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Knowledge and Attitudes of College Students Concerning HIV/AIDS

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KNOWLEDGE OF COLLEGE STUDENTS ABOUT HIV/AIDS

by

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ABSTRACT

An Abstract of the Research Paper Of

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The purpose of this study was to learn more about the knowledge and attitudes of college students concerning HIV/AIDS. Further investigation of this topic sought to provide insight into the perspective of college students. This study utilized a convenience sample of 25 students at a Midwestern university. Participants were administered questionnaires featuring questions concerning their knowledge and attitudes towards HIV/AIDS. Findings indicated that although the majority of participants believed they were well educated about HIV/AIDS, their response to knowledge questions showed otherwise. Findings also indicated that students would like to see more HIV programming on their campus. The implications of this study are important to health educators as they provide information, which may be utilized in the development of needs assessments and future HIV programming.

Chapter 1

Literature Review

Introduction

The human immunodeficiency virus (HIV) is a chronic infection, which targets the immune system. This chronic condition can ultimately cause the infected individual to develop acquired immune deficiency syndrome (AIDS) (American Foundation for AIDS Research [amFAR], 2014). The virus depletes the body's $CD4^+$ cells, a key element in the execution of proper immune response (Faith, O'Hehir, Malkovsky & Lamb, 1992). $CD4^+$ cells are commonly referred to as T-Helper cells. Measured in cubic millimeters (mm^3) of blood, $CD4^+$ cells are abundant in a healthy body, hosting around 800-1200 cells/mm^3 (Klimas, Koneru & Fletcher, 2008). An individual infected with HIV experiences a depletion of $CD4^+$ cells with the progression of the condition. Cold sores, warts, thrush and other minor infections occur with an absence of half of the body's $CD4^+$ cells. A diagnosis of AIDS occurs once the body has less than 200/mm^3 of $CD4^+$ cells (Klimas et al., 2008). At this point, an infected individual is susceptible to opportunistic infections that characterize AIDS. Opportunistic infections include, but are not limited to pneumocystis carinii, Kaposi's sarcoma, and toxoplasmosis (Klimas et al., 2008).

History

Recognition of Immune Suppression

In 1981, The Centers for Disease Control and Prevention began investigating multiple cases of pneumocystis carinii among homosexual men in the Los Angeles area (Centers for disease Control and Prevention [CDC], 1981). These cases sparked an interest due to the nature of the disease. Pneumocystis carinii is a type of pneumonia that is typically diagnosed in

individuals with severely compromised immune systems, such as transplant recipients and chemotherapy patients (Jaffe, 2008). The interesting new trend continued to occur as more homosexual men in San Francisco and New York were diagnosed with this rare form of pneumonia. Health officials also began to see cases of Kaposi's sarcoma, a rare cancer that is typified by large purple lesions, which appear on the skin. With two opportunistic diseases effecting homosexual men with no illnesses known to cause immune suppression, the CDC began a rigorous search to find the cause of these diseases (Jaffe, 2008).

Evidence that the mysterious disease was transmissible through sexual contact occurred when a case study showed that most of the effected patients had numerous sexual partners (Jaffe, 2008). In 1982, the link was made to sexual contact after examination of a case study showed that many patients had prior sexual contact with each other (Jaffe, 2008). Further research found that a French Canadian flight attendant who was diagnosed with Kaposi's sarcoma had sexual contact with four men in California as well as New York. These partners went on to develop various opportunistic infections (Jaffe, 2008).

Infection in the Blood Supply

At the summer's end of 1982, an older man with hemophilia was reported to have died due to an infection of pneumocystis carinii (CDC, 1982). Subsequently, two more deaths occurred in hemophiliacs who developed the pneumonia. The development of opportunistic infection in heterosexual hemophiliacs caused researchers to look into different modes of transmission (Jaffe, 2008). Healthcare providers also observed the rising rate of opportunistic infections among infants who recently received blood transfusions.

By 1983, researchers gathered enough evidence to conclude that AIDS could be transmitted through blood as well as the blood products given to hemophiliacs. The presentation

of this information to the Food and Drug Administration (FDA), the National Hemophilia Foundation and various blood banks was unsuccessful. A meeting held in January 1983 was called to discuss the matter. The researchers working on the AIDS epidemic found that the hepatitis b antibody test could be used to reduce the existence and acquisition of contaminated blood (Jaffe, 2008). The execution of this testing did not occur until much later. By the end of 1983, 2,807 cases of AIDS had been reported and the nation's death toll was 2,118 (amFAR, 1983).

Today

Thirty-five million people have died of AIDS-related complications since the beginning of the epidemic (World Health Organization [WHO], 2014). Since the discovery of HIV/AIDS, scientists have been able to greatly extend the life expectancy of patients. Along with great success is the need for further development. An estimate by the Central Intelligence Agency reported that in 2009 there were 1.2 million people living with HIV/AIDS in the United States. That estimate ranks the nation among the top ten countries with the highest population of HIV/AIDS positive residents. South Africa ranks first with an estimated 5.6 million cases (Central Intelligence Agency, 2009).

Transmission

The transmission of HIV occurs through exposure to infected breast milk, blood, semen, and vaginal fluids (Moss, 2013). Infection can occur once an uninfected individual is exposed to the virus via mucous membranes as well as the blood stream. Moreover, HIV is transmissible through sexual intercourse, intravenous drug use, blood and blood products, and from mother to child in utero as well as the consumption of HIV positive breast-milk (Moss, 2013). Infections via blood transfusions have significantly declined through HIV testing but not eradicated.

Blood Transfusions

The use of nucleic acid testing (NAT) has greatly reduced the rate of transmission of HIV from blood transfusions. Prior to the use of NAT, the rate of transmission amongst recurring blood donors ranged from 1 in 450,000 to 660,000. The rate has dropped to 1 in 2,135,000 since the implementation of NAT (Phelps et al., 2004). In first time donors the rate of transmission is 1 in 1.2 million to 1.8 million. NAT has also reduced the window period to ten to fifteen days. The window period is characterized by HIV antibodies present in a newly infected individual, though the virus is able to remain undetected (WHO, 2013b).

In July 2002, the CDC and the FDA were notified of an HIV positive blood donor. The donor, an 18 year old female high school student began donating blood on September 12th 2001, in response to the recent terrorist attacks. After reviewing her blood donation history, the agencies learned that she had donated blood in March 2002 (Phelps et al., 2004). Two people received blood from the March donation and subsequently tested positive for HIV. Upon initial donation, the blood was tested for HIV and the results came back negative. Through extensive research, the CDC determined that the donor unknowingly acquired HIV and donated blood within the ten day period of detection (Phelps et al., 2004).

Sexual Transmission

The acquisition of HIV via sexual exposure is dependent on the number of sexual contacts with HIV positive individuals as well as the viral load of the positive individuals (Moss, 2013). Furthermore, the possibility of contracting HIV is higher among those with sexually transmitted infections (STIs). Partners with genital ulcers experience a risk of infection 300 times greater than those without ulcers. Transmission is significantly higher in individuals with genital ulcers because of the lacerations caused by the ulcers (Kalichman, Pellowski, & Turner, 2011).

Individuals with STIs such as genital herpes and syphilis that contract HIV have an abundance of HIV antibodies in their genital fluid. Although the risk of HIV transmission via oral sex is low, lacerations in the mouth increase the chance of infection (Kalichman et al., 2011).

Upon exposure to HIV by sexual intercourse, the virus attacks the body's $CD4^+$ $CCR5^+$ T cells that are found in the genital and rectal mucous membrane (Gasper-Smith et al., 2011). After a period of localization that lasts approximately ten days, the virus spreads by way of blood through the lymphoid tissue. In a span of three to four weeks, the viral load of the individual with HIV rises to millions of virus per millimeter of plasma (Fieberg, 2003). Sexual transmission accounts for 90% of all HIV infections (CDC, 2014c). The risk of sexual transmission can be significantly reduced through the practice of abstinence as well as the use of condoms (amFAR, 2014).

Worldwide

Although most transmissions of HIV occur through sexual intercourse, different modes of transmission are more prevalent worldwide (Moss, 2013). Eastern European countries as well as eastern and southeastern Asian countries have high rates of HIV transmission because of intravenous drug use. Forty percent of intravenous drug users in Eastern Europe and eastern and southeastern Asia are HIV positive (United Nations Office on Drugs and Crime [UNODC], 2010). Intravenous drug users experience a high risk of acquisition because the needles used are unsterilized, thereby exposing users to a variety of blood-borne pathogens (Moss, 2013). The risk of transmission is three times higher through shared needles than through sexual intercourse (UNODC, 2010).

Stages of infection

According to the CDC, HIV occurs in three stages: acute infection, clinical latency, and AIDS (AIDS.gov, 2013; CDC, 2014a). Contrary to the CDC, the WHO acknowledges four stages of HIV. The four stages are: the primary infection, the clinically asymptomatic stage, the symptomatic HIV infection, and the progression from HIV to AIDS (WHO, 2007). Although both classification systems acknowledge a primary infection, the system used by the WHO relies on clinical symptoms. The prioritization of symptoms rather than $CD4^+$ counts allows practitioners from various professional backgrounds to provide care and assistance to HIV positive individuals (U.S. Department of Human Health and Services, 2011).

Primary Infection

The primary infection occurs two to four weeks after the individual has been exposed to HIV. In this stage, the host experiences flu-like symptoms and swollen lymph nodes. Inside the host, an immune response occurs as a result of the virus in the peripheral blood. This process, characterized by the production of HIV antibodies and cytotoxic lymphocytes, is called seroconversion (AVERT, 2014).

Asymptomatic

The asymptomatic stage can last up to ten years. Although referred to as asymptomatic, the HIV infection causes a variety of symptoms regardless of the host's $CD4^+$ count. Moreover, the referral to this stage as asymptomatic is incorrect (Willard et al., 2009). In reference to the absence of opportunistic infections, the referral to the stage as asymptomatic ignores day to day symptoms experienced by HIV positive individuals. Willard et al. (2009) studied the symptoms experienced by HIV positive individuals. Over 50% of participants clinically categorized as asymptomatic reported symptoms of depression, muscle ache, weakness, and thirst. Symptoms

were experienced regardless of the use of antiretroviral drugs. According to Willard et al.,"It is important for HIV clinical practice guidelines to reflect the fact that HIV-positive people may experience symptoms throughout their disease, and that these must be managed to improve quality of life" (p. 327).

Symptomatic HIV Infection

As HIV progression continues the immune system becomes severely compromised by the virus. The deterioration of the immune system is a result of various issues occurring in the body (Avert, 2014). As the virus mutates, it becomes more pathogenic, causing further destruction to the $CD4^+$ cells. If the body cannot replace the lost $CD4^+$ cells, HIV becomes symptomatic. The symptomatic HIV infection is typified by illness affecting all systems of the body (Avert, 2014). HIV positive individuals may experience severe weight loss—10% or more of their body weight. Other symptoms include, but are not limited to: persistent oral candidiasis—a yeast infection on the mucosa of the mouth, gingivitis, and periodontitis (WHO, 2007).

Progression from HIV to AIDS

Further deterioration of the immune system leads to the development of opportunistic infections (Avert, 2014). According to Schneider et al. (2008), a diagnosis of AIDS requires a $CD4^+$ cell count less than 200 $cells/mm^3$ or the documentation of one of the 26 AIDS defining opportunistic infections. AIDS defining opportunistic infections include HIV encephalopathy, toxoplasmosis of the brain, and HIV wasting syndrome (CDC, 2008). HIV encephalopathy is a neuro-cognitive condition which causes destruction of the brain tissue (Schlote, 1991; WHO, 2007). HIV encephalopathy leaves the individual with cognitive and motor dysfunctions. Cerebral toxoplasmosis is a neurologic infection caused by a parasite found in raw and undercooked meat (Colombo et al., 2005). The condition can cause encephalitis, which is the

inflammation of the brain. HIV wasting syndrome causes the individual to experience extreme weight loss greater than 10% of the body weight in conjunction with chronic diarrhea lasting longer than one month (WHO, 2007).

Diagnosis

HIV testing is divided into two categories, screening and confirmatory tests. Initially individuals receive screening tests. If a positive test result occurs a subsequent confirmatory test is given. Screening tests include enzyme-linked immunosorbent assays (ELISA) and rapid antibody tests (Marquez, Zetola, & Klausner, 2008). Screening tests result in minimal false negative results due to the high sensitivity of antibody testing. Confirmatory tests such as the Western Blot have a low probability of false positive due to the high specificity of the test (Marquez et al., 2008).

Screening Tests

ELISA testing detects the presence of HIV antibodies in oral fluid, blood, and urine (University of California San Francisco [UCSF], 2011). ELISA functions through the use of a micro-well plate (Marquez et al., 2008). Coated with an HIV antigen, a sample of the specimen is placed to detect the existence of HIV antibodies. Through a process of multiple washings and mathematical calculations, the antibody status in the specimen is determined. Results can take up to two weeks to be found (UCSF, 2011).

Rapid antibody tests also use oral fluid, urine and blood to detect the presence of HIV antibodies. Rapid antibody testing differs from ELISA in the time from testing to the determination of test results. Rapid testing yields results in less than 20 minutes (AIDS.gov, 2012b). Testing can be administered in clinical settings such as hospitals and doctors' offices or

in the privacy of a home (Marquez et al., 2008). OraQuick Advance, an over the counter oral rapid test, allows individuals to perform HIV testing without assistance (Irarrazábal et. al., 2013).

Irarrazábal et al. (2013) compared the specificity of ELISA and oral rapid testing. Of 497 participants, 37% yielded positive results through the use of ELISA. The oral rapid test found 36.4% of participants "reactive" for HIV. Three hundred and forty-four participants were unaware of their HIV status at the start of the study. Of the 344 people, 55 did not return to receive their ELISA results. Furthermore, participants preferred the oral rapid testing because of the reduced waiting time and experienced less anxiety (Irarrazábal et. al., 2013).

Confirmatory Testing

Positive HIV tests need to be confirmed though the use of confirmatory tests such as the Western Blot. More time consuming and expensive, the Western Blot identifies HIV proteins in the specimen. The proteins are divided and transferred onto nitrocellulose paper. The specimen being tested is added to the paper. If HIV antibodies are present, a binding of antibodies and corresponding antigens occurs (Marquez et al., 2008). CDC (2007) guidelines state

> (a) Positive test result is defined by the presence of any two of the following bands: p24, gp41, and gp120/160. (b) An indeterminate result is defined as bands present that do not meet the criteria for positive. (c) A negative result is defined as no bands present. (p. 21)

Treatment

HIV is treated with the use of highly active antiretroviral therapy (HAART). HAART works through the use of multiple medicines, to minimize the presence of the virus in the blood. WHO (2013a) guidelines dictate that the initiation of HAART is recommended in HIV positive adults and adolescents with $CD4^+$ counts greater than 350 cells/mm^3 and less than or equal to

500 cells/mm^3. It is also recommended than HAART is initiated regardless of $CD4^+$ count if the HIV positive individual has active tuberculosis, hepatitis b with chronic liver disease or is in a relationship with an HIV negative individual (WHO, 2013a). Relationships in which partners have different HIV statuses are referred to as serodiscordant (AIDS.gov, 2012a). Although HAART is not a cure for HIV, the regimen has turned HIV from a terminal illness to a chronic condition (Stebbing, Bower, Mandalia, Nelson, & Gazzard, 2006).

HAART

HAART works effectively through the use of combination drug therapy (Stebbing et al., 2006). Though treatments are specialized for each patient, the standard therapeutic combination includes two nucleoside reverse-transcriptase inhibitors (NRTIs) and either a protease inhibitor or a non-nucleoside reverse-transcriptase inhibitor (NNRTI). The utilization of a minimum of three medicines is necessary to reduce the possibility of developing drug resistance. HAART has decreased the mortality and morbidity of patients by reducing the incidence of opportunistic infections. HAART also works to increase the body's $CD4^+$ count (Stebbing et al., 2006). Though combination drug therapy has been proven to be successful in the treatment of HIV, side effects of the medication greatly impact patients.

Adherence to HAART

Although HAART serves to help the lives of individuals with HIV, side effects due to the treatment cause adherence issues in users. Johnson and Folkman (2004) studied the symptomatic side effects of HAART in HIV positive individuals. Forty-three percent of participants reported missing a dosage of HAART due to side effect related reasons. Side effects experienced by participants include: diarrhea, neuropathy, nausea, vomiting, and fatigue (Johnson & Folkman,

2004). In order to cope with the symptoms of HIV and the side effects of HAART, cannabis has been used by some HIV positive individuals (Bonn-Miller, Oser, Bucossi, & Trafton, 2014).

Bonn-Miller et al. (2014) studied the adherence to HAART in cannabis users. One hundred and eighty participants were divided into three groups: cannabis dependent users, non-cannabis users, and nondependent cannabis users. Cannabis dependent users were found to have low regimen adherence to HAART and lower $CD4^+$ counts than non-cannabis users and nondependent cannabis users. Cannabis failed to alleviate the side effects and symptoms experienced by participants. Cannabis dependent users experienced stronger symptoms of HIV and side effects of HAART (Bonn-Miller et al., 2014).

Cost of Care

The cost of treatment for HIV positive individuals increases with the progression of the virus and further immune suppression (Gebo et al., 2010). Per year, HAART costs upwards of $10,000. Patients with $CD4^+$ counts less than 50 cells/mm^3 experience high inpatient treatment costs and lower costs for HAART. Due to the immune suppression and resistance to many HAART medications, in-patient treatment becomes a necessity. Gebo et al. (2010) determined the cost of care for individuals with $CD4^+$ counts less than 50 cells/mm^3 to be significantly higher than individuals with less immune suppression. In three US sites, medical expenses for one year ranged from $33,566 to $47,789 for individuals with $CD4^+$ counts less than 50 cells/mm^3. In contrast, individuals with $CD4^+$ counts greater than 500 cells/mm^3 experienced care costs of $16,502 to $17,177 (Gebo et al., 2010).

HIV in the Youth

Prevalence

Youth in the United States aged 13 to 24 accounts for a significant amount of new HIV

infections. In 2010, an estimated 26% of all new HIV infections occurred in the nation's youth. Of an estimated 10,456 HIV diagnoses among the youth, 78% of the diagnoses occurred in people between the ages of 20 and 24. The prevalence of HIV in the youth is largely due to the lack of adherence to preventative measures, participation in risky behaviors, and low testing rates (CDC, 2014b).

Knowledge of the Virus

Although college aged students are educated about HIV, rates of infection remain high (CDC, 2014b). Partly due to misconceptions about transmission and symptoms, many HIV transmissions occur during primary infection stage. Up to 50% of all new HIV transmissions are the result of exposure to HIV during the primary infection (Brenner et al., 2007).

Grin, Chan, and Operario (2013) studied the knowledge of the primary infection among homosexual and bisexual male students from Ivy League universities. Participating students aged from 18 to 25, with an average age of 20.4 years. Of the 100 surveyed students, 77% had previously taken HIV tests and 15% had been treated for STIs. Fifty-five percent of students believed HIV transmissibility was low immediately after infection. Also, 44% of students failed to acknowledge the overall transmissibility and production of HIV antibodies in the primary infection. Though general knowledge about HIV was known by most students, misconceptions about transmission confirmed the importance of further education among students (Grin et al., 2013).

Sexual Risk Behaviors

Adefuye, Abiona, Balogun, and Lukobo-Durrell (2009) investigated the HIV risk behaviors among college students in the Midwest. Participants of the study included 390 students from various ethnic backgrounds. Eighty-seven percent of students were reported to be sexually

experienced. Of the sexually experienced students, 27.1% became sexually active by the age of 14.When asked about current sexual practices, many reported recent sexual contact with multiple partners and inconsistent condom use. Students who participated in illicit drug use and alcohol consumption were found to have a high likelihood of having two or more sexual partners in 30 days. Though participants understood the effects of engaging in high risk behaviors, the fear of exposure to HIV was low. Adefuye et al. argued the necessity of media to create further awareness and encourage preventative measures.

Summary

Although tremendous advancements have been made in HIV/AIDS research since the emergence of HIV/AIDS in 1981, 35 million lives have been lost (WHO, 2014). The development of highly active antiretroviral therapy has brought hope to people affected by HIV, extending lives by slowing the progression of the virus (Stebbing et al., 2006). Even through such great success, preventative measures such as the use of condoms and the practice of abstinence are most effective in ending the epidemic (amFAR, 2014). Prevention and education need to be further conveyed to the youth in order eradicate HIV/AIDS (Adefuye et al., 2009).

Chapter 2

Methods

Introduction

The purpose of this study was to explore the knowledge and attitudes of college students concerning HIV/AIDS. This descriptive study sought to determine if prior education on HIV affected attitudes toward HIV/AIDS.

Research Design

Participants

The participants consisted of 25 students from a mid-sized Midwestern University. Participants were male and female aged between 20 and 25 years. Participation in the study was completely voluntary and no an academic credit was given. Participants were from varying academic classes ranging from sophomore to senior.

Research Question

What are college student's attitudes and knowledge about HIV/AIDS?

Research Instrumentation

A 20-question questionnaire was administered in which face and content validity was established. The questionnaire covered the demographic backgrounds of the participants as well as knowledge and attitudes about HIV/AIDS. The survey consisted of multiple choice and Likert scale questions.

Data Collection

The data was acquired through a convenience sample taken from a mid-size Midwestern University. Participants were aged between 20 and 25 years. Consent was obtained from a signed and dated consent form (Appendix C). Consent forms will remain in the professor's office for

five years. Data collection occurred during a one-week period. At the end of the data collection period, the data was analyzed using Microsoft Excel.

Data Analysis

Data analysis occurred using Microsoft Excel. Data was reported by the use of frequencies and percentages. Descriptive statistics allowed the researcher to better understand the knowledge and attitudes of college students concerning HIV/AIDS.

Summary

The purpose of this study was to explore the knowledge and attitudes of college students concerning HIV/AIDS and to gain a better understanding if knowledge affected attitudes. This was a descriptive study that was non-experimental and utilized a convenience sample. A 20-question questionnaire was used featuring content and face validity. The data was reported and analyzed through Microsoft Excel to evaluate frequencies and percentages.

CHAPTER 3

RESULTS

Through the use of a convenience sample, 25 students were administered questionnaires featuring questions concerning knowledge and attitudes concerning HIV. College students were selected as the sample population due to high rates of sexually transmitted infections. Further, among young people there is a low perception of risk for contracting HIV. Thus, understanding the attitudes of college students toward HIV as well as their knowledge of the topic is fundamental to the development of future intervention strategies.

Sample Demographics

The convenience sample consisted of 25 participants in the fall of 2014. Participants were 24% male (N=6) and 76% female (N= 19). Ages of participants ranged from 20 to 25 years old. Of participants, 92% were between the ages of 20 and 22 years (N= 23), and 8% were between the ages of 23 and 25 years (N=2). The majority of participants were seniors 68% (N=17), followed by juniors 28% (N=7), and sophomores 4% (N=1). Participants were from varying ethnic backgrounds. Of respondents, 44% (N=11) were Caucasian, 26% (N=9) were African American, 8% (N= 2) were Hispanic, and 12% (N=3) were from two or more ethnic backgrounds.

Research Question

What are the attitudes and knowledge of college students concerning HIV?

Findings

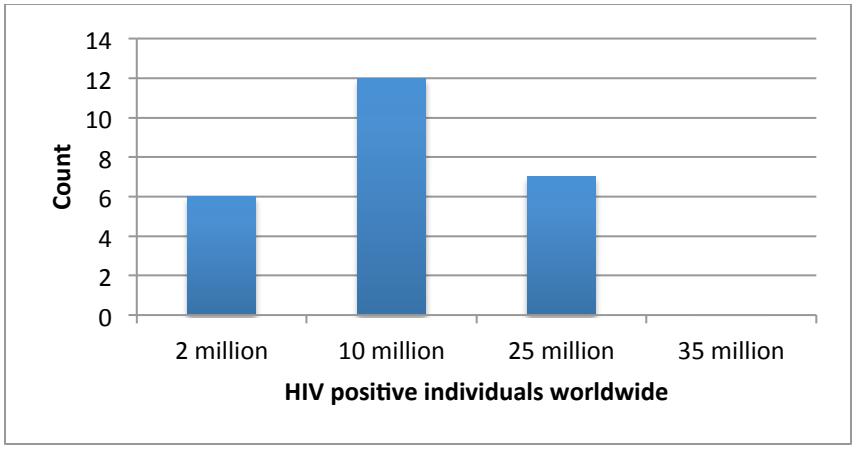
Knowledge

Participants were asked what the acronym HIV stands for. Eight percent (N=2) answered "Human Immunoinsufficiency Virus", 4% (N=1) answered "Human Immunocompromisation

Virus", and 88% (N=22) correctly answered "Human Immunodeficiency Virus". When asked the modes which HIV is transmitted, 8.3% (N=2) indicated HIV was not transmissible through semen, 20.8% (N=5) indicated HIV was not transmissible through breast milk, and 70.8% (N=17) indicated HIV was not transmissible through saliva. Participants were asked the length which the asymptomatic stage of HIV lasts, 36% (N=9) responded 1 year, 44% (N=11) 3 years, 16% (N=4) 10 years, and 4% (N=1) 15 years. When asked how HIV is typically diagnosed, 8% (N=2) answered MRI, 4% (N=1) answered X-Ray, 80% (N=20) answered oral fluid swab, and 8% (N=2) answered lung biopsy. Participants were asked how many people are HIV positive worldwide. Twenty-four percent (N=6) responded 2 million people are HIV positive, 48% (N=12) responded 10 million, and 28% (N=7) responded 25 million people. Zero participants correctly answered the question, which is 35 million people (See Graph 1).

Graph 1

Response to: how many people are HIV positive worldwide?

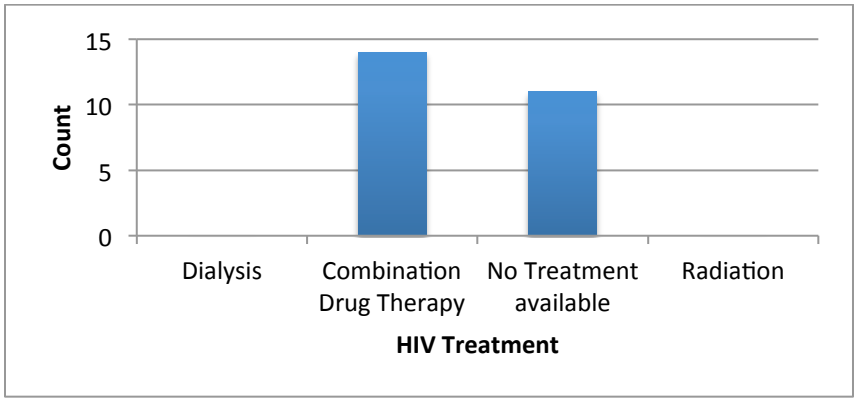


When asked the difference between HIV and AIDS, 8% (N=2) answered there is no difference between HIV and AIDS, 92% (N=23) answered HIV causes AIDS, and zero participants answered AIDS only occurs to poor people. Participants were asked the method which HIV is

treated. Zero participants responded dialysis nor radiation, 56% (N=14) responded combination drug therapy, and 44% (N=11) responded that there is no treatment available (See graph 2).

Graph 2

Response to: how HIV is treated?



When asked to respond to the statement "If a person is exposed to HIV on a Saturday, the virus can be transmitted by the following Saturday", Zero participants strongly disagreed, 25% (N=6) disagreed, 70.8% (N=17) agreed, and 4.2% (N=1) strongly agreed.

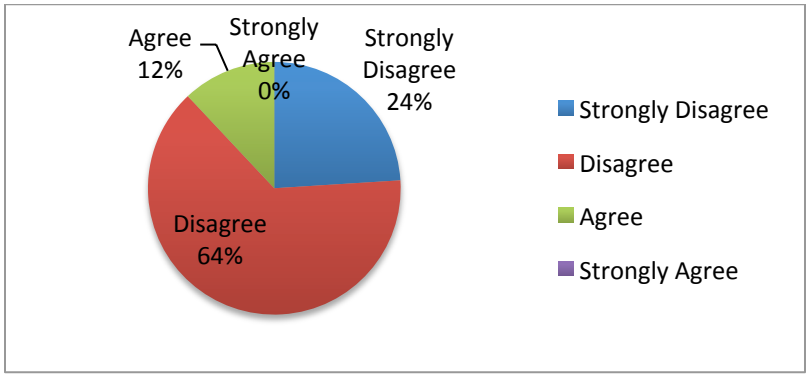
Attitudes

Participants were asked if they believed they were well educated about HIV. Zero participants strongly disagreed with the statement, 32% (N=8) disagreed, 56% (N=14) agreed, and 12% (N=3) strongly agreed with the statement. When asked if nothing can be done once exposed to HIV, 8% (N=2) strongly disagreed, 44% (N=11) disagreed, 44% (N=11) agreed, and 4% (N=1) strongly agreed. When asked to respond to the statement "It is unlikely to contract HIV while in college", 48% (N=12) strongly disagreed, 44% (N=11) disagreed, 8% (N=2) agreed and zero participants disagreed. When participants were asked if they could identify an HIV positive individual by looking at them, 80% (N=20) strongly disagreed, and 20% (N=5) disagreed. Participants were asked if they believed there were enough HIV awareness programs on their college campus. Twenty-four percent (N=6) strongly disagreed that there were enough

HIV awareness programs, 64% (N=16) disagreed, and 12% (N=3) agreed to the statement. Zero participants strongly agreed that there were enough HIV awareness programs on their college campus (See Chart 1).

Chart 1

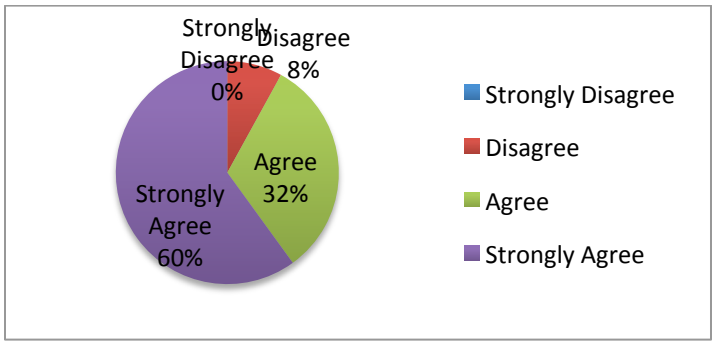
Response to: are there enough HIV awareness programs on your campus?



When asked if HIV affects individuals from all social, economic, and ethnic backgrounds, 4% (N=1) disagreed, 64% (N=16) agreed, and 32% (N=8) strongly agreed. Participants were asked if they believed HIV testing should be free and readily available to college students. Sixty percent (N=15) strongly agreed, 32% (N=8) agreed, and 8% (N=2) disagreed (See Chart 2).

Chart 2

Belief that HIV testing should be free for college students



When asked if participants believed if HIV positive individuals are to blame for their infection, 36% (N=9) strongly disagreed, 52% (N=13) disagreed, 8% (N=2) agreed, and 4% (N=1) strongly agreed.

Summary

Although 68% of participants believed that they were well educated about HIV, survey results dictated otherwise. No respondents were able to correctly identify the global prevalence of HIV thereby indicating sample participants do not understand the scope of the health issue. Furthermore, 44% of sample participants believed there is no treatment available for HIV. It is evident that there is a need for additional HIV awareness program. This conclusion is further validated by 88% of respondents, who do not believe there are enough HIV awareness programs on their campuses.

CHAPTER 4

SUMMARY, CONCLUSIONS, DISCUSSION AND RECOMMENDATIONS

Conclusions

Upon reviewing the data from the study, the following conclusions were made:

1.) College students do not recognize the prevalence of the HIV/AIDS, therefore do not understand the scope of the epidemic. According to the study, zero participants were aware that there are 35 million HIV/AIDS positive individuals worldwide.

2.) The majority of college students would like to see more HIV awareness programs on their campus. According to the study, 88% of participants indicated that there were not enough HIV awareness programs on their campus.

3.) A majority of college students believe HIV testing should be free. According to the study, 92% of participants believe HIV testing should be free on their campus.

Discussion

According to a CDC 2010 estimate, youth aged 13-24 account for 26% of all HIV infections. Further, of the 10,456 estimated infections in this age group, 78% of infections occurred among 20-24 year olds. The high prevalence of HIV among this population is due to low testing rates, minimal perceived risk, and participation in risky behaviors (CDC, 2014b). While college students received education on HIV/AIDS prevention, they remain susceptible to HIV exposure.

In this study, the knowledge and attitudes of college student concerning HIV/AIDS was examined on a Midwestern University campus. Findings indicated that although the majority of participants believed they were well educated about HIV/AIDS, their response to knowledge

questions showed otherwise. Findings also indicated that students would like to see more HIV programming on their campus.

While HIV/AIDS affects 35 million people worldwide, the prevalence of the virus was grossly underestimated by college students (WHO, 2014). Recognizing the prevalence of HIV/AIDS is essential to fathom the scope of the global epidemic. This error in judgment correlates to the low perceived risk of HIV exposure among college students. According to the study, 24% of respondents thought there were 2 million HIV/AIDS positive individuals globally. This misconceptions indicated that college student do not perceive the risk of HIV exposure because they undervalue the prevalence of the virus.

To rectify the present misconceptions in HIV education, further programming is necessary on college campuses. Although most college students have received prior HIV education, students may benefit from recurring education. While the majority of participants indicated that they had received prior HIV education, an even greater percent of respondents indicated there were not enough HIV awareness programs on their campus. With the growing emergence of technology, it may be beneficial to develop awareness programming which appeals directly to this population. Rather than education, which focuses solely on facts, HIV programs for college students should seek to make students more aware of risks and prevention measures.

Introducing a program that offers HIV testing on college campuses may also reduce the prevalence of HIV on college campuses. According to the CDC, lower rates of HIV testing are common among those ages 20-24 years (CDC, 2014b). Respondents of this study indicated that HIV testing should be free and readily available to college students. Although this may not be feasible for all college campuses, sponsoring an annual event offering free HIV testing may be a practical compromise.

While youth aged 20-24 accounts for 78% of all HIV infections among youth, through the use of targeted health promotion the prevalence of HIV in the group will be reduced (CDC, 2014b). Further, although college students have prior HIV education, misconceptions still remain. Utilizing technology as a platform for information dissemination will allow health educators to reach populations more rapidly and with greater ease.

Limitations of the Study

These findings are subject to several limitations due to the methods used to obtain them. The questionnaire was administered utilizing convenience sampling in a single location; therefore results are not indicative of all college students. The results were obtained from a sample of 25 students—therefore—results are not statistically significant. Additionally, the sample did not include participants from all academic classes, thereby making any generalizations about college students questionable.

Recommendations for Future Research

When conducting future research the knowledge and attitudes of college students concerning HIV, it would be beneficial for the researcher to:

1.) Use a larger and more representative sample of college student participants.

2.) Use a simple random sample.

3.) Incorporate questions addressing stigmas.

Recommendations for Health Educators

1.) Through the use of programming which addresses HIV on a global scale and its implications to various populations, college students may begin to perceive the risk of HIV exposure. This perception of risk may inspire behavior change.

2.) By developing further HIV awareness programs on college campuses, students will have the opportunity to better educate themselves about HIV. Through education students will more aware of the virus as well as strategies to protect themselves for HIV exposure.

3.) With the incorporation of free HIV testing, college students will able to receive HIV without concern of the financial burden. This action may increase the rate of HIV testing among this population and in turn reduce rates of transmission.

Summary

Since the discovery of HIV in 1981, 35 million people have died due to AIDS-related complications (WHO, 2014). Although modern medical science has evolved HIV from a terminal illness to a chronic managed condition, the HIV epidemic is a cause for concern. While there are 35 million people living with HIV/AIDS worldwide, HIV affects the nation's youth at an alarming rate. The purpose of this study was to explore the knowledge and attitudes of college students concerning HIV/AIDS. Results indicate that further attention concerning HIV and college students is necessary. The implications of this study are important to health educators as they provide information, which may be utilized in the development of needs assessments and future HIV programming. In addition, it may be beneficial for college campuses to establish free

References

Adefuye, A.S., Abiona, T.C., Balogun, J.A., & Lukobo-Durrell, M. (2009). HIV sexual risk behaviors and perception of risk among college students: Implications for planning interventions. *BMC Public Health, 9*(281), 1-13.

This research study was conducted to assess the sexual behaviors and perception of risk among college students on a Midwestern university campus. The university, which had a predominantly African American student population, was located in an urban area with many students commuting to campus. Sample population was generated though a random selection of general education courses. The 390 participants responded to paper questionnaires featuring question concerning demographics, drug use, sexual behaviors, and their perceived risk of HIV exposure. The study results indicated that 57.9% of respondents below the age of 20, and 48.1% of respondents aged 20-29 did not perceive a risk of HIV exposure. Further, while study participants engaged in activities that increase their risk of HIV exposure, the perception of risk remained low. To ameliorate this problem, targeted HIV prevention programs are recommended.

AIDS.gov. (2009). *Overview of HIV treatments*. Retrieved from http://aids.gov/hiv-aids-basics/just-diagnosed-with-hiv-aids/treatment-options/overview-of-hiv-treatments/

This website was used to discover the various types of treatment available for individuals with HIV.

AIDS.gov. (2012a). *Mixed-status couples*. Retrieved from http://www.aids.gov/hiv-aids-basics/staying-healthy-with-hiv-aids/friends-and-family/mixed-status-couples

This website was used to gather information about the health concerns posed to couples with mixed HIV statuses.

AIDS.gov. (2012b). *Types of HIV tests*. Retrieved from http://aids.gov/hiv-aids-basics/prevention/hiv-testing/hiv-test-types/

This website was used to gather information about the various types of HIV tests.

AIDS.gov. (2013). *Stages of HIV infection*. Retrieved from http://aids.gov/hiv-aids-basics/justdiag nosed-with-hiv-aids/hiv-in-your-body/stages-of-hiv/

This website was used to gather information on the different stages of HIV

infection.

American Foundation for AIDS Research. (2014). *Basic facts about HIV/AIDS*. Retrieved from http://www.amfar.org/About-HIV-and-AIDS/Basic-Facts-About-HIV/

This website was used to verify the meaning of the acronym AIDS as well as learn basic information concerning HIV/AIDS.

Avert. (2014). *Stages of HIV infection*. Retrieved from http://www.avert.org/stages-hiv-infection.htm

This website was used to gather information on the various stages of HIV infection as well as the various opportunistic infections that may occur.

Blood Bank of Alaska. (2014). *Blood safety*. Retrieved from http://www.bloodbankofalaska.org/blood-safety.html

This website was used to gather information about Nucleic Acid Testing.

Bonn-Miller, M., Oser, M., Bucossi, M., & Trafton, J. (2014). Cannabis use and HIV antiretroviral therapy adherence and HIV-related symptoms. *Journal Of Behavioral Medicine*, *37*(1), 1-10.

This study, located through EBSCO host, examined the supplemental use of cannabis in individuals with HIV. The information in this journal article gave insight to the methods used by some to alleviate the side-effects caused by HAART.

Brenner, B.G., Roger, M., Routy, J., Moisi, D., Ntemgwa, M., Matte, C., … Wainberg, M.A. (2007). High rates of forward transmission events after acute/early HIV-1 infection. *The Journal of Infectious Diseases, 195,* 951–959.

This journal article, located through EBSCO host, provided information concerning HIV transmission in the acute/primary stage of infection. This study found that up to 50% of all new HIV infections are the result of exposure during the acute/primary stage of infection.

Centers for Disease Control and Prevention. (1981). Pneumocystis- Los Angeles. *Morbidity and Mortality Weekly Report, 30*(21),1-3.

This article from the Morbidity and Mortality Weekly report provided insight into the early years of the HIV epidemic.

Centers for Disease Control and Prevention. (1982). Epidemiologic notes and reports

Pneumocystis carinii pneumonia among persons with Hemophilia A. *Morbidity and*

Mortality Weekly Report,31(27), 365-367.

This article from the Morbidity and Mortality Weekly report was used to gather information about the new HIV infections among individuals with hemophilia in the 1908's. The article was used to provide further insight into the history of HIV in the United States.

Centers for Disease Control and Prevention. (2007). *Human Immunodeficiency Virus type 1(HIV-*

1) antibody testing. Atlanta, GA: U.S. Government Printing Office.

This document was used to determine the requirements to make an HIV diagnosis following a confirmatory test.

Centers for Disease Control and Prevention. (2008). Appendix A AIDS defining conditions.

Morbidity and Mortality Weekly, 57(10), 9.

This article from the Morbidity and Mortality Weekly report was used to provide the list of opportunistic infections that occur in individuals with HIV.

Centers for Disease Control and Prevention. (2014a). *About HIV/AIDS*. Retrieved from

http://www.cdc.gov/hiv/basics/whatishiv.html

This website was used to verify the stages of HIV infection. Its inclusion was fundamental as the Centers for Disease Control and Prevention recognizes three stages of HIV infection, contrary to the World Health Organization, which recognizes four stages.

Centers for Disease Control and Prevention. (2014b). *HIV among youth*. Retrieved

from http://www.cdc.gov/hiv/risk/age/youth/

This website was used to examine the prevalence of HIV among the nation's youth.

Centers for Disease Control and Prevention. (2014c). Epidemiology of HIV infection through

2014. Retrieved from http://www.cdc.gov/hiv/pdf/statistics_epidemiology_of_infection

_through_2011.pdf

This document was used to provide information about the modes of HIV transmission. While HIV in transmissible in many modes, 90% of new HIV infections occur through sexual activity.

Central Intelligence Agency. (2009*). Country comparison: HIV/AIDS- people living with HIV/AIDS*. Retrieved from https://www.cia.gov/library/publications/theworldfactbook/rankorder/2156rank.html?countryname=United%20States&countrycode=us&regionCode=noa&rank=7#us

This website was used to compare and contrast the prevalence of HIV globally.

Colombo, F.A., Vidal, J.E., Penalva de Oliveira, A.C., Hernandez, A.V., Bonasser-Filho, F., Nogueira, R.S., … Pereira-Chioccola, V.L. (2005). Diagnosis of cerebral toxoplasmosis in AIDS patients in Brazil: Importance of molecular and immunological methods using peripheral blood samples. *Journal of Clinical Microbiology, 43*(10), 5044-5047.

This journal article, located though EBSCO host, was used to gather information on opportunistic infection that occur following immune suppression. Information found in the article provided insight into cerebral toxoplasmosis.

Faith, A., O'Hehir, R.E., Malkovsky, M., & Lamb, J.R. (1992). Analysis of the basis of resistance and susceptibility of $CD4^+$ T cells to Human Immunodeficiency Virus (HIV)-gp120 induced anergy. *Immunology, 76*(2), 177-184.

This journal article, located through Booth Library's resource—EBSCO host, was used to support the introduction of the literature review. This study examined the effects of HIV on immune suppressed T-cells.

Fieberg, E.W., Wright, D.J., Rawal, B.D., Garrett, P.E., Schumacher, R.T., Peddada, L., … Busch, M.P. (2003). Dynamics of HIV viremia and antibody seroconversion in plasma donors: Implications for diagnosis and staging of primary HIV infection. *AIDS, 17*(13), 1871-1879.

This journal article, located through Booth Library's resource—EBSCO host, was used to gather information concerning the acute HIV infection stage. The information found in the article provided support to the literature review as it provided insight into the spread of HIV within the body following infection.

Gasper-Smith, N., Crossman, D.M., Whitesides, J.F., Mensali, N., Ottinger, J.S., Plonk, S.G., ... Haynes, B.F. (2008). Induction of plasma (TRAIL), TNFR-2, Fas Ligand, and plasma microparticles after Human Immunodeficiency Virus type 1 (HIV-1) transmission: Implications for HIV-1 vaccine design. *Journal of Virology, 82*(15), 7700–7710.

This journal article, located through Booth Library's resource—EBSCO host, was used to gather further information about the sexual transmission of HIV. The information found in this article was used to explain the spread of HIV through the body once exposure has occurred.

Gebo, I.A., Fleishman, J.A., Conviser, R., Hellinger, F.J., Josephs, J.S., Keiser, P., … Moore, R.D. (2010). Contemporary costs of HIV health care in the HAART era. *AIDS, 24*(17), 2705–2715.

This journal article, located through Booth Library's resource—EBSCO host, was used to gather information on the cost of HAART. This study reviewed the cost of HIV treatment in three separate medical sites in the United States. Its inclusion provided support and insight into the financial burden incurred as CD4+ cells are depleted.

Grin, B., Chan, P. A., & Operario, D. (2013). Knowledge of Acute Human Immnuodeficiency Virus infection among gay and bisexual male college students. *Journal Of American College Health, 61*(4), 232-241.

This journal article, located through EBSCO host, examined the results of a research study conducted at a lesbian, transgender, queer conference at an Ivy League university. All attendees were invited to respond to a survey concerning sexual behaviors and perceived risk of HIV infection. The results of this study provided further insight into the perception of risk among the nation's youth.

Irarrazábal, L., Ferrer, L., Cianelli, R., Lara, L., Reed, R., Levy, J., & Pérez, C. (2013). Oral rapid test: An alternative to traditional HIV screening in Chile. *Revista Panamericana De Salud Publica*, *33*(6), 427-432.

This research study, found though EBSCO host, sought to evaluate the specificity of ELISA and oral rapid testing. The information found in this article was used to support the literature review.

Jaffe, H.W. (2008). The early days of the HIV-AIDS epidemic in the USA. *Nature Immunology, 9*(11), 1201-1203.

This journal article, located through EBSCO host, reviewed the early years of the HIV epidemic. The information found in this article was used to support the content within the literature review.

Johnson, M., & Folkman, S. (2004). Side effect and disease related symptom representations among HIV+ adults on antiretroviral therapy. *Psychology, Health & Medicine*, *9*(2), 139-148.

This journal article, located through EBSCO host, examined the side-effects caused by HIV treatment. The information found in this article was used to provide further insight into the treatment used by individuals with HIV.

Kalichman, S.C., Pellowski, J., & Turner, C. (2011). Prevalence of sexually transmitted co-infections in people living with HIV/AIDS: Systematic review with implications for using HIV treatments for prevention. *Sexually Transmitted Infections, 87*(3), 183-190.

This journal article, located through EBSCO host, reviewed the co-infections that amongst individuals with HIV/AIDS. The information found in this article provided further insight into the prevalence of genital ulcers, and the susceptibly as a result of HIV/AIDS.

Klimas, M., Koneru, A., & Fletcher, M.A. (2008). Overview of HIV. *Psychomatic Medicine: Journal of Behavioral Medicine, 70*(5), 523-530.

This journal article, located though EBSCO host, was used to gather information about the effects of HIV on the body's T-cells. This article provided strong support to the literature review through its detailed information and thorough explanation of the progression of HIV.

Marquez, C., Zetola, N., & Klausner, J. D. (2008). HIV testing an update. *Medical Laboratory Observer*, *40*(2), 12-21.

This journal article, located though EBSCO host, was used to gather information about the screening tests used to diagnose HIV.

Moss, J.A. (2013). HIV/AIDS review. *Radiologic Technology, 84*(3), 247-270.

This journal article, located though EBSCO host, was used to gather information about the transmission of HIV. The availability of this article through Booth Library benefited the literature review as it was a comprehensive review of HIV/AIDS.

National Institute of Allergy and Infectious Disease. (2013). *Types of HIV/AIDS antiretroviral drugs*. Retrieved fromhttp://www.niaid.nih.gov/topics/HIVAIDS/Understanding/Treatment/pages/a rvdrugclasses.aspx

This website was used to gather information about the various types of drugs used to treat HIV/AIDS.

Phelps, R., Robbins, K., Liberti, T., Machuca, A., Leparc, G., Chamberland, M., … McKenna, M. (2004). Window-period Human Immunodeficiency Virus transmission to two recipients by an adolescent blood donor. *Transfusion*, *44*(6), 929-933.

This journal article, located though EBSCO host, examined the transmission of HIV within the window-period of infection.

Schlote, W. (1991).HIV encephalopathy [Abstract]. *Verhandlungen der Deutschen Gesellschaft für Pathologie, 75*, 51-60.

This abstract, located though EBSCO host, was used to describe HIV encephalopathy, a condition which causes destruction of brain tissue. The information found in this abstract served to provide insight into an opportunistic infection that may occur with the progression of HIV/AIDS.

Schneider, E., Whitmore, S., Glynn, M.K., Dominguez, K., Mitsch, A., & Mckenna, M.T. (2008). Revised surveillance case definitions for HIV infection among adults, adolescents, and children aged <18 months and for HIV infection and AIDS among children aged 18 months to <13 years --- United States, 2008. *Morbidity and Mortality Weekly, 57*(10), 1-8.

This article from the Morbidity and Mortality Weekly report discussed the CD4+ counts which qualify an AIDS diagnosis. This article was used to differentiate between HIV and AIDS.

Segen's Medical Dictionary. (2012). *AIDS defining disease*. Retrieved from http://medical-dictionary.thefreedictionary.com/AIDS+Defining+Disease

This website was used to define the term *AIDS defining disease*. According to Segen's Medical Dictionary, an *AIDS-Defining Disease* is: A disease which, when accompanied by evidence of HIV infection, fulfills the criteria necessary to diagnose AIDS.

Stebbing, J., Bower, M., Mandalia, S., Nelson, M., & Gazzard, B. (2006). Highly active anti-retroviral therapy (HAART)-induced maintenance of adaptive but not innate immune parameters is associated with protection from HIV-induced mortality. *Clinical & Experimental Immunology, 145*(2), 271–276.

This research study was conducted to examine the effect of Highly Active Antiretroviral Therapy (HAART) on individuals with HIV. The study used patients from the Chelsea and Westminster HIV cohort in Europe, a cohort initiated in 1983. Participation was limited to HIV positive individuals who maintained their HAART regimen following the beginning of the HAART era in 1996. Of the 5873 participants, 499 have died since the beginning of the HAART era. Study results indicated that the use of HAART was protective against mortality in contrast to individuals not receiving antiretroviral therapy.

United Nations Office on Drugs and Crime. (2010). *Facts about drug use and the spread of HIV*. Retrieved from http://www.unodc.org/documents/frontpage/Facts_about_drug_use_and_the_spread_of_HIV.pdf

This document detailed the modes of transmission and their rates worldwide. This document was used to gather information about the prevalence of HIV transmission via intravenous drug use in Asia and Europe.

University of California San Francisco. (2011). *What kinds of HIV screening tests are available in the United States?*. Retrieved from http://hivinsite.ucsf.edu/insite?page=basics-01-01

This website was used to gather information about the screening tests used to diagnose HIV. The content found on this website offered insight into the both screening

and confirmatory tests.

U.S. Department of Health and Human Services. (2011*). Guide for HIV/AIDS Clinical Care*. Retrieved from http://hab.hrsa.gov/deliverhivaidscare/clinicalguide11/cg-00-00.html

This document was used to compare and contrast the classification systems used by the World Health Organization and the Centers for Disease Control and Prevention.

Willard, S., Holzemer, W. L., Wantland, D. J., Cuca, Y. P., Kirksey, K. M., Portillo, … Lindgren, T. (2009). Does "asymptomatic" mean without symptoms for those living with HIV infection?. *AIDS Care*, *21*(3), 322-328.

This journal article, located through EBSCO host, examined the validity of the term "asymptomatic stage". This article featured results from a studied conducted amongst individuals in the asymptomatic stage of infection. This article provided support to the literature review and suggested a current misconception concerning the terminology used to describe this stage of infection.

World Health Organization. (2007). *WHO case definitions of HIV for surveillance and revised clinical staging and immunological classification of HIV-related disease in adults and children*. Geneva: World Health Organization

This document was used to gather information on the classification system used by the World Health Organization.

World Health Organization. (2013a). *Consolidated guidelines on general HIV care and the use of antiretroviral drugs for treating and preventing HIV infection: Recommendations for a public health approach.* Geneva: World Health Organization

This document was used to gather information on the use of HAART and the recommended timeline to begin treatment.

World Health Organization. (2013b). *HIV/AIDS fact sheet.* Retrieved from http://www.who.int/mediac entre/factsheets/fs360/en/

This document was used to gather information on the use of nucleic acid testing.

World Health Organization. (2014*). HIV/AIDS.* Retrieved from http://www.who.int/gho/hiv/en/

This website was used to gather information about the prevalence of HIV worldwide. The information found on this website was used throughout this research study.

Appendices

Appendix A
Definitions

AIDS-Defining Disease: "A disease which, when accompanied by evidence of HIV infection, fulfills the criteria necessary to diagnose AIDS" (Segen's Medical Dictionary, 2012)

1. "Candidiasis of bronchi, trachea, or lungs
2. Candidiasis of esophagus
3. Cervical cancer, invasive
4. Coccidioidomycosis, disseminated or extrapulmonary
5. Cryptococcosis, extrapulmonary
6. Cryptosporidiosis, chronic intestinal (>1 month's duration)
7. Cytomegalovirus disease (other than liver, spleen, or nodes), onset at age >1 month
8. Cytomegalovirus retinitis (with loss of vision)
9. Encephalopathy, HIV related
10. Herpes simplex: chronic ulcers (>1 month's duration) or bronchitis, pneumonitis, or esophagitis (onset at age >1 month)
11. Histoplasmosis, disseminated or extrapulmonary
12. Isosporiasis, chronic intestinal (>1 month's duration)
13. Kaposi sarcoma
14. Lymphoid interstitial pneumonia
15. Lymphoma, Burkitt (or equivalent term)
16. Lymphoma, immunoblastic (or equivalent term)
17. Lymphoma, primary, of brain
18. Mycobacterium avium complex or Mycobacterium kansasii, disseminated or extrapulmonary
19. Mycobacterium tuberculosis of any site, pulmonary, disseminated, or extrapulmonary
20. Mycobacterium, other species or unidentified species, disseminated or extrapulmonary
21. Pneumocystis jirovecii pneumonia
22. Pneumonia, recurrent
23. Progressive multifocal leukoencephalopathy
24. Salmonella septicemia, recurrent
25. Toxoplasmosis of brain, onset at age >1 month
26. Wasting syndrome attributed to HIV" (CDC, 2008)

Nucleic Acid Testing (NAT): "NAT refers to nucleic acid testing using extraction of nucleic acid from donor plasma followed by a step to amplify and detect viruses. These tests are used to detect a number of viruses including:

NATB - NAT testing for the Hepatitis B virus
NATC–NAT testing for the Hepatitis C virus
NATH – NAT testing for the HIV virus
NATW – NAT testing for the West Nile Virus" (Blood Bank of Alaska, 2014)

Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTI): "These are called "non-nukes." They work in a very similar way to "nukes." Non-nukes also block the enzyme, reverse transcriptase, and prevent HIV from making copies of its own DNA. But unlike the nukes (which work on the

genetic material), non-nukes act directly on the enzyme itself to prevent it from functioning correctly" (AIDS.gov, 2009).

Nucleoside Reverse-Transcriptase Inhibitors (NRTI): "Sometimes called "nukes." These drugs work to block a very important step in HIV's reproduction process. Nukes act as faulty building blocks in production of viral *DNA* production. This blocks HIV's ability to use a special type of *enzyme* (*reverse transcriptase*) to correctly build new genetic material (DNA) that the virus needs to make copies of itself" (AIDS.gov, 2009).

Protease Inhibitor (PI): "interfere with the HIV enzyme called protease, which normally cuts long chains of HIV proteins into smaller individual proteins. When protease does not work properly, new virus particles cannot be assembled" (National Institute of Allergy and Infectious Disease, 2013).

Appendix B
HIV Questionnaire

The purpose of this survey is to seek further information about knowledge and attitudes college students concerning HIV.

1) The acronym HIV stands for:
   a) Human Immunoinsufficiency virus
   b) Host Immunocompromisation virus
   c) Human Immunodeficiency virus

2) HIV is transmitted through all of the following EXCEPT:
   a) Blood
   b) Semen
   c) Breast Milk
   d) Saliva

3) Once a person has been exposed to HIV, they will experience a stage of infection with little-to-no symptoms, which lasts approximately:
   a) 1 year
   b) 3 years
   c) 10 years
   d) 15 years

4) HIV is typically diagnosed through a(n):
   a) MRI
   b) X-Ray
   c) Oral fluid swab
   d) Lung biopsy

5) According to the World Health Organization an estimated ____ people are HIV positive.
   a) 2 million
   b) 10 million
   c) 25 million
   d) 35 million

6) What is the difference between HIV and AIDS?
   a) There is no difference, they are the same thing
   b) HIV causes AIDS
   c) AIDS only occurs to poor people

7) HIV is treated with:
   a) Dialysis
   b) Combination drug therapy
   c) There is no treatment available
   d) Radiation

8) I believe that I am well educated about HIV.

Strongly Disagree Disagree Agree Strongly Agree

9) Once exposed to HIV, there is nothing that can be done about it.

Strongly Disagree Disagree Agree Strongly Agree

10) It is unlikely to contract HIV while in college.

Strongly Disagree Disagree Agree Strongly Agree

11) I can tell if someone has HIV by looking at them.

Strongly Disagree Disagree Agree Strongly Agree

12) There are enough HIV awareness programs on my college campus.

Strongly Disagree Disagree Agree Strongly Agree

13) If a person is exposed to HIV on a Saturday, the virus can be transmitted by the following Saturday.

Strongly Disagree Disagree Agree Strongly Agree

14) HIV affects people from all social, economic, and ethnic backgrounds.

Strongly Disagree Disagree Agree Strongly Agree

15) HIV testing should be free and readily available to college students.

Strongly Disagree Disagree Agree Strongly Agree

16) HIV positive individuals are to blame for their infection.

Strongly Disagree Disagree Agree Strongly Agree

17) What is your age?

a) 17-19
b) 20-22
c) 23-25

18) What is your gender?

a) Male
b) Female

c) I choose not to answer

19) What is your academic standing?
   a) Freshman
   b) Sophomore
   c) Junior
   d) Senior

20) What is your ethnicity?
   a) Caucasian
   b) Asian
   c) African American
   d) Hispanic
   e) Native American/ Alaska Native
   f) Two or more ethnic backgrounds

Thank you for your participation, your answers are important to the understanding of attitudes and knowledge of students about HIV.

Dear Volunteer,

As a part of a study directed by Anita Ihuwan and Dr. Misty Rhoads in the department of Health Studies within the College of Education and Professional Services at EIU, further investigation is desired into the knowledge and attitudes of college students concerning HIV. Dr. Misty Rhoads and Anita Ihuwan wish to invite you to participate in this research study. The surveys will be anonymous with no identifying factors. Only the researcher will review the surveys, and solely for the purpose of coding data and performing analysis.

Data will be kept on file for three years before being destroyed. The consent forms will be kept in a secure file separate from the data collected through these recordings. Only the primary researcher will have access to the master code key and consent forms as well as the data.

Participation is voluntary. If you choose to participate in this research study, it will take you approximately 5 minutes. Please remember that your participation in this study is voluntary and you may withdrawal from the study at any time without penalty. You can contact Dr. Rhoads directly to request your withdrawal from the study, at mlrhoads@eiu.edu.

All reports based on this research and written by the researcher will maintain the anonymity and confidentiality of the participants. Please retain this page for your personal records. If you volunteer to participate in this study, please sign and date the second page and return it to the researcher.

If you have any questions concerning this study and its execution, please contact

Dr. Misty Rhoads

Lantz 1142 Eastern Illinois University

Charleston, IL 61920

via office telephone: 217-581-6203

via email: mlrhoads@eiu.edu

This project has been reviewed and approved by the EIU Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, EIU, Charleston, IL 61920. Phone (217) 581-8576.

Knowledge and attitudes of college students concerning HIV

_____ I agree to voluntarily participate in this activity and know my responses will be reported in the aggregate and kept confidential and anonymous.

_____ I do not wish to participate in this study.

_____ _____

Print Name Date