

AWARENESS OF HUMAN IMMUNODEFICIENCY VIRUS (HIV) AND BACKGROUND KNOWLEDGE AMONG STUDENTS IN UDAYANA UNIVERSITY, BALI

SHALINI S JAYA RAMAN

MEDICAL EDUCATION STUDY PROGRAM
FACULTY OF MEDICINE
UDAYANA UNIVERSITY
DENPASAR

Abstract: HIV is the shortened form for Human Immunodeficiency Virus. It is a virus, such as the virus that causes the flu or cold. A virus is a minute particle that lives as a parasite in plants, animals, and bacteria. It consists of an inside (core) made of a substance known as nucleic acid and an outside (sheath) made of protein. AIDS is a shortened form for Acquired Immune Deficiency Syndrome. It is a condition caused by HIV. This virus, as stated earlier, attacks the immune system, the body's "security force" that fights off infections. When the immune system breaks down, this protection is lost and can lead to the development of many serious, often deadly infections and cancers.

This research is using based on descriptive cross-sectional study in order to obtain data about the amount of knowledge students about the mode of transmission and the progression of the disease in Udayana University. About 100 students from academic year 2015 and 2016 participated in this study.

Male participant from Udayana University who attended school in the city and also currently in their semester III has a much better awareness about Human immunodeficiency Virus (HIV) than the other male participants. Besides that, the female participants who has a better understanding and awareness on HIV is female participant who is from semester I and who went to city school.

In conclusion, in order to outspread such understanding and alertness more globally, implementation of awareness program should be established among the publics through social media, health talks and medical tours.

Keywords: Human Immunodeficiency Virus (HIV), deadly infections, cancers, health talks and medical tours.

1. INTRODUCTION

1.1 BACKGROUND

Every 25 minutes in Indonesia, one person is newly infected by HIV. One out of every five newly infected people is below the age of 25 years. Indonesia's Ministry of Health projections show that without acceleration of HIV prevention programs, over half a million people in Indonesia will be HIV positive by 2017. The epidemic is not just fueled primarily by sexual transmission and injecting drug use but also through certain body fluids [blood, semen (cum), pre-seminal fluid (pre-cum), rectal fluids, vaginal fluids, and breast milk] and also from a person who has HIV can transmit HIV. These fluids must come in contact with a mucous membrane or damaged tissue or be directly injected into the bloodstream (from a needle or syringe) for transmission to occur. Mucous membranes are found inside the rectum, vagina, penis, and

mouth. This reason is most solemnly because nowadays students lack of availability of appropriate information on reproductive health and further education about this type of diseases. This is evident from a study in Jakarta conducted by the Faculty of Psychology UI along with Compass (in sajogio&Sajogio, 1984) that it is indeed a shift in the rules in force before¹.

In recent findings on the coverage during RCT1 July 25,2000, the data obtained in 1521 patients with transmitted disease for example AIDS in 26 provinces, of which 331 patients aged 17-25 years and most infections due to free sex. This is also heavily supported by the data obtained in the internet which states that there are approximately 200,00 cases of pre-marital pregnancy among adolescents happens in big cities like Jakarta, Medan and Surabaya. The causative factor 63% is due to their sexual behavior tend to be free. Research conducted by Radio Geronimo and GHG Youth Movement for Population, show that the sexual behavior of teenagers in some of the items are as such as never seen a book or magazine porno (73.1%), have watch porn (45.8%), got the book or pornographic images from friends (85.6%) and borrow porn (84.3%).

The increasing percentage of data in adolescent premarital sex known to participate is influenced by advances in medical science, so at least make teenagers are not afraid to have sex freely. Progress that supports the implementation of the free sex includes the discovery of effective drugs to treat such diseases, finding various ways of preventing pregnancy, free sales tool to determine the fertile period that is easy to implement as well as the medical personnel whom is willing to do abortions safely².

The main reason why I choose specifically on the tittle HIV (Human Immunodeficiency Virus) is because as a medical student we are aware of such disease exist but not many of us know about the whereabouts about the disease or on which level of seriousness a HIV virus can be or even on how a HIV virus can make a vast impact on a person's life based on what a HIV infected person can and can't do.

Secondly, the reason why I choose medical students to participate in this study because as a medical student our profession solemnly takes place in a hospital, and we have to deal with syringes and blood every day and in many cases even the patients that comes to hospital will have no recollection of having HIV virus so as a future precaution this awareness and knowledge background towards HIV will give a much more wide range of information on HIV also to be more alert when handling patients infected with HIV.

In addition to individual factors such as the onslaught of modern cultures of western and sexual maturity resulting in the emergence of sex drive, sexual behaviors adolescents also developed through contact with the environment, scope of adolescent milieu fairly extensive, allowing diverse adolescent behavior. In the urban environment a lot of flow changes occur, so the emergence of adolescent social problems tends to be more open social environment is not good, weakening the function and control of family, alienation experienced by adolescents and the lack of correct knowledge about healthy sexual problem is the accumulation of several factors causing free sex among students³.

HIV is the shortened form for Human Immunodeficiency Virus. It is a virus, such as the virus that causes the flu or cold. A virus is a minute particle that lives as a parasite in plants, animals, and bacteria. It consists of an inside (core) made of a substance known as nucleic acid and an outside (sheath) made of protein. Viruses can only replicate within living cells and are not considered to be independent living organisms.

In order to make more viruses (and to do all of the other nasty things that viruses do), a virus has to infect a cell. HIV mostly infects the white blood cells of the body's immune system. These cells are known as T-cells or CD4 cells. Once inside the Tcell or CD4 cell, HIV starts producing millions of little viruses, which eventually kill the cell and then go out to infect other cells. All of the drugs marketed to treat HIV work by interfering with this process

If one is infected with HIV, the body will try to fight the infection. It will make "antibodies", special molecules that are supposed to fight HIV. When you get a blood test for HIV, the test looks for these antibodies. If a person has them in the blood, it means that the person has HIV infection. People who have the HIV antibodies are called "HIV-Positive".

Infection with HIV does not necessarily mean that a person has AIDS. Some people who have HIV infection may not develop any of the clinical illnesses that define the full-blown disease of AIDS for ten years or more. Physicians prefer to use the term AIDS for cases where a person has reached the final, life-threatening stage of HIV infection.

What about AIDS? AIDS is a shortened form for Acquired Immune Deficiency Syndrome. It is a condition caused by HIV. This virus, as stated earlier, attacks the immune system, the body's "security force" that fights off infections.

When the immune system breaks down, this protection is lost and can lead to the development of many serious, often deadly infections and cancers.

These are called "opportunistic infections (OIs)" because they take advantage of the body's weakened defenses. You have heard it said that someone "died of AIDS." This is not entirely accurate, since it is the opportunistic infections that cause death. AIDS is the condition that lets the OIs take hold.

There are some specific criteria for determining when a person living with HIV progresses to AIDS. One thing they look at is T-cell counts: if a person falls below 200 T4 cells, then they have officially progressed to AIDS. Another thing they look for are OIs: if an HIV+ individual is diagnosed with an opportunistic infection the list of over two dozen possible HIV-related OIs, then they are diagnosed with AIDS⁴.

1.2 Research Problem

Based on the description in the background of the problems mentioned above, can be able to formulate problem study are as follows:

1. Effects of lack knowledge among students in Faculty of Medicine in Udayana University on the mode of transmission and the progression of the disease on HIV.

1.3 Research Purposes

1.3.1 General Purposes

To know and learn more about the awareness and knowledge background among students on HIV disease in Faculty of Medicine in Udayana University.

1.3.2 Specific Purposes

To study in detail on the effects of lack in knowledge in students based on age and gender about the mode of transmission and also the progression of HIV in the Faculty of Medicine in Udayana University.

1.4 Benefits of Research

1.4.1 Academic Benefits

1. As an opportunity to expand their range of knowledge, especially in the field of clinical microbiology.
2. Data and information of this descriptive study can be used to aid in further research.

1.4.2 Practical Benefits

1. This research may provide information for health services specifically in Udayana University by formulating a strategy to countermeasure the lack of awareness among students.
2. As a reference to provide a better understanding and clear mind in detail about the sexually transmitted diseases before this disease spreads widely and cause severe health damage among students.

2. LITERATURE REVIEW

2.1 Human Immunodeficiency Virus (HIV)

2.1.1 Epidemiology of HIV.

Epidemiology of HIV estimated 350 000 (220 000–550 000) new HIV infections in Asia and the Pacific in 2015. In 2015, under the 2030 World Health Organization (WHO) guidelines there were an estimated 1.7 million [1.3–2.1 million] women living with HIV in the region. Women continue to account for about one third of people living with HIV, at 36% of the total, versus 35% in 2014. There were 210 000 [180 000–280 000] children living with HIV in the region in 2015. According to the latest (2015) UNAIDS estimates, 12 countries account for more than 90% of people living with HIV and more than 90% of new HIV infections in Asia and the Pacific: Cambodia, China, India, Indonesia, Malaysia, Myanmar, Nepal, Pakistan, Papua New Guinea, the Philippines, Thailand and Viet Nam. An estimated 3–4 million people living in Asia injects drugs. In three countries with expanding epidemics Indonesia, Pakistan and the Philippines injecting drug use has been a significant factor in the spread of HIV. In 2015, HIV prevalence among people who inject drugs was 36.4% in Indonesia, 27.2% in Pakistan and 13.6% in the Philippines. More young people aged 15–24 live in Asia and the Pacific

than in any other region. In 2015, an estimated 2.1 million young people were living with HIV (among which 46% are female). The epidemic in this age group is driven mainly by unprotected sex and injecting drug use, as it is among adult populations⁸. The Fast-Track approach to HIV treatment is working. Global consensus and leadership have driven greater investment of financial and human capital, and mounting clinical experience and research, improved treatment regimens and diagnostics and reductions in the price of medicines have created gains in efficiency and effectiveness⁶. The continuing momentum reinforces the determination to achieve the 90–90–90 treatment target by 2020, whereby 90% of people living with HIV know their HIV status, 90% of people who know their HIV-positive status are accessing treatment and 90% of people on treatment have suppressed viral loads⁵. However, the world is faring poorly in preventing sexually active people from acquiring HIV, and they account for the vast majority of people newly infected annually. Globally, new infections among people aged 15+ years increased by⁷.

2.1.2 Definition of Human Immunodeficiency Virus (HIV).

HIV connotes human immunodeficiency virus. It is the virus that causes acquired immune deficiency syndrome (AIDS). There are two types of HIV; they are HIV-1 and HIV-2. HIV destroys the body's immune system leaving the body open to infections that it cannot fight in the normal way, when this happens, a person has AIDS⁹. Olaley (2000) said that, the two major types of HIV-1 and HIV-2 could be distinguished genetically and antigenically. He further stressed that, by the last count, at least 12 HIV-1 subtypes and 5 HIV-2 subtypes have been registered with the Gene-Bank. These viruses are highly heterogenous in a variety of biologic, serologic and molecular features. These include: Cellular tropism: Replication kinetics: Level of virus production: Cytopathic effects: Plaque or Syncytium-forming ability: Latency: Sensitivity of neutralizing or enhancing antibodies and: Genetics structure. These variables feature coupled with the other properties of the virus mentioned earlier make difficult to produce effective vaccine or therapy against the virus. AIDS is referred to as a syndrome because the range of manifestations may include a variety of opportunistic infections, neurological disorders, and malignancies¹⁰. Churchill (2004) stressed that, AIDS is a syndrome because of its aggregate of signs, symptoms, or other manifestations considered to constitute the characteristics of a morbid entity; used especially when the cause of condition is unknown. AIDS is a sexually transmitted disease; it can be passed from woman to man, from man to woman, and from man to man. AIDS is a deadly disease and the majority of people who become infected with HIV will develop AIDS or dementia or associated neurological diseases within 10 years¹¹.

2.1.3 Etiology and Transmission of Human Immunodeficiency Virus (HIV).

Etiology of Human Immunodeficiency Virus (HIV), actually HIV is the virus that causes AIDS. Over time, infection with HIV (Human Immunodeficiency Virus) can weaken the immune system to the point that the system has difficulty fighting off certain infections. These types of infections are known as opportunistic infections. Many of the infections that cause problems or that can be life-threatening for people with AIDS are usually controlled by a healthy immune system. The immune system of a person with AIDS has weakened to the point that medical intervention may be necessary to prevent or treat serious illness. The difference between HIV and AIDS can be seen as follows, H- (Human: because this virus can only infect human beings). I – (Immuno-deficiency: because the effect of the virus is to create a deficiency, a failure to work properly, within the body's immune system). V – (Virus: because this organism is a virus, which means one of its characteristics is that it is incapable of reproducing by itself. It reproduces by taking over the machinery of the human cell). A – (Acquired: because it's a condition one must acquire or get infected with; not something transmitted through the genes). I – (Immune: because it affects the body's immune system, the part of the body which usually works to fight off germs such as bacteria and viruses). D – (Deficiency: because it makes the immune system deficient (makes it not work properly). S – (Syndrome: because someone with AIDS may experience a wide range of different diseases and opportunistic infections)¹². Activities That allow HIV Transmission, are unprotected sexual contact, direct blood contact, including injection drug needles, blood transfusions, accidents in health care settings or certain blood products, and mother to baby (before or during birth, or through breast milk)¹³.

2.1.4 Pathogenesis Human Immunodeficiency Virus (HIV).

I. Human Immunodeficiency Virus (HIV)

HIV consists of a cylindrical center surrounded by a sphere-shaped lipid bilayer envelope. There are two major viral glycoproteins in this lipid bilayer, gp120 and gp41. The major function of these proteins is to mediate recognition of CD4+ cells and chemokine receptors, thereby enabling the virus to attach to and invade CD4+ cells. The inner sphere contains two single-stranded copies of the genomic material, RNA, as well as multiple proteins and enzymes necessary

for HIV replication and maturation: p24, p17, reverse transcriptase, integrase, and protease. The HIV life cycle includes six phases: binding and entry, reverse transcription, integration, replication, budding, and maturation¹⁴.

- **Viral Binding, Entry and Uncoating:** On the surface membrane of all living cells are complex protein structures that may serve as “receptors.” A receptor is often compared to a lock into which a specific key or “ligand” will fit. HIV binds to at least two specific receptors on the host cell: the primary receptor, called the CD4+, and a secondary receptor, a chemokine co-receptor, such as CXCR4 or CCR5, as described earlier. HIV infection of a lymphocyte begins with attachment of the virus, via its gp120, to the cell membrane through both of these “ligand-receptor” interactions. Tight attachment of the viral particle to receptors on the cell’s membrane activates other proteins that enable viral fusion with the cell membrane. Once the virus has fused with the host cell, the viral core and its associated RNA enter the cell. In order for the genetic material of the virus to reproduce, the coating that surrounds the RNA, or nucleocapsid, must be dissolved. A partial uncoating of the nucleocapsid occurs, resulting in the release of viral RNA into the cytoplasm of the host cell.
- **Reverse Transcription:** The HIV RNA must be converted to DNA before it can be incorporated into the DNA of the CD4+ cell. This incorporation must occur for the virus to multiply. The conversion of HIV RNA to DNA is known as reverse transcription and is mediated by the HIV enzyme reverse transcriptase. The result is the production of a single strand of DNA from the viral RNA. The single strand of this new DNA then undergoes replication into double-stranded HIV DNA.
- **Integration into Host Chromosomal DNA:** During this stage, viral DNA is randomly inserted into the host cell DNA by the viral enzyme integrase. This stage of the HIV lifecycle has enabled the design and development of a new class of ARVs known as integrase inhibitors (26–29); several are still in the testing phase and none is in clinical use currently. When the viral DNA is integrated into the host genetic material, it can remain there in a latent state for many years. The ability of HIV to persist in this latent state poses a major barrier to eradicating or curing HIV.
- **Synthesis of Viral DNA and Translation and Production of Viral Proteins:** Upon activation of infected cells, viral DNA is transcribed along with the host DNA into messenger RNA (mRNA). The mRNA codes for the production of viral proteins and enzymes. The new viral RNA also serves as the genetic material for the next generation of viruses. Once produced, the viral mRNA is transported out of the nucleus and into the cytoplasm of the host cell. Translation of viral mRNA results in the production of polypeptide sequences. Each section of the mRNA corresponds to a protein or enzyme that serves as a building block used to construct new HIV particles.
- **Budding:** The HIV proteins and viral RNA, all the components needed to make a new virus, gather at the CD4+ cell membrane to form new viruses. These new viruses push through the different parts of the cell wall by budding. Many viruses can push through the wall of one CD4+ cell. These new viruses leave the CD4+ cell and contain all the components necessary to infect other CD4+ cells.
- **Maturation:** The final step in the viral lifecycle, maturation, is required in order for the virus to become infectious. Shortly after budding from the host cell, the protease enzymes in the new viral particle become active and cleave the polypeptides into their appropriate functional subunits, or proteins and enzymes. This processing step results in the generation of a mature and infectious virion¹⁵.

3. FRAME OF MIND AND CONCEPT RESEARCH

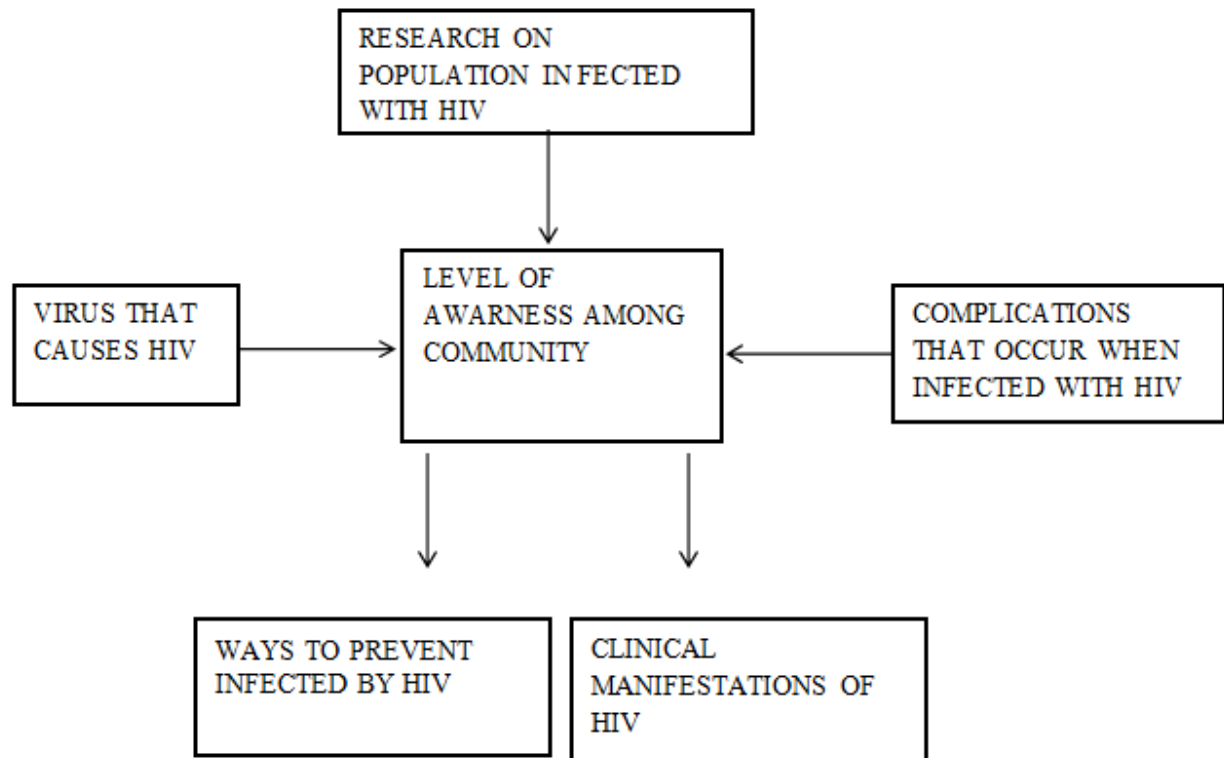
3.1 Frame of Mind

Disease like Human Immunodeficiency Virus (HIV) is a wide spreading disease among adolescents today. These sexually transmitted diseases are getting more common among students that the awareness about the seriousness is descending as they mature. An agent that causes HIV is the virus that causes AIDS. Currently, the average time between HIV infection and the appearance of signs that could lead to an AIDS diagnosis is 8-11 years. This time varies greatly from person to person and can depend on many factors including a person's health status and behaviors.

The risk factor that influences the occurrence of human immunodeficiency virus (HIV) is Participation in unprotected vaginal, oral or anal sex (no condom or dental dam used), Genital to genital sexual contact and involvement in street culture. Preceding history of STI, having multiple sexual partners, use of non-barrier contraceptives, such as the birth

control pill, without using a male or female condom, and the use of injection drugs, alcohol or other substances that can impair decision making ability.

Conceptual Framework



4. RESEARCH METHOD

4.1 Research Design

This research is using based on descriptive cross-sectional study in order to obtain data about the amount of knowledge students about the mode of transmission and the progression of the disease in Udayana University from November 2016 – January 2017.

4.2 Duration and Location of Research

4.2.1 Duration of Research

This research will be conducted from 2016-2017

4.2.2 Location of Research

Location of research is done in Faculty of Medicine, Udayana University, Denpasar, Bali.

4.3 Medical Linguistic 1

4.3.1 Population

I. Target population

In this research the target population is medical students Universitas Udayana, Denpasar, Bali.

4.3.2 Sample

The data entry and analysis were done by using, chi-square to measure association between variables and knowledge scores between pre-clinical students, p-values were calculated.

II. Estimated Population

$$n = \frac{Z\alpha^2 \times P \times Q}{d^2}$$

Explanation,

n= needed sample size

Z α = value is determined which is 1.96

P = Prevalence for the level of knowledge and altitude among medical students' study is based on the study

Q = value from (1-P)

d = needed level of absolute accuracy is (0.1)

So, estimated population is

$$n = \frac{1.92^2 \times 0.6 \times 0.4}{0.1^2}$$

=88.4

To anticipate drop out, 10% is added to become

88.4+10%=97.24, as a whole number make the value as 100. So, 100 sample sizes are needed for this study.

4.3.3 Sampling Technique

In this study, the sampling is random sampling.

4.4 Research Variable

4.4.3 Identification of Variable

Variable-variable that will be seen in this research is as follows; age, gender and types of school.

4.4.4 Definition Operational Variable

I. Age of the students in the Faculty of Medicine in Udayana University is based from batch 2013 to 2016.

II. Gender is categorized to male and female students in Faculty of Medicine in Udayana University.

III. Knowledge is ability to answer correctly towards HIV related questions.

4.5 Materials and Instruments

- Stationery (pen, pencil)
- Self-administrated questionnaire

4.6 Data Collecting Method and Analysis

Data will be collected through interview of medical students from Medical Faculty of University Udayana.

4.7 Analysis Data

Data from surveyed are primary data. Data thus collected will be analyzed and relevant statistics will be calculated.

5. RESULTS

5.1 Demographic Data

One hundred medical students of Udayana University agreed to participate in this descriptive cross-sectional study and to fill their details in questionnaire. In this descriptive cross-sectional study, both male and females participated. Among one hundred students, fifty (50%) students were male students and fifty (50%) students were female. The samples were student age ranging from eighteen till twenty (18-20) years old.

The samples were participated by four academic years which were year 2015 until academic year 2016. There were fifty (50%) students from academic year 2015 and fifty (50%) students from academic year 2016. The age range of students from academic year of 2015 is eighteen till nineteen (18-19) years old and age ranging from academic year of 2016 is nineteen till twenty (19-20) years old. Seventy (70%) of students knows what is Human Immunodeficiency Virus (HIV) meanwhile thirty (30%) students don't aware about Human Immunodeficiency Virus (HIV).

The samples were participated from different places of SMA which is city and rural schools. From the academic year of 2015 male participants from city school is twenty (20%) students and female are eighteen (18%) students while male participants from rural school is five (5%) and female is seven (7%). The samples were participated from the academic year of 2016 male participants from city school is twenty-two (22%) and female is twenty-three (23%) while male participants from rural school is three (3%) and female is two (2%).

Table 1: Number of Participant According to Sex

Male	Female
50	50

Table 2: Number of Participants According Age

Age	18	19	20
No. of Students	50	46	4

Table 3: Number of participants according academic year and their respective age range

Academic year	No. of students	Age range
2015	50	18-19
2016	50	19-20

Table 4: Number of participants who studied in city or rural SMA

SMA	Boys	Girls
City	42	41
Rural	8	9

5.2 Understanding the Definition, Causes, Transmission, Sign and Symptom, Management, Prevention and Prognosis of Human Immunodeficiency Virus (HIV).

Participants knowledge on definition, causes, transmission, sign and symptom, management, prevention and prognosis of Human Immunodeficiency

Virus (HIV) were inquired. The participants were asked to answer yes or no or don't know regarding to the questions that were given to them in the questionnaire. The percentage of those who answered correctly for each item were presented in tables below. Hundred (100%) students understand about HIV, hundred (100%) students understand what are the causes of HIV, the following list of transmission who answered correctly in decreasing order of frequency: sexual intercourse (100%), blood (100%), sharing needle (94%), sharing a glass of water (91%), kissing (58%), and saliva (47%). The understanding on sign and symptoms of HIV: intra-oral-mark (42%), asymptomatic (70%). Understanding about the management of HIV: taking antibiotics (50%), antiretroviral therapy (81%). Understanding about the prevention of HIV: prevention by latex (66%), condom (99%), vaccine (92%), and needle injury (85%). Understanding about the prognosis: HIV is not completely curable (70%), AIDS cannot be cured (60%).

Table 5: About HIV

QUESTION	Num. of students answered (CORRECTLY)	Num. of students answered (WRONGLY)	Num. of students answered (DON'T KNOW)
Definition on HIV	100	0	0

Based on Table 5: The number of students who understand the basic definition on what is HIV is 100% students which sums to all

Table 6: Etiology

QUESTION	Num. of students answered (CORRECTLY)	Num. of students answered (WRONGLY)	Num. of students answered (DON'T KNOW)
Causes on HIV	100	0	0

Based on Table 6: The number of students who understand the causes on HIV is 100% students which sums to all

Table 7: Transmission

Items	Num. of students answered (CORRECTLY)	Num. of students answered (WRONGLY)	Num. of students answered (DON'T KNOW)
Sharing a glass of water	91	8	1
Blood	100	0	0
Saliva	47	63	0
Kissing	58	42	0
Sexual Intercourse	100	0	0
Sharing Needle	94	6	0

Based on Table 7: The number of students who understands the transmission of HIV through blood and saliva is all which is 100%, through sharing needle is 94%, through sharing a glass of water is 91%, through kissing is 58% and through saliva is 47%. The number of students who understands less on the transmission of HIV through saliva is 63%, through kissing is 42%, through sharing a glass of water is 8%, through sharing needle is 6%. The number of students who don't understand the transmission of HIV through sharing a glass of water is 1%.

Table 8: Sign and Symptom

Questions	Num. of students answered (CORRECTLY)	Num. of students answered (WRONGLY)	Num. of students answered (DON'T KNOW)
No sign and symptoms of intra-oral-mark	42	42	16
HIV can remain asymptomatic	70	25	5

Table 8: The number of students who understands the sign and symptoms of HIV for no sign and symptoms of intra-oral-mark is 42% and for when HIV can remain asymptomatic is 70%. The number of students who understand less about no sign and symptoms of intra-oral-mark is 42% and HIV can remain asymptomatic is 25%. The number of students who didn't understand about no sign and symptoms of intra-oral mark is 16% and HIV can remain asymptomatic is 5%.

Table 9: Management

Questions	Num. of students answered (CORRECTLY)	Num. of students answered (WRONGLY)	Num. of students answered (DON'T KNOW)
Using antibiotics	50	20	30
Antiretroviral	81	5	14

Table 9: The number of students who understand management on HIV by using antibiotics is 50% and antiretroviral is 81%. The number of students who understands less in using antibiotics is 20% and antiretroviral is 5%. The number of students who don't understand in using antibiotics is 30% and antiretroviral is 14%.

Table 10: Prevention

Questions	Num. of students answered (CORRECTLY)	Num. of students answered (WRONGLY)	Num. of students answered (DON'T KNOW)
Latex	66	23	11
Condom	99	0	1
Vaccine	92	6	2
Needle Injury	85	13	2

Table 10: The number of students who understands on the prevention in HIV through condom is 99%, through vaccine is 92%, through needle injury is 85% and through latex is 66%. The number of students who understands less on the

prevention in HIV through latex is 23%, through needle injury is 13%, through vaccine is 6% and none through condom. The number of students who don't understand on the prevention in HIV through latex is 11%, through vaccine and needle injury is 2%, and through condom is 1%.

Table 11: Prognosis

Questions	Num. of students answered (CORRECTLY)	Num. of students answered (WRONGLY)	Num. of students answered (DON'T KNOW)
HIV is not completely curable	70	12	8
AIDS cannot be cured	60	19	21

Table 11: The number of students who understands the prognosis on HIV that HIV is not completely curable is 70% and that AIDS cannot be cured is 60%. The number of students who understands less on the prognosis on HIV that AIDS not curable is 19% and that HIV is not completely curable is 12%. The students who don't understand the prognosis on HIV that AIDS cannot be cured is 21% and HIV is not completely curable is 8%.

Table 12.1: First heard about HIV

Items	Number of students
Media	77
SMA	10
Health Talk	10
Family	1
Friends	1
Books	1

Table 12.1: The number of students who has first heard about HIV through media is 77%, through SMA and health talk is 10% and through family, friends and books is 1%.

Table 12.2: Amount of Health Talk held in SMA

Number of Health Talk	Number of students
Once	5
Twice	6
More than twice	86
None	3

Table 12.2: The number of students whose school or SMA have held health talk for more than twice is 86%, for twice 6%, for once is 5% and for none is 3%.

Table 12.3: Transmission and Basic Knowledge on HIV

Items and questions	Number of students answered (YES)	Number of students answered (NO)	Number of students answered (DON'T KNOW)
Mosquito bite	89	10	1
Sharing toilet	95	5	0
Wearing the same clothes	100	0	0
Is HIV and AIDS the same?	90	10	0
Does HIV have cure?	92	8	0
Should STDs be taught in school?	95	3	2
Should sex education be taught in school?	88	10	2

Table 12.3: The number of students who answered correctly on the transmission of HIV through wearing the same clothes is 100%, through sharing toilet is 95% and through mosquito bite is 89%. The number of students who answered wrongly through mosquito bite is 10%, through sharing toilet is 5% and none for wearing the same clothes. The number of students who answered don't know on mosquito bite is one. The number of students who answered 'YES' on basic knowledge on HIV for the question whether STDs should be taught in school is 95%, for whether HIV has a cure is 92%.

for whether HIV and AIDS is the same is 90% and whether sexual education should be taught in school is 88%. The number of students who answered 'NO' for whether HIV and AIDS is the same and whether sex education should be taught in school is 10%, whether HIV has cure is 8%, and whether STDs should be taught in school is 3%. The number of students who answered whether sex education should be taught in school and whether STDs should be taught in school is 2%.

Table 12.4: Courses in University

Question	Number of students answered (YES)	Number of students answered (NO)	Number of students answered (DON'T KNOW)
Joined courses on HIV	17	79	4

Table 12.4: The number of students who answered 'YES' in joining courses on HIV held by university 17%. The number of students who answered 'NO' is 78%. The number of students who answered 'DON'T KNOW' is 4%.

6. DISCUSSION

Knowledge about HIV/AIDS is crucial for health care professionals because of the increasing prevalence of these infections. Occupational risk of these infections is well known in medical worker especially during the professional training period. This accounts for one of the major reasons for delivering knowledge about preventive measures and universal precautions.

In this study between the academic year of 2015 and 2016 male participants, it can be seen that male from each academic year has good knowledge on the understanding and causes of Human immunodeficiency Virus (HIV). Although differences have been spotted in other areas such as the knowledge on transmission of HIV where by male participant from 2015 batch who attended city school is the same which is seventeen (17%) students while in male participant who went to rural school from 2015 batch is higher by two (2%) students, whereas in knowledge on sign and symptoms male participant from 2016 batch who attended city school is higher than the male participant in 2015 batch by five (5%) but the male participant from 2015 batch who attended rural school has a better knowledge than 2016 by five (5%) students who studied in rural school, in knowledge on management and treatment of HIV male participant from 2016 who went to city school and rural school is higher by six (6%) students than male participant from 2015 batch, in knowledge on prevention of HIV both rural and city school male participant from 2016 batch is higher eight (8%) students than batch 2015 and lastly based on the knowledge of prognosis on HIV for the male participant in 2016 batch who studied in city is slightly higher by one (1%) student than batch 2015 city school males but male participant from 2015 rural school is higher by three (3%) students in batch 2016.

Batch 2015 and 2016 male participant from city school majority heard about HIV firstly through SMA is around ten (10%) to twelve (12%) students then through health talk and so on, while male participant from batch 2015 and 2016 rural schools also heard from SMA is around three (3%) to four (4%) students.

According to their respective SMA the amount of health talk held from male participant in batch 2016, city school is more than twice but batch 2015 is just twice. Male participant from both batches in rural school only held once. Based on their basic knowledge on HIV for male participant from 2016 who went to city school has lesser mistake by two (2%) students compared to the male participant from 2015 mainly on whether HIV and AIDS is the same or not. Meanwhile, the male participant from 2015 who went to rural school and answered correctly is more than male participant from 2016. Based on whether STDs and sex education should be taught in school for male participant from 2016 and 2015 who studied in city and rural school said YES. Very less male participant from both batches joined any HIV related courses besides University.

Apart from male participants there were also female participants who are aware about the understanding and causes of HIV. The number of female participants from city and rural school and in their third semester has a better understanding on the transmission in HIV by twenty-two (22%) students compared to female batch 2015. Awareness on sign and symptoms of HIV in batch 2015 that went to city school is more by eight (8%) students than 2016 batch and from rural school in 2015 batch is more by three (3%) students than female participant from batch 2016. The female participant from 2016 who attended city school understands more by ten (10%) students about the management and treatment for HIV than

batch 2015 while the female participant from rural school in 2015 batch understand less by five (5%) students about management and treatment of HIV.

The female participant from batch 2015 that went to city school has more awareness about the prevention by nine (9%) students than batch 2016 but the female participant in 2015 batch that went to rural school has lesser understanding by four (4%) students than the female participant in 2016 batch.

The female participant from batch 2016 in city school has a better understanding on prognosis on HIV by twenty-three (23%) students but the female participant in rural school has a lesser awareness on the prognosis by six (6%) students than female participants in 2015 batch. Based on the background knowledge of HIV the female participant from batch 2015 firstly heard about HIV through SMA is twelve (12%) students but from batch 2016 is through media is five-teen (15%) students from city school.

The female participant from rural school in batch 2015 heard through media is five (5%) students while in batch 2016 is SMA is two (2%) students. The amount of health talk in their respective school for female participants in city school for both batches mostly is more than twice is nine-teen (19%) for 2016 and four-teen (14%) students but in rural school for both batches is once by seven (7%) for 2015 and two (2%) for 2016 batch students. The female participant studied in city school from batch 2016 has a higher understanding based on their own knowledge on HIV by twenty (20%) students than in batch 2015, while female who went to rural school in 2016 batch has a lesser understanding by five (5%) than in 2015 batch. About twenty-three (23%) from the and twenty-one (21%) from batch 2016 and eight-teen (18%) from batch 2015 who studies in city school agreed on STDs and sex education being taught in school, while seven (7%) from 2015 and two (2%) from 2016 studied in rural school also agreed on STDs and sex education being taught in school. The amount of female participant from the batch 2016 from city school who did not join any HIV related courses is more by twenty-three (23%) students. Female participants from rural school from batch 2015 are higher by seven (7%) students than in 2016.

This can be deducted that male participant from Udayana University who attended school in the city and also currently in their semester III has a much better awareness about Human immunodeficiency Virus (HIV) than the other male participants. Besides that, the female participants who has a better understanding and awareness on HIV is female participant who is from semester I and who went to city school.

A significant difference between knowledge of pre-clinical and clinical students on another study regarding HIV/AIDS of a Private Medical University in Karachi was observed, whereby almost half the students did not know about post exposure prophylaxis for HIV/AIDS. Only (50%) students surveyed knew about needle safety despite the fact that needle pricks are one of the significant modes of transmitting HIV in our part of the world but medical students in Udayana University either in semester three nor semester one has a higher percentage by (85%). Almost all (95%) students knew that blood transfusion was an important source of transmitting these infections while students in Udayana University 100% of them knew that blood was a major source of HIV transmission. Wearing gloves (87%) and safe disposal of sharp wastes (98%) were known by the students to be the ways to protect against these infections. Only half of the students were aware that needle should not be recapped and 14% did not know about cutting of needle before disposal. According to medical students in Udayana University only (66%) were aware about wearing gloves, and (85%) of them aware against needle injury as a protection against HIV virus.

Based on another cross-sectional study that was held in Pre-University Colleges in Modiri, there were only 84% students knew that there is no vaccine for HIV/AIDS while students in Udayana University only 81% students knew that. Besides that, the students received information regarding these infections from books (85%), media /Internet (85%), teachers (84%), friends and relatives (70%) while medical students in Udayana University firstly knew about HIV through media was (77%), school (10%), health talk (10%), while family, friends, and books is (1%). The students in Modiri have (79%) of them are aware that condoms could prevent the spread of disease while (99%) from students in Udayana University knew the risk on HIV transmission through condom.

We found a significant difference between knowledge of rural school areas and city school areas students. Similar results were observed among Pakistan medical students that recommended need for increasing their knowledge and training should be started during the early years. Data collected from community setting also suggested education of the health workers as well as the common people. Continuing education programs emphasizing on prevention procedures were considered to be crucial to make pediatricians more knowledgeable about HIV/AIDS in another international study.

In the light of the above studies and our study there is a lack of awareness among the students. It is the need of the hour to emphasize on practicing universal precautions. In addition, some preventive measures should be taken by the management of the universities and medical college students to avoid the occurrence of these problems. Mainly because schools in the city take more initiative in conducting such health talk as they are aware about the severity and how life-threatening HIV virus can be and as for schools in rural areas the associations are less or may not be concerned about such treacherous diseases thus this leads to less or worse with no apparent awareness on HIV virus

7. CONCLUSION

Based on the study above, it can be concluded that medical students in a higher semester either male nor female has a better understanding and more awareness on Human Immunodeficiency Virus (HIV) and also a good background knowledge on HIV in medical faculty, Udayana University. Educational level seems to play an important role in health awareness in all places. In order to outspread such understanding and alertness more globally, implementation of awareness program should be established among the publics through social media, health talks and medical tours.

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