender:	Education level:

QUESTIONNAIRE

1. Have you heard about HIV/AIDS?		Yes	No
2. Do you know the meaning of HIV/AIDS?		Yes	No
3. What is the source of your knowledge about HIV/AIDS?			
	Through Media(Television, Radio, Posters, Advertisement, Magazines, Newspapers)		
	Participating in seminar's which discuss about HIV/AIDS		
	Personal discussions with family members and friends		
	Others_____		
4. Are you familiar with the symptoms of HIV/AIDS?		Yes	No
5. Do you know how it spreads?			
	By Air		
	Blood transfusion		
	From an infected mother to her baby		
	By touching an infected person		
	By having sexual intercourse with an infected person without using a condom		
	Other_____		
6. Do you know about any cure for HIV/AIDS?		Yes	No
7. Do you donate blood?		Yes	No

7a. Are you careful about syringes used during donating or blood testing?	Yes	No
8. Do you or some you know continuing blood transfusion from ordinary place still knowing the risk of HIV/AIDS spreading?	Yes	No
9. Do you have any physical relation with anybody?	Yes	No
9a. What type of physical relation?		
Legal		
Illegal		
9b. Do you know how to use a condom?	Yes	No
9c. Do you use condoms while having sex?	Yes	No
9d. Where do you generally buy condoms?		
Pharmacy		
Other		
10. A person having HIV/AIDS should not be isolated from society. Do you agree?	Yes	No
11. How would you react if one of your friends or family members told you that he/she has been in infected by AIDS?		
Helpful		
Avoid		
12. Do you think a child (indirect HIV/AIDS patient) having HIV/AIDS should be allowed in the School, College and University?	Yes	No
13. Do you support HIV/AIDS patients to be discriminated in Jobs and education?	Yes	No
14. Do you think a person can get HIV from casual contact (By sharing room, shaking someone's hand, by hugging someone, by drinking from the same glass as an HIV/AIDS-positive person)?	Yes	No
15. Do you think HIV/AIDS education in School, College and	Yes	No

University level may be a helpful way to increase awareness about HID/AIDS risks in the young generations?		
16. Do you believe that HIV/AIDS education will have a great influence on the behavior and perception of people, which is helpful to decrease the rate of HIV/AIDS risk to social and cultural factors?	Yes	No
17. What should be role the government about HIV/AIDS?		
	Only awareness	
	Free treatment	
18. What will be the best way to increase knowledge of HIV/AIDS risk? (Answer may be more than one)		
	Providing information through education	
	Arrangements of seminar's	
	Through Media (Television, Radio, Posters, Advertisement, Magazines, Internet)	
	Personal discussions with family members and friends	
	Involving in new research projects in different organizations	
	Leaflet	
19. Comments:		

_____

Signature of the Respondent

8.4 Data analysis:

After collecting all data, data were analyzed with Microsoft office excels.

8.5 Study period

Overall study period was seven months. To complete the study in time, a work schedule was prepared depending on different task of the study. The first three months were spent on meeting for selection of aspects such as

- Title of the research
- Literature review
- Development of the protocol.

Subsequent months were spent on

- Official correspondence
- Data collection
- Data analysis
- Report writing

8.6 Translation of the questionnaire

The questionnaire was translated to local language for the better understand. I worked with the different category of people like house wife, rickshaw puller, street vendors and day labors so for easier communication I have translated the questionnaire to Bengali.

9.1 Title: Number of respondents who have heard about HIV/AIDs

9.1 Table: Distribution of respondents who have heard about HIV/AIDs

Respondents have heard about HIV/AIDs	Percentage
Yes	89%
No	11%

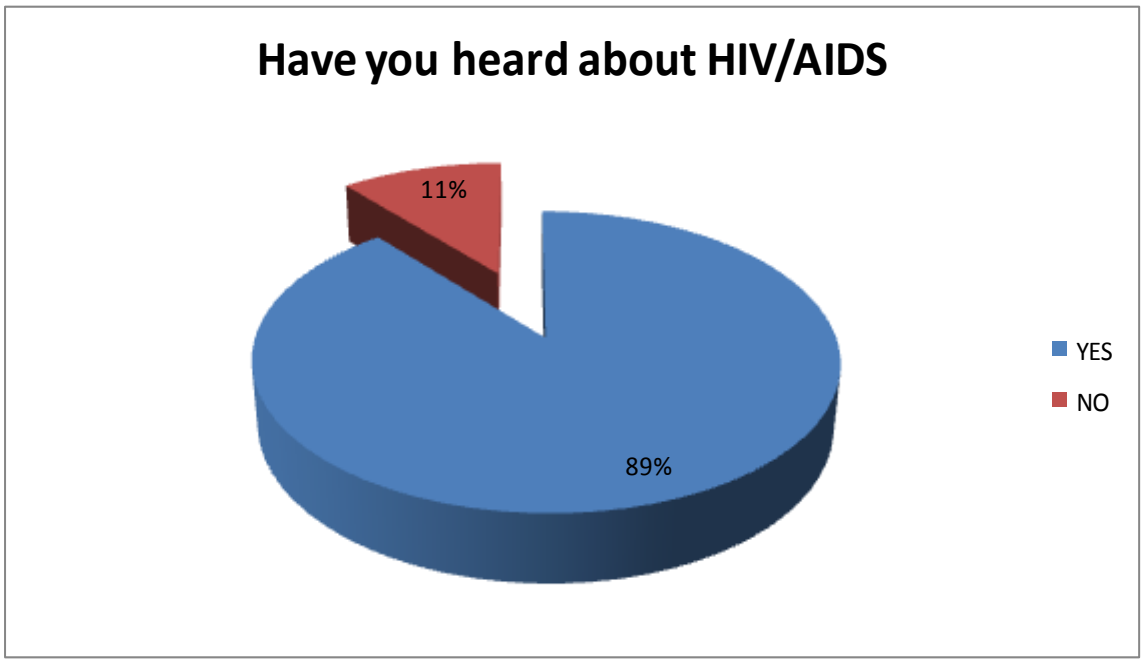

Fig9.1 - Distribution of respondents have heard about HIV/AIDS

9.2 Title: Number of respondents who know the meaning of HIV/AIDS

9.2 Table: Distribution of respondents who know the meaning of HIV/AIDS

Know the meaning of HIV/AIDS	Percentage
Yes	66%
No	34%

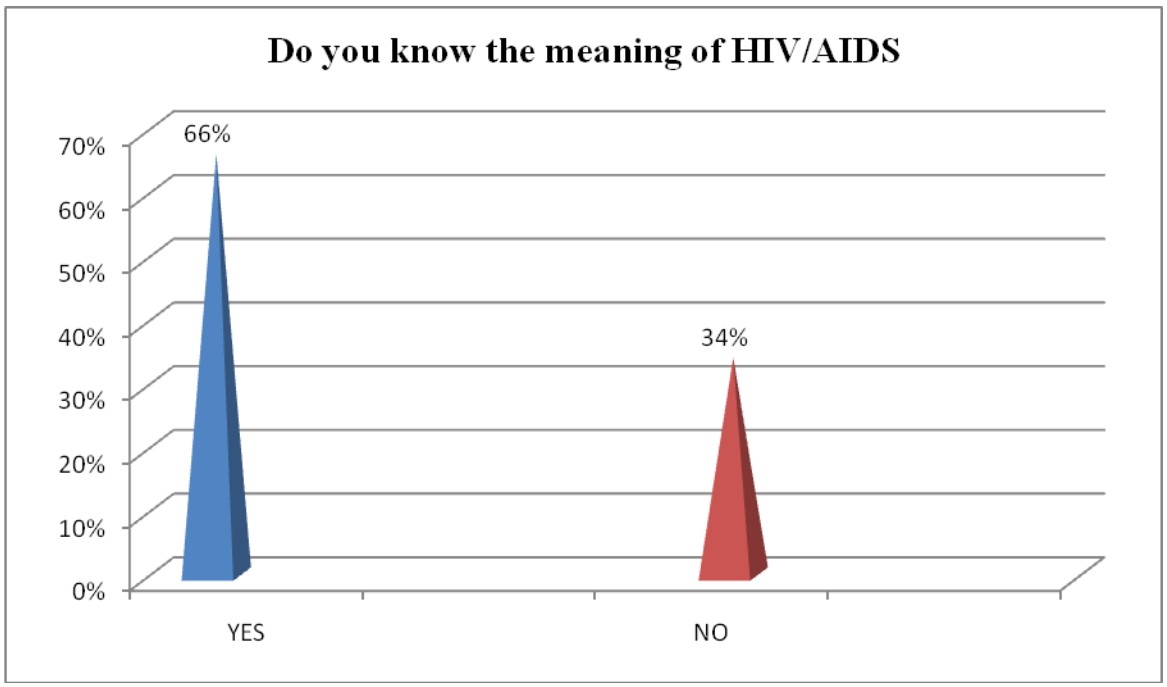

Fig9.2 - Distribution of respondents who know the meaning of HIV/AIDS

9.3 Title: Number of respondents by their Source of knowledge

9.3 Table: Distribution of respondents by their Source of knowledge

Source of knowledge of the respondents	Percentage
Through media	65%
Personal discussions	25%
Participating in seminars	8%
Others	2%

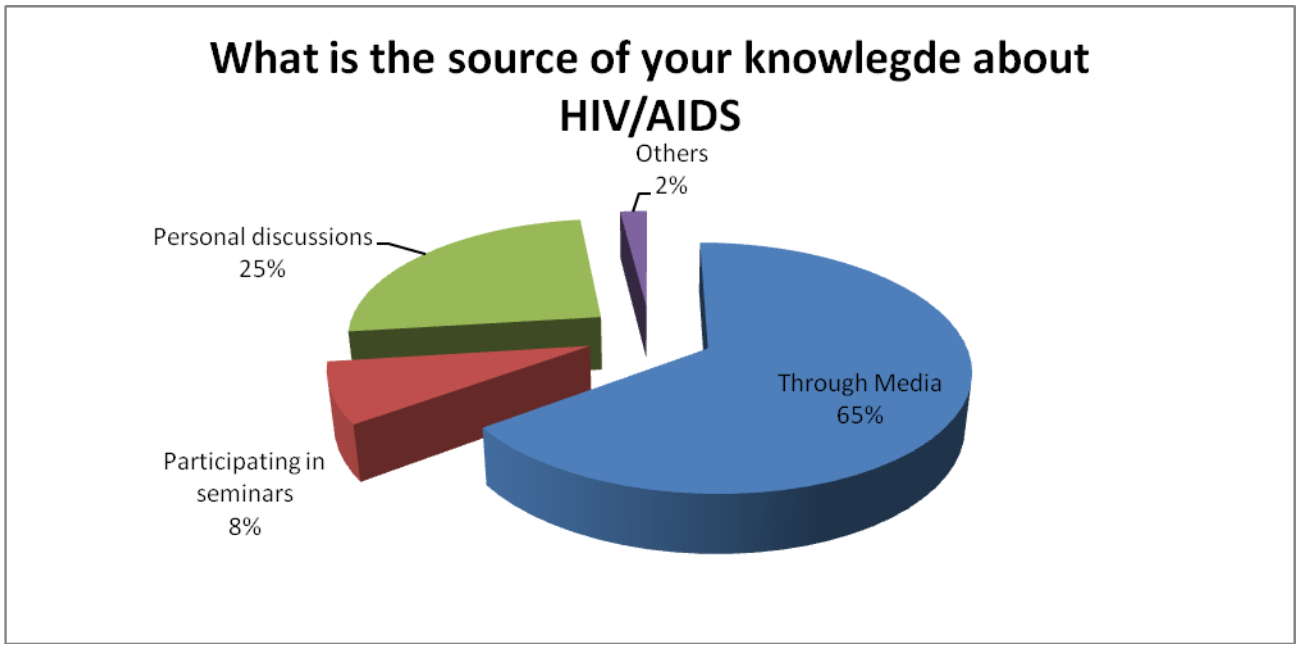

Fig9.3 - Distribution of respondents by their Source of knowledge

9.4 Title- Number of respondents who are familiar with the symptoms of HIV/AIDS

9.4 Table-Distribution of respondents who are familiar with the symptoms of HIV/AIDS

Familiar with the symptoms of HIV/AIDS	Percentage
Yes	68%
No	32%

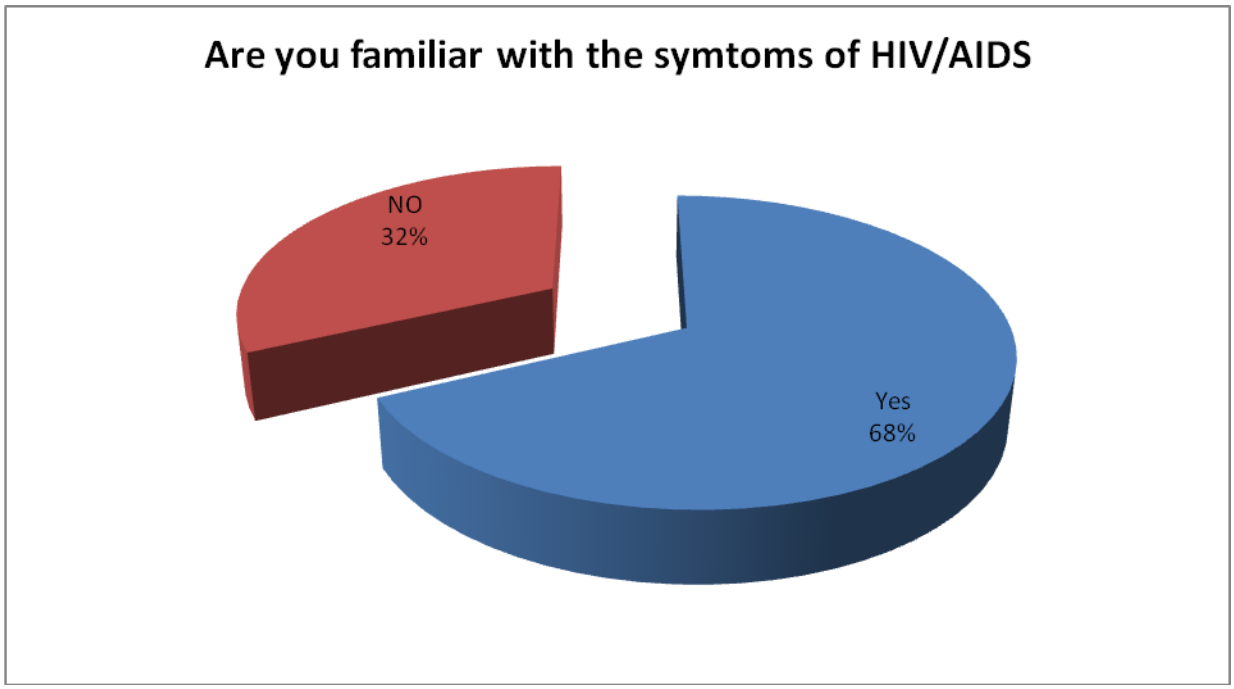

Fig9.4 - Distribution of respondents who are familiar with the symptoms of HIV/AIDS

9.5 Title: Number of respondents think that HIV/AIDs has cure

9.5 Table: Distribution of respondents think that HIV/AIDs has cure

Any cure of HIV	Percentage
Yes	18%
No	82%

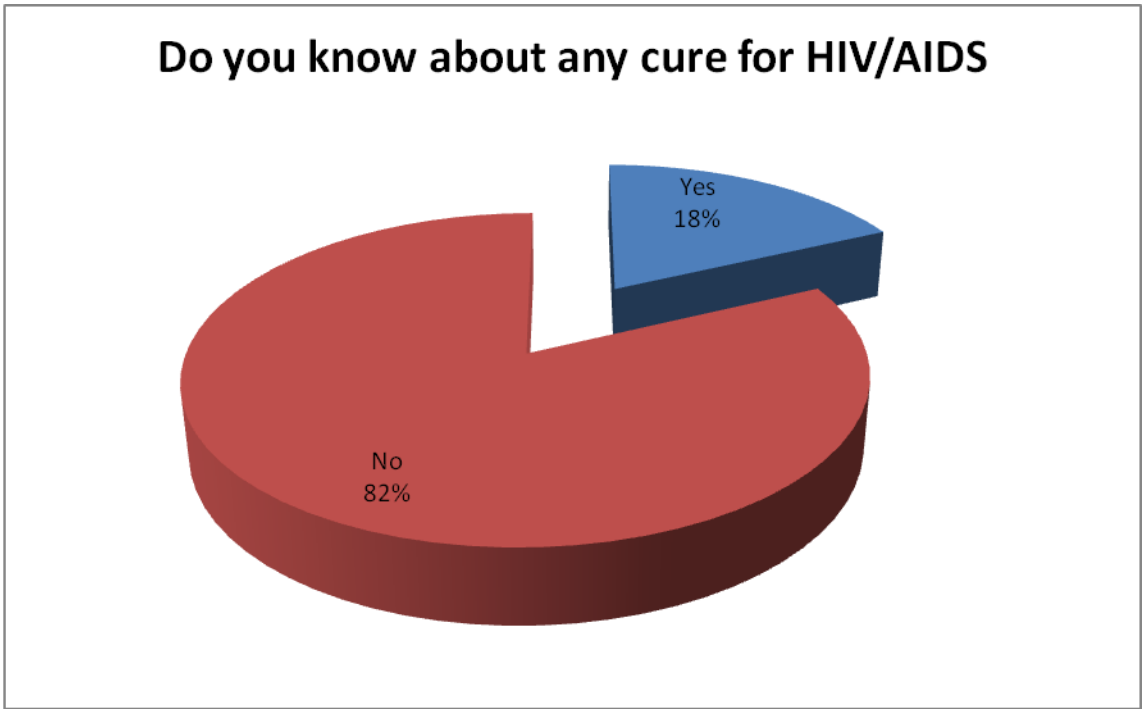

Fig9.5 - Distribution of respondents think that HIV/AIDs has cure

9.6 Title: Number of respondents' knowledge about HIV spread

9.6 Table: Distribution of respondents' knowledge about HIV spread

How HIV spread	Percentage
By Air	2%
Blood transfusion	38%
From an infected mother to her baby	25%
By touching an infected person	5%
By having sexual intercourse with an infected person without using a condom	30%

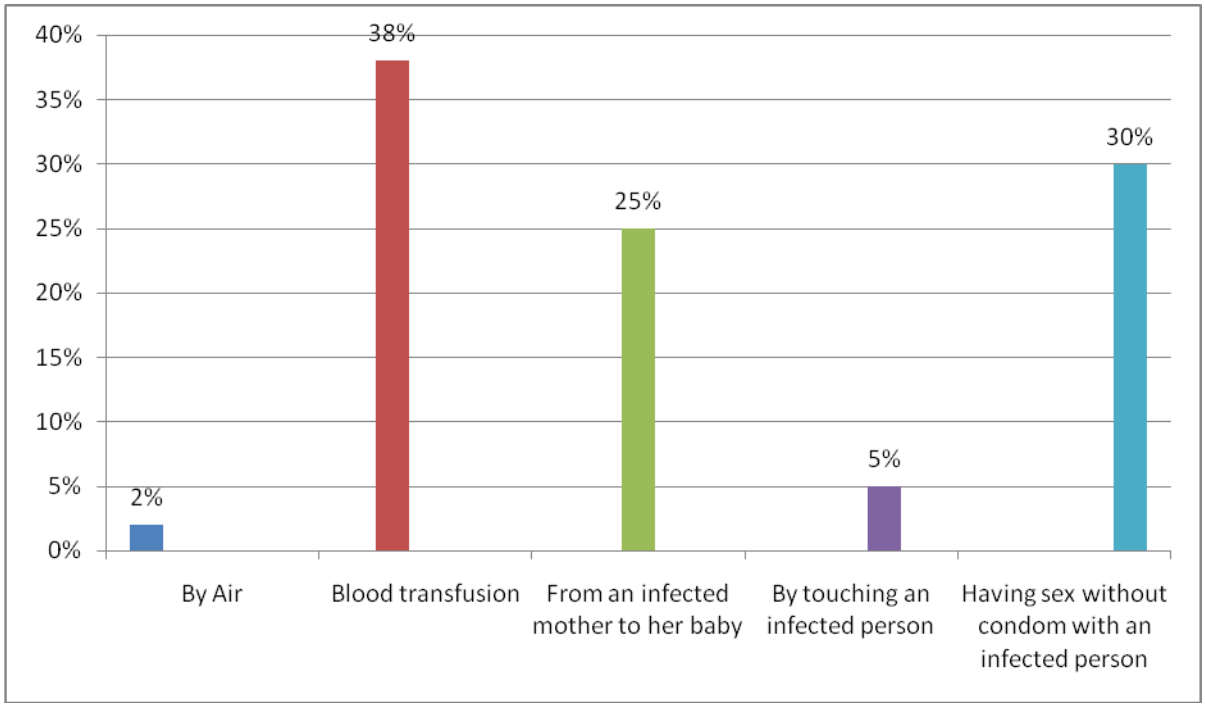

Fig 9.6 - Distribution of respondent's knowledge about HIV spread

9.7 Title: Number of respondents who donate blood or not

9.7 Table: Distributions of respondents donate blood or not

Distribution of respondents donate blood or not	Percentage
Yes	79%
No	21%

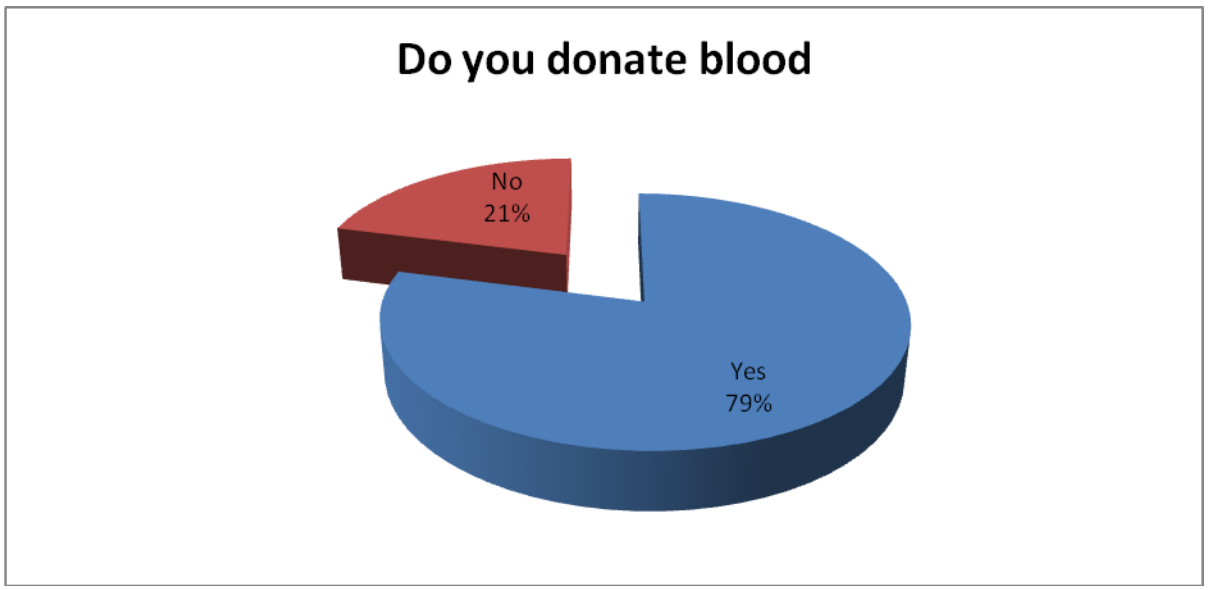

Fig 9.7- Distributions of respondents donate blood or not

9.8 Title: Number of respondents who careful about needles, syringes used during donating or changing blood

9.8 Table: Distribution of respondents who careful about needles, syringes used during donating or changing blood

Careful about needles, syringes used during donating or changing blood	Percentage
Yes	85%
No	15%

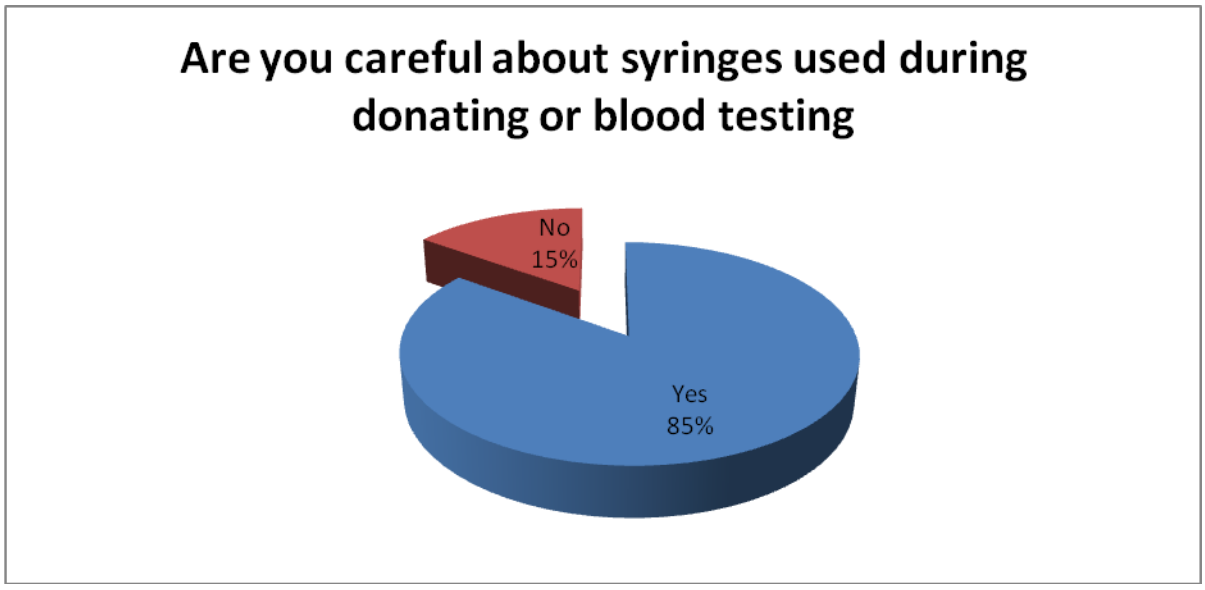

Fig9.8 - Distribution of respondents who careful about needles, syringes used during donating or changing blood

9.9 Title: Number of respondents knows continuing blood transfusion from ordinary place still knowing the risk of HIV/AIDS spreading

9.9 Table: Distribution of respondents know continuing blood transfusion from ordinary place still knowing the risk of HIV/AIDS spreading

continuing blood transfusion from ordinary place still knowing the risk of HIV/AIDS spreading	Percentage
Yes	73%
No	27%

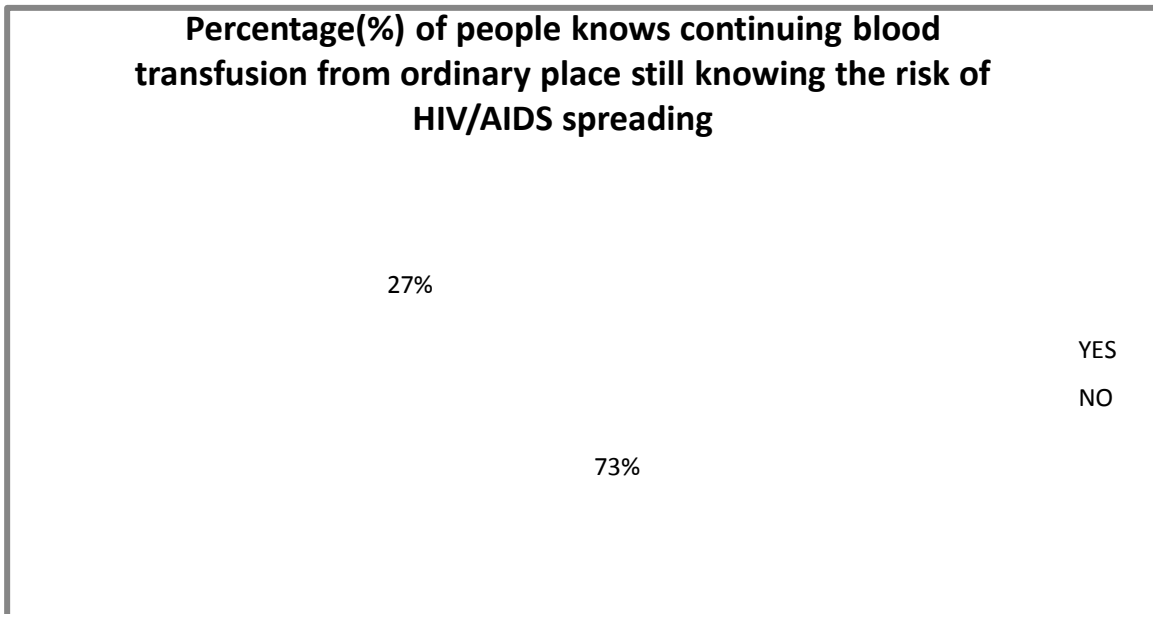

Fig9.9- Distribution of respondents know continuing blood transfusion from ordinary place still knowing the risk of HIV/AIDS spreading

9.10 Title: Number of the respondents who have physical relation

9.10 Table: Distribution of the respondents who have physical relation

Have physical relation	Percentage
Yes	33%
No	66%
Others	1%

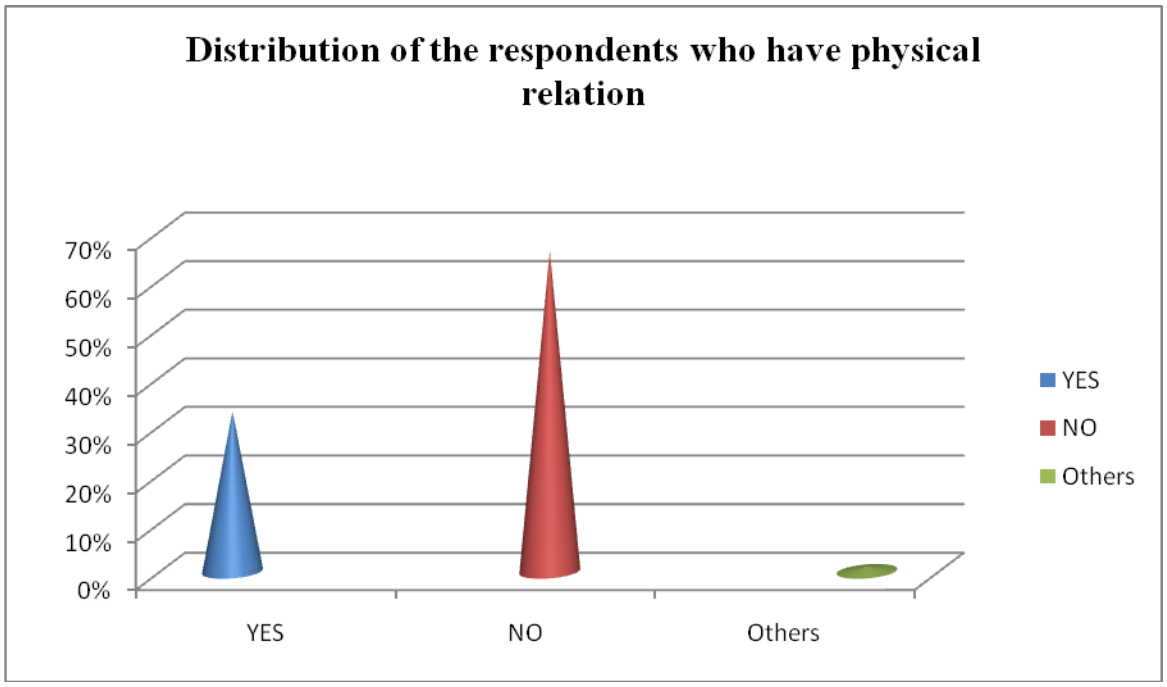

Fig 9.10- Distribution of the respondents who have physical relation

9.11 Title: Types of physical relation among the all respondents

9.11 Table: Distribution of respondents by their types of physical relation

Type of physical relation	Percentage
Illegal	9%
legal	20%
Others	71%

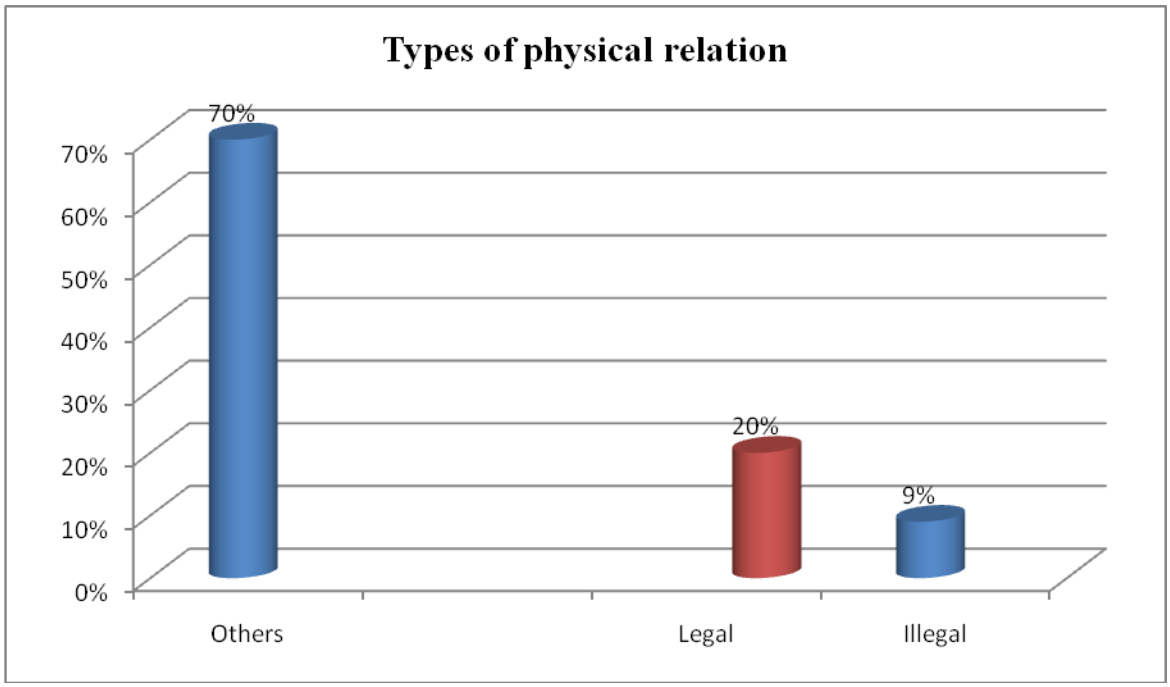

Fig9.11 - Distribution of respondents by their types of physical relation

9.12 Title: Number of the respondents who know how to use condom

9.12 Table: Distribution of the respondents who know how to use condom

Use condoms while having sex	Percentage
Yes	18%
No	15%
Unknown	67%

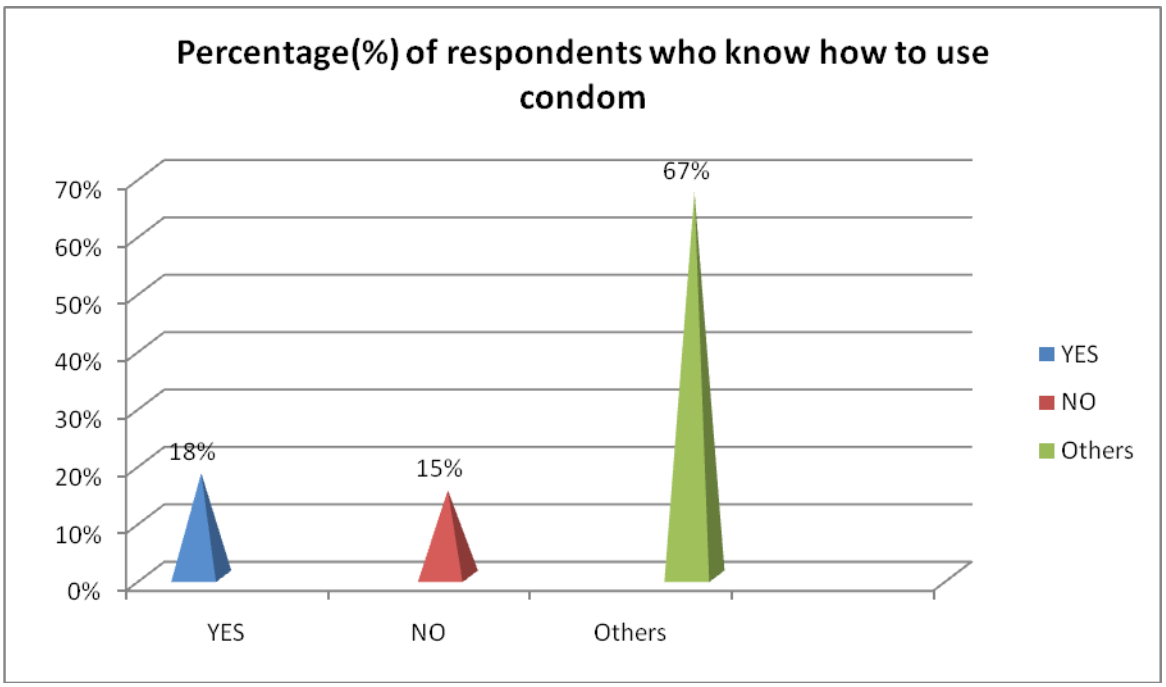

Fig9.12 - Distribution of the respondents who know how to use condom

9.13 Title: Number of respondents uses condoms while having sex

9.13 Table: Distribution of respondents who uses condoms while having sex

uses condoms while having sex	Percentage
Yes	30%
No	10%
Others	60%

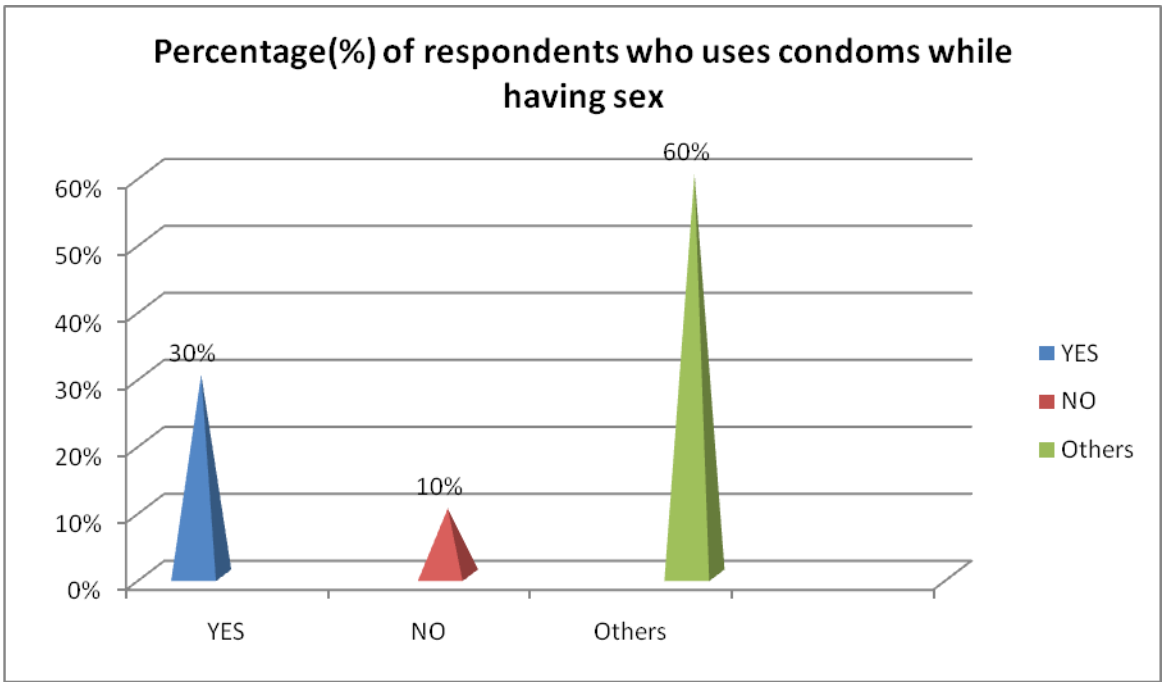

Fig9.13 - Distribution of respondents who uses condoms while having sex

9.14 Title: Number of responds generally buys condoms

9.14 Table: Distribution of responds generally buys condoms

Generally buy condoms	percentage
Pharmacy	72%
Other place	28%

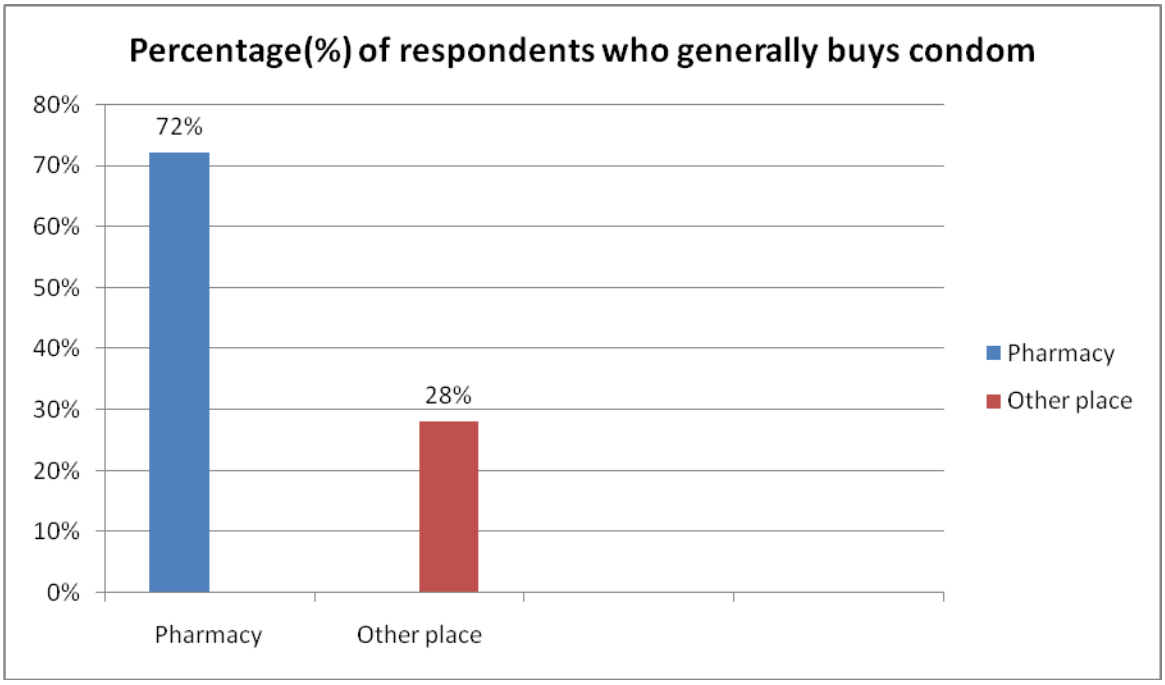

Fig9.14 - Distribution of responds generally buys condoms

9.15 Title: Number of respondents does not preferred isolation of HIV/AIDS patients from society

9.15 Table: Distribution of the respondents for person having HIV/AIDS should not isolated from society

A person having HIV/AIDS should not be isolated from society	percentage
Yes	78%
No	22%

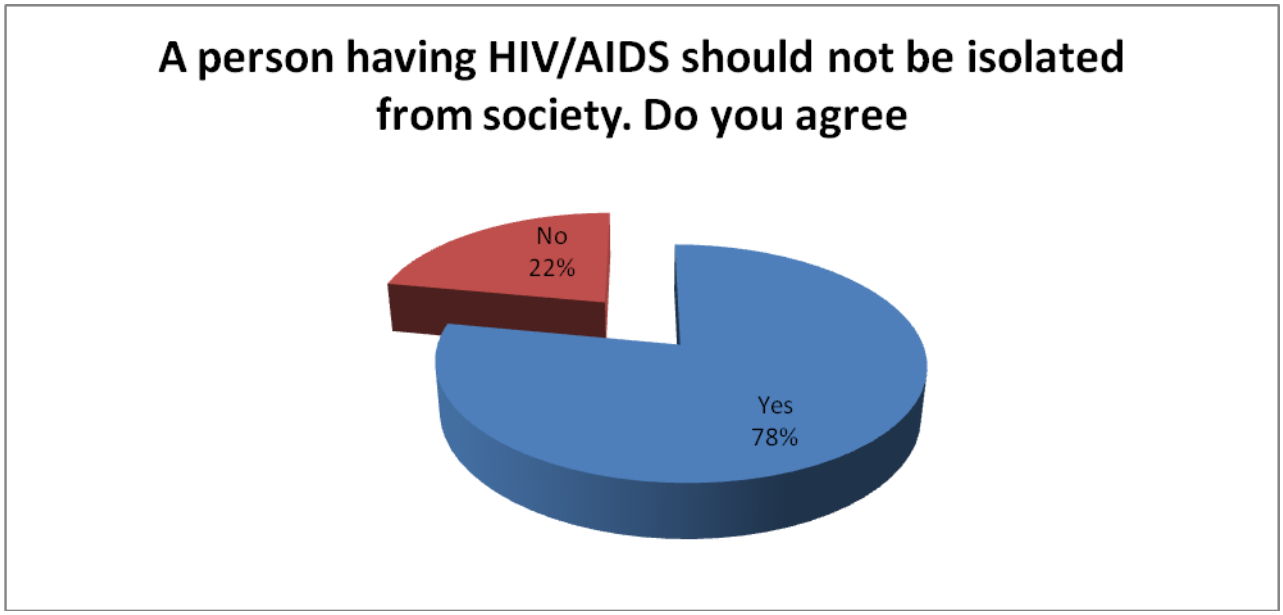

Fig9.15 - Distribution of the respondents for person having HIV/AIDS should not isolated from society

9.16 Title: Number of the respondents for the effect while friend or family members infected with HIVAIDS

9.16 Table: Distribution of the respondents for the effect while friend or family members infected with HIVAIDS

Reaction against HIV infection	Percentage
Helpful	83%
Avoid	17%

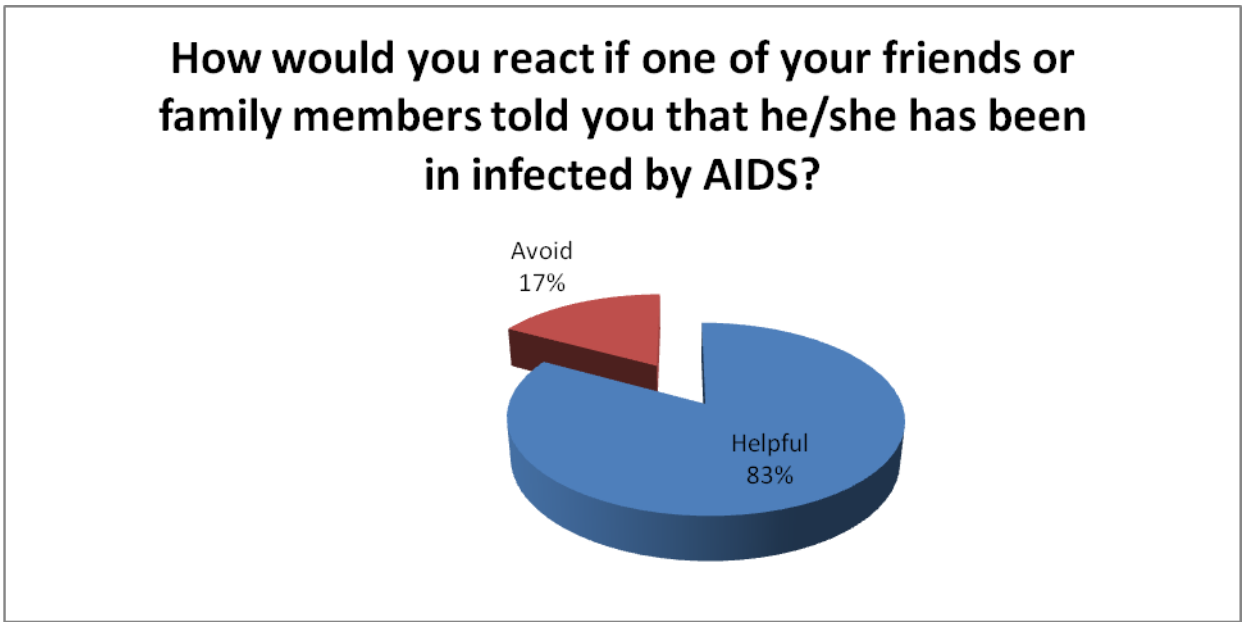

Fig9.16 - Distribution of the respondents for the effect while friend or family members infected with HIVAIDS

9.17 Title: Behavior of the respondents in case of HIV/AIDS child should allow in the school, college and university

9.17 Table: Distribution of the respondents in case of HIV/AIDS child should allow in the school, college and university

A child having HIV/AIDs Should be allowed in the school , College and University	Percentage
Yes	89%
No	11%

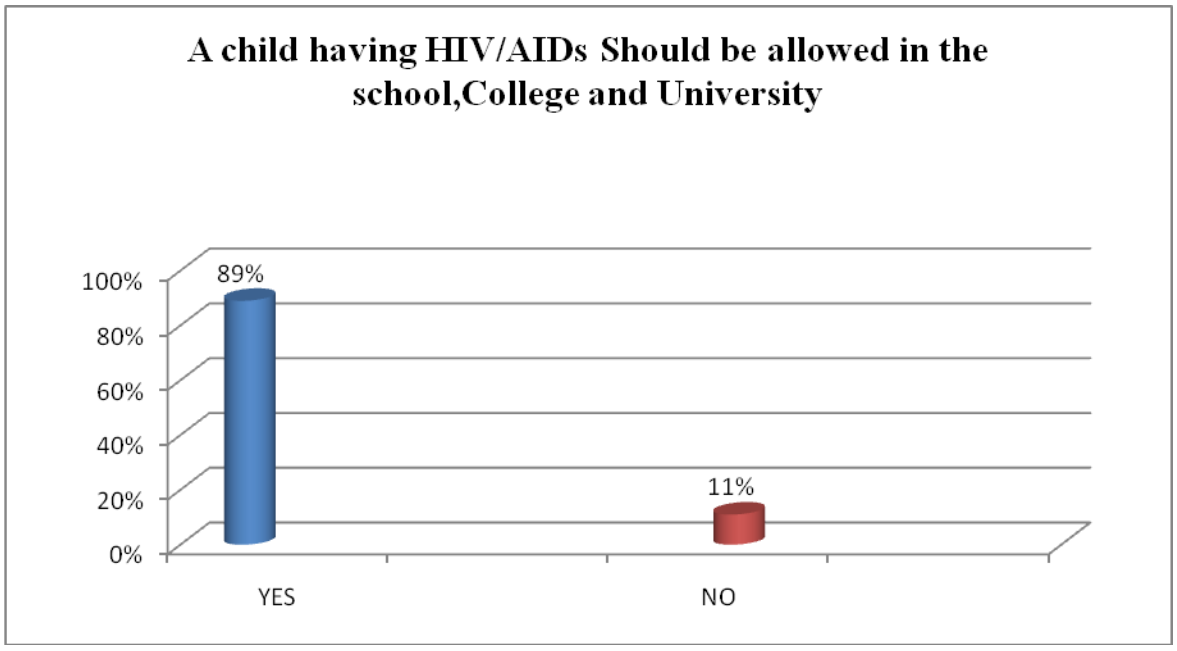

Fig9.17 - Distribution of the respondents in case of HIV/AIDS child should allow in the school, college and university

9.18 Title: Behavior of the respondents in case of HIV/AIDS patient should discriminate in the jobs and education

9.18 Table: Distribution of the respondents in case of HIV/AID patient should discriminate in the jobs and education

Does one think HIV/AIDS patient should be discriminate in Jobs and education	Percentage
Yes	14%
No	83%

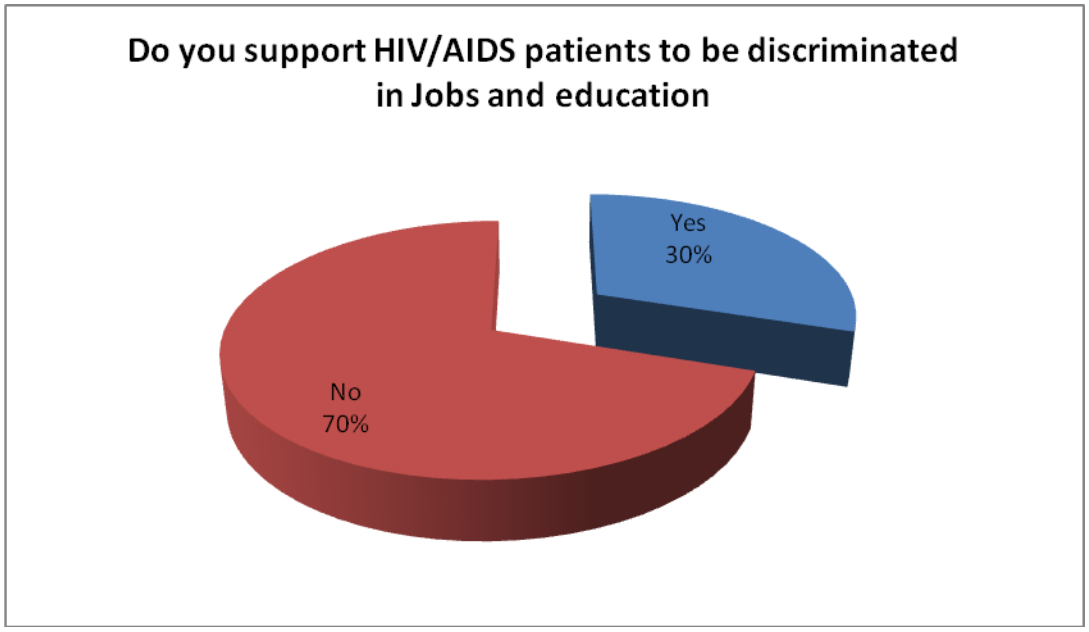

Fig9.18 - Distribution of the respondents in case of HIV/AIDS patient should discriminate in the jobs and education

9.19 Title: HIV/AIDS spread from casual contact (room sharing, drinking from the same glass etc)

9.19 Table: Distribution of the respondents if they think HIVAIDS spread from casual contact (room sharing, drinking from the same glass etc)

HIV/AIDS spread from casual contact(room sharing, drinking from the same glass etc)	Percentage
Yes	26%
No	74%

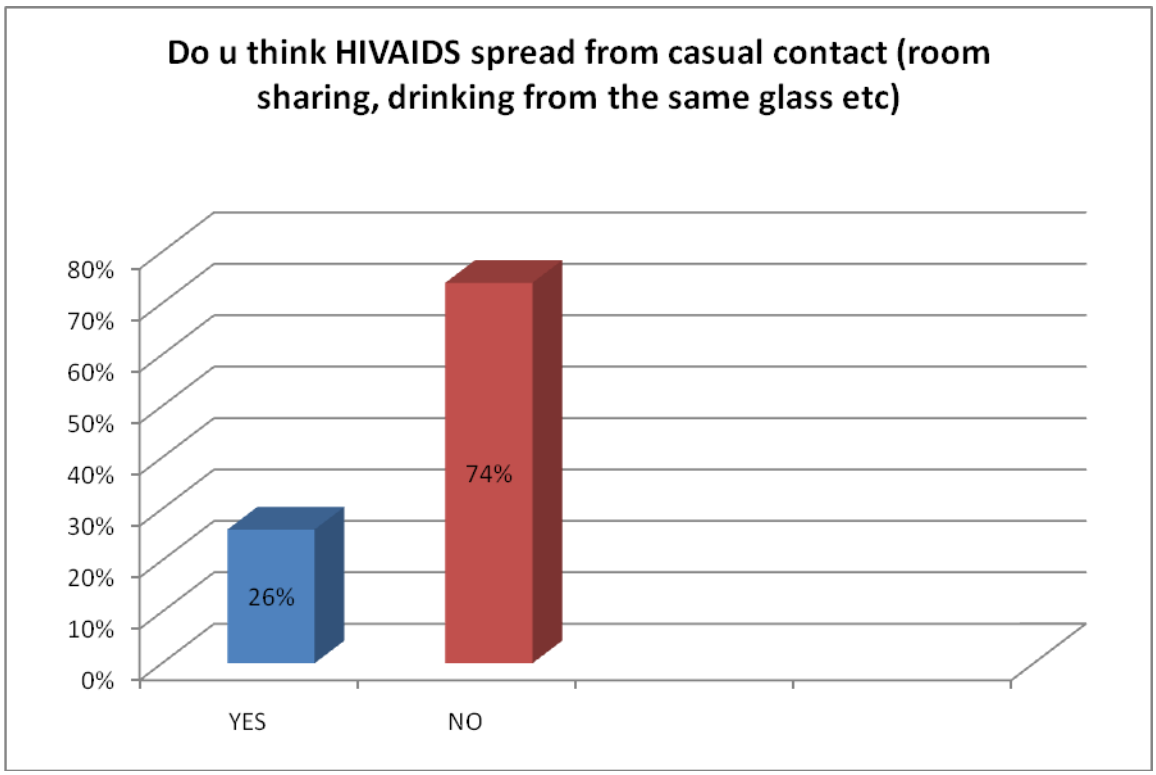

Fig9.19 - Distribution of the respondents if they think HIVAIDS spread from casual contact (room sharing, drinking from the same glass etc)

9.20 Title: HIV/AIDS education in School, College and University level may be a helpful way to increase awareness about HIV/AIDS risks in the young generations?

9.20 Table: Distribution of the respondents if they think HIV/AIDS education in School, College and University level may be a helpful way to increase awareness about HIV/AIDS risks in the young generations

HIV/AIDS education in School, College and University level may be a helpful way to increase awareness about HIV/AIDS risks in the young generations?	Percentage
Yes	90%
No	10%

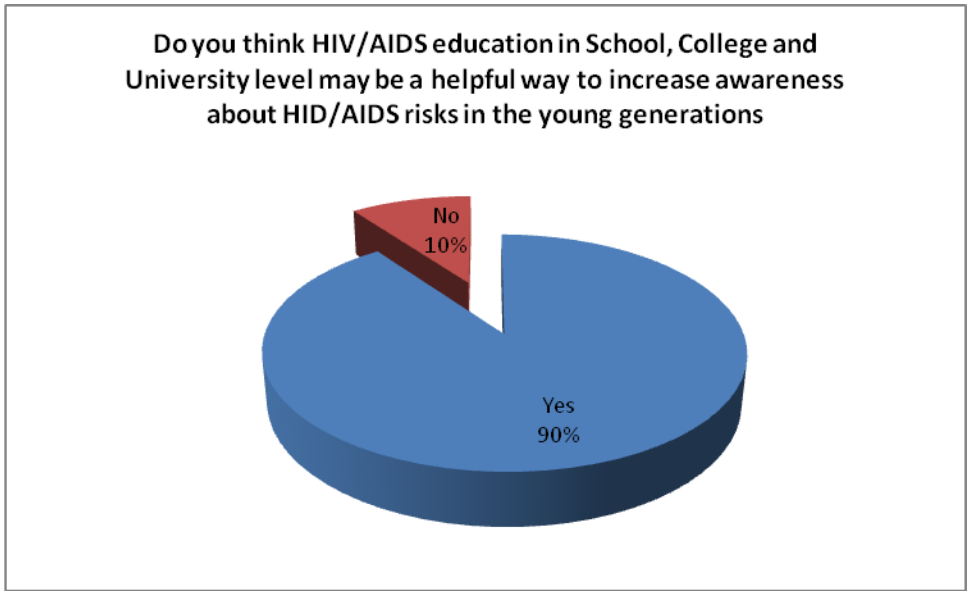

Fig9.20 - Distribution of the respondents if they think HIV/AIDS education in School, College and University level may be a helpful way to increase awareness about HIV/AIDS risks in the young generations

9.21 Title: Perception about the treatment of HIV/AIDs

9.21 Table: Distribution of the respondents by their perception about the treatment of HIV/AIDs

Perception about the treatment of HIV/AIDs	Percentage
Free treatment	51%
Only awareness	49%

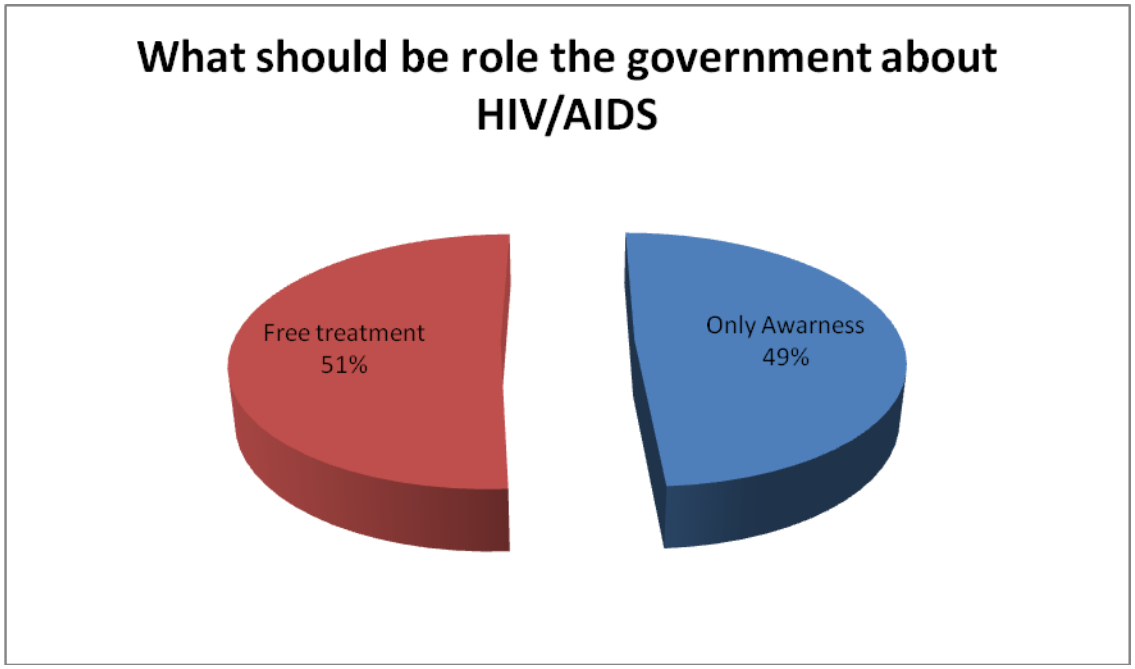

Fig9.21 - Distribution of the respondents by their perception about the treatment of HIV/AIDs

9.22 Title: The best way to increase knowledge of HIV/AIDS risk

9.22 Table: Distribution of the respondents by their perception about the best way of increasing knowledge of HIV/AIDs risk

The best way to increase knowledge of HIV/AIDS risk	Percentage
Providing information through education	30%
Personal discussion with family & friends	10%
Arrangement of seminar	5%
Through media	45%
leaflet	4%
Involving new research project	6%

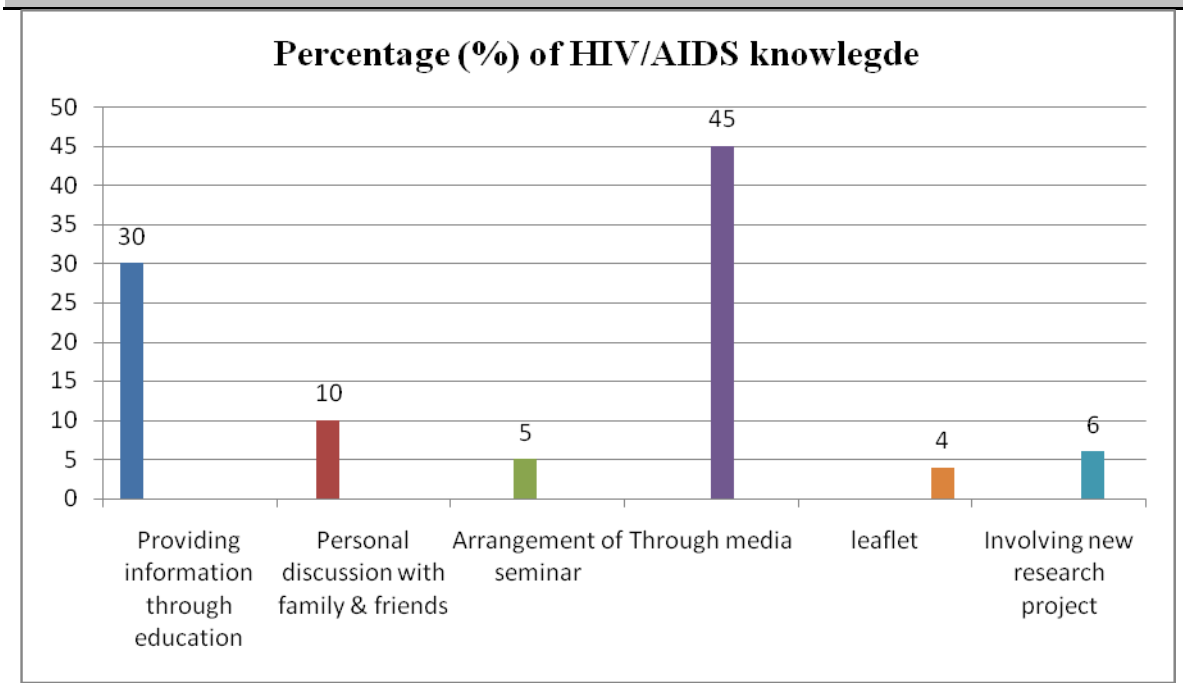

Fig9.22 - Distribution of the respondents by their perception about the best way of increasing knowledge of HIV/AIDs risk

10.1 Discussion

Bangladesh initiated an early response to the HIV epidemic starting in the mid-1980s. Since then, the response has been enhanced considerably, and many HIV-prevention interventions among the most at-risk populations and the general youth are being undertaken. Alongside prevention activities, gathering of data has been a key activity fostered by both the Government and individual development partners. This paper reviews available sources of data, including routine surveillance (HIV and behavioral among most at-risk populations), general population surveys, and various research studies with the aim to understand the dynamics of the HIV epidemic in Bangladesh. Available data show that the HIV epidemic is still at relatively low levels and is concentrated mainly among injecting drug users (IDUs) in Dhaka city. In addition, when the passively-reported cases were analyzed, another population group that appears to be especially vulnerable is migrant workers who leave their families and travel abroad for work. However, all sources of data confirm that risk behaviors that make individuals vulnerable to HIV are high—this is apparent within most at-risk populations and the general population (adult males and youth males and females). HIV/AIDS is still a sensitive topic in our country. Most of the people especially female are not usual to discuss about physical relation, HIV/AIDs, condom etc. they thought all this things are topic of shame and only shameless can talk with that. Even I personally know some female they are not ready to discuss these things with their doctors also. So actually it was very difficult for me to include female in my survey but I tried my best to know their knowledge, behavior and perception about HIV/AIDs in compare to male. Even some male also fell unsecure and shy about answering the survey related questions.

From the Chart 1 it has been found that **89%** respondents have been heard about HIV/AIDs and only **11%** did not hear. So it is clear that most of them are familiar about the AIDS/HIV. And strangely **66%** of them also know the meaning of HIV/AIDs and **34%** does not know. It is surprising where huge educated persons may not able to elaborate the meaning of HIV/AIDs. **65%** of the respondents earned knowledge about HIV/AIDs from the media. But it is usual that they don't know about the cure of HIV/AIDs. Most of them thought that there is no treatment of HIV/AIDs. The percentage is about **82%**. So it can be easily assumed that they are very much scared of the disease. And **38%** of them thought blood transfusion is the cause of HIV/AIDs

spreading. And surprisingly, only **79%** of the respondents donate blood. The main cause of not donating blood is that they have to work hard for their livelihood. So they think that if they donate blood it will have a great impact on their physical strength. And who donated blood was not spontaneous. It may be in case of emergency or biased by other. Unsafe blood donating is not only the cause of HIV infection, unprotected physical relation, using same needle and syringe during taking drug also be a great risk for HIV infection. From the graph we can see that there about **15%** of the respondents are not careful about needles, syringes while donating blood and **85%** are careful. It is good news that no one share same needles or syringe while taking drugs from other. **66%** of the respondents didn't have any physical relation where **33%** have and among them **9%** have illegal physical relation. So it may be a great risk of HIV transmission if they didn't take any protective measure.

From the graph it has shown that **15%** people didn't use condom during sex. The reasons of do not using condom may be the expenditure of the condom, awareness about the condom or don't know how to use it so buying condom regularly may be an extra pressure for their economy. So providing free condom, increasing the awareness about condom and the process of using it may be the solution. It is news of great risk that only **30%** of them know how to use condom and about **60%** doesn't know. Using condom during sex is a matter of inconvenience and most of the respondents informed that they feel uncomforted while having sex. From the graph we can see that **26%** thought that HIV/AIDs can be transmitted from casual contact and **74%** said no.

Behavior of the respondents about HIV/AIDs was found positive. From the graph it has been found that **78%** answered that a person should not be isolated from the society who has HIV/AIDs while **22%** answered yes. The people who agreed to isolate the HIV/AIDs patients have misconception; they think that it's a bad and contagious disease. They think that that has had sin caused HIV/AIDs. They don't know that a child may be transmitted to HIV/AIDs via his/her mother. But about **83%** of the population is helpful to the HIV/AIDs patients and **17%** avoid them. A child should be allowed in the school, college and university (indirect HIV/AIDs patients); **89%** agreed and **11%** disagreed. **70%** of respondents said that HIV/AIDs should not be discriminated in job, school, college and university where **30%** said yes.

Perception of the respondents was good enough. **90%** of the respondents agreed that HIV/AIDS education in School, College and University level may be a helpful way to increase awareness about HIV/AIDS risks in the young generations and only **10%** disagreed. **51%** respondents thought that free treatment and test will decrease the HIV/AIDs spreading and **49%** believed that only awareness can do that. People having lots of misconception may be removed by increasing awareness. And which would be the best way to increase awareness. And surprisingly **45%** said that media is the best way. As I already mentioned that we live in an Islamic country, and people are respectful about the each and every law and regulation of our religion. So actually it may be the best way of increasing awareness as well as media. Media including radio, television, theater, magazine, newspaper, billboard etc are the best source. In theater and television the awareness program may broadcast during the commercial break, providing awareness through education is one of the best ways to increase knowledge and it's about **30%**.

11.1 Recommendation

There is much good news in relation to HIV for Bangladesh. The prevalence remains low, certainly lower than the neighboring countries. There has been strong government support for surveillance—both serological surveillance and behavioral surveillance—and the Government and NGOs have used these data to build the national programs. Major sources of funds at present include the GoB and GFATM; sources of smaller funds are also available from USAID, GTZ, and others. The GoB and NGOs are working together on HIV.

The bad news relates to the highly risky behavior of large groups of people who put themselves and others at risk of infection. There are many deeply-held cultural norms regarding acceptable behaviors, reluctance to use condoms, and gender issues that are major constraints to reducing the risk of an epidemic. Although migration has been a major source of new infections into Bangladesh, there have been no successful interventions to addressing the needs of migrants which are both effective and culturally acceptable. We do believe that the epidemic among IDUs—which is now starting—will be the focus of the impending, more general epidemic, and it would seem that much more successful strategies are needed to reduce sharing of needles, possibly including provision of clean oral drugs to these drug-users. The current strategy of treating them as ‘criminals’ will not be effective in stopping the transmission and may even be facilitating it. Thus, research is needed on how to effectively deal with this group.

Although donor agencies have provided substantial funding for HIV, the disbursement of these funds has not been consistent, which has led to difficulty in long-term planning for prevention, care, and support activities. Governmental support is needed for providing care and logistic services, including ARVs and provision for CD4 counts when needed. At this early stage of the epidemic, appropriate ARV therapy may be effective in slowing the transmission and slowing the epidemic. Effective interventions are evidence-based, and research is essential to better understand the factors driving the epidemic, and in some cases, there may even be ‘protective factors’ that need to be explored and tried as effective intervention strategies.

The recommendation reflects the need to strengthen the prevention efforts and to facilitate access to treatment for persons living with or affected by HIV and AIDS. It calls for the design and implementation of national tripartite workplace policies and programs on HIV and AIDS to be integrated into overall national policies and strategies on HIV and AIDS and on development and social protection. It calls for respect for the fundamental human rights of all workers, including observance of the principle of gender equality and the right to be free from compulsory testing and disclosure of HIV status, while encouraging everyone to undertake voluntary confidential HIV counseling and testing as early as possible. The Recommendation also invites member States to implement its provisions through amendment or adoption of national legislation where appropriate .Students should be instructed about all aspects of HIV/AIDS by the media, which at present is the most frequent but not necessarily credible source of information. The prevention program must not operate in isolation, but must work together toward the well-being of the person at risk and the community as a whole. All education activities related to HIV/AIDS prevention should contribute to and complement the overall goal of reducing high-risk behaviors. Health communications, health education, and risk reduction interventions for groups, which provide education and support, as well as promote and reinforce safer behaviors and provide interpersonal skills training in negotiating and sustaining appropriate behavior change. Condom promotion and supply needs to be increased. The prevention programs should be effective, it is essential that implementers have a better understanding of the local context. This may be done by involving local groups including the target population in the design and implementation of the program. Policy makers need to understand that for an effective program and flexibility is crucial. Policy makers need to understand that situations vary and can change with time, and that they need to keep abreast of the changes and allow flexibility to accommodate variations and changes over time. For this purpose, field or local level knowledge needs to be shared at regular intervals and used to modify interventions if required. Appropriate resources need to be provided to general people.

Others Implement programs such as substance-abuse prevention and self-esteem discussions, as well as after-school programs for youth to alleviate the boredom or restlessness that may lead to a higher rate of sexual activity and lower rate of condom use. Openness with adolescents prior to

their first sexual experience has been shown to encourage lifelong condom use. Target the roots of the problem, such as drug abuse, sexual promiscuity and even the boredom and restlessness associated with dropping out of school that may lead to higher rates of sexual activity. Although it is acknowledged that Bangladesh has relatively good information systems in place, this is still inadequate and triangulation of data is infrequent. For this appropriate training, personnel and infrastructure are essential and linkages to regional and international groups/institutions are needed.

Taking into account that the evidence on strengths and weaknesses of the response to HIV in Bangladesh, while the focus of efforts in a low prevalence country like Bangladesh should be squarely on Most at risk population. The long-term efforts to increase knowledge and awareness among the general population appear to have been effective in increasing acceptance of interventions and in increasing condom use among youth clients of sex workers. Thus, continued attention is needed to specific interventions for the general population to maintain and improve current levels of knowledge, decrease stigma and help to foster an enabling environment for HIV prevention, care and support. Such efforts may also be an effective way to reach returned and potential migrant workers who are a difficult group to target but who data suggest have higher risks. The strengths and weaknesses varied for the different population groups and different cities and need to be understood, acknowledged and addressed. The prevention programs should be effective and Implementers need enhanced skills in designing, managing and running their interventions. Training on each of these skills needs to be provided by experienced individuals/organizations from either in-country or abroad. Community based organizations need to be strengthened, new ones need to be created and linkages or networks need to be established. Regular evaluation of ongoing HIV prevention programs and collecting strategic information through surveillance, surveys, research and develop a national database. Although it is acknowledged that Bangladesh has relatively good information systems in place, this is still inadequate and triangulation of data is infrequent. For this appropriate training, personnel and infrastructure are essential and linkages to regional and international groups/institutions are needed. Strategic information gathering through research is poorly supported and more resources need to be mobilized for this. Sexually transmitted infection services need to be strengthened.

Counseling for partner notification needs to become part of the service package and STI treatment for regular sex partners. Better linkages between harm reduction services for Injecting drug users and drug treatment and rehabilitation facilities need to be established. Commodity requirements for HIV prevention (condoms, sterile needles/syringes, lubricants, STI drugs) must be appropriately assessed by planners and implementers. Thereafter, standard quality, adequate and sustained supplies have to be ensured Moreover; there is need to stress the importance of providing proper care and treatment for the people living with HIV and AIDS and a more urgent need to provide coverage of antiretroviral therapy for HIV infected people. NGOs and civil society organizations, along with the government and individuals should work together in order to ensure universal coverage.

12.1 Limitation of the study

There are a number of limitations in this study

- **Sample selection and data collection:** sample selection was not a random process. And most of them didn't provide all the information spontaneously. They hide answer and sometimes didn't say anything. That's why I got blank result and a huge percentage of unknown responses. And an age gap between me and the respondents was another factor. It was too tough to be friendly with them. Sometimes I had to offer tea, Chocolates and cigarette to make friendship with them. So that they provides all the information correctly and always tried to make my research realistic. After all most of them were shy about the questions I have made.
- **Sample size:** Sample size is another limitation. I had limited time that's why I had selected short sample size due to time.
- The paper provides gross idea about the knowledge, behavior and perception of the mass people of Dhaka city however the results may not represent the whole situation of the city.

12.2 Conclusion

In conclusion, the result of this study revealed that although level of Perception is high but the Behavior is not so good among the people in Dhaka city. There is still room for improvement. There are still misconceptions regarding HIV transmission and prevention. Still now many people believe that HIV/AIDS may spread by casual contacts. They have lots of miss concept about the HIV/AIDs though they leant a little through media. The most important find out of the study is that most of them still feel shy to discuss about HIV/AIDS which is a great threat for our society. They hardly discuss about the topic and that's why they are still living under the dark. They clearly don't know about the most dangerous pathological site of the HIV/AIDs. They only know that it is a sin/curse and if someone get HIV contaminated he/she will be neglected and isolated by the society and ultimately it is a disease of sin. They hardly believe that a neonate or child also be the victim of this worldwide threat. So to make them clear about the matter steps should be taken as early as possible.

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