

**Effectiveness of an Educational Intervention at an Academic Medical Center to
Reduce Stigma of Accelerated Pre-licensure Nursing Students
Toward Patients Living with HIV**

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Submitted in partial requirements for the degree of
Doctor of Health Administration

School of Health Related Professions
University of Mississippi Medical Center
Jackson, MS

April 2021

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April 2021

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Entitled: *Effectiveness of an Educational Intervention at an Academic Medical Center to Reduce Stigma of Accelerated Pre-licensure Nursing Students Toward Patients Living with HIV*

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DEDICATION

This doctoral project is dedicated to my mother, Betty J. Miller, who always encouraged me to be kind, humble, and treat others with the respect and care that I would want to be treated. Whenever I second-guessed myself, she was my biggest cheerleader and would tell me, “You can do all things through Christ, who strengthens you.” Mom, you were an amazing woman. I miss you every day.

I also dedicate this doctoral project to my husband, John W. Huntington. Thank you for your constant support throughout this program and in our relationship. For once, I agree with you, “No more school!”

ACKNOWLEDGMENTS

I would like to thank Dr. Elizabeth Franklin for your support and friendship during the program and doctoral project. You have inspired me to push harder, and I appreciate your encouragement, which has helped me to succeed. I feel incredibly lucky to have had you as my Chairperson.

Thank you to my committee for your commitment in reviewing my project and providing such useful feedback. I realize that you are all very busy and I sincerely appreciate your time.

Finally, I would like to acknowledge Dr. LaDonna Northington at the University of Mississippi Medical Center School of Nursing. Thank you for allowing me to complete my investigation while teaching in the Accelerated Bachelor of Science in Nursing program.

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LIST OF ABBREVIATIONS

AAS	AIDS Attitude Scale
AIDS	Acquired Immune Deficiency Syndrome
ALI	Autonomous Learner Index
ALT	Adult Learning Theory
AMS	Academic Motivation Scale
ANM	Auxiliary Nurse Midwife
ART	Antiretroviral Therapy
BSN	Bachelor of Science in Nursing
CDC	Centers for Disease Control and Prevention
CEI II	Curiosity and Exploration Inventory II
CHHANGE	Challenge HIV Stigma, and Homophobia and Gain Empowerment
CNICS	Center for AIDS Research Network of Integrated Clinical Systems
DHA	Doctor of Health Administration
EMR	Electronic Medical Record
HHS	United States Department of Health and Human Services
HIV	Human Immunodeficiency Virus
HIV-KQ	Human Immunodeficiency Virus Knowledge Questionnaire
IRB	Institutional Review Board
LaPHIE	Louisiana Public Health Information Exchange
LGBTQ	Lesbian, Gay, Bi-sexual, Transgender, Queer/Questioning
MSAETC	Mississippi AIDS Educational Training Center
MSM	Men who have Sex with Men
NCLEX	National Council Licensure Examination
NCSBN	National Council of State Boards of Nursing
NGT	Nominal Group Technique
PCC	Positive Care Center
PEP	Post-exposure Prophylaxis
PLWH	People Living with Human Immunodeficiency Virus
PPE	Personal Protective Equipment
PrEP	Pre-exposure Prophylaxis

PROs	Patient-reported Outcomes
REDCap	Research Electronic Data Capture
SDLR	Self-Directed Learning Readiness
SDLRSNE	Self-Directed Learning Readiness Scale for Nursing Education
SON	School of Nursing
STTI	Sigma Theta Tau International
TGA	Theory of Goal Attainment
UMMC	University of Mississippi Medical Center
U.S.	United States

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ABSTRACT

Introduction: Some health care providers may be reluctant to care for patients with human immunodeficiency virus (HIV) or acquired immunodeficiency syndrome (AIDS). The inclusion of educational opportunities for students to advance knowledge of HIV transmission risks, while decreasing stigma, is important, and many health care providers have not participated in these types of activities, which could promote learning and the practice of unbiased care.

Methods: This quantitative study aimed to determine if a comprehensive supplemental educational intervention might produce a significant increase in student knowledge regarding HIV transmission and prevention while also producing a significant difference in the attitudes, perceived discrimination, and equity for people living with HIV (PLWH). Two validated instruments were used to gather data from Accelerated Bachelor of Science in Nursing (BSN) students at an academic medical center.

Results: Eighteen questions measured HIV knowledge and each counted one point. The mean pre-test and post-test was 13.83 and 17.37, respectively. The mean difference was 3.54. The resulting *p*-value from the paired *t*-test was less than 0.001, which shows a highly significant improvement. Additionally, student responses on four questions regarding attitudes, discrimination, and health and social equity resulted in a significant difference, which suggested that students' level of empathy for PLWH increased.

Conclusion: The information presented in the comprehensive educational format and inclusion of PLWH in this activity is effective and would be beneficial for all healthcare professionals.

INTRODUCTION

CHAPTER 1

INTRODUCTION

Background and Significance

Since the discovery of human immunodeficiency virus (HIV) in 1981, more than 74 million people worldwide have been infected, and 32 million have died from acquired immunodeficiency syndrome (AIDS)-related illnesses (Markel, 2020). Human immunodeficiency virus causes AIDS by attacking and destroying T-lymphocyte cells that protect the body against opportunistic infections. If HIV is left untreated, it will ultimately manifest as AIDS (United States Department of Health and Human Services [HHS], 2020a). Globally, by the end of 2018, new HIV infections had dropped by 40% since the peak of the epidemic in 1997. Deaths related to AIDS had also declined by over 56% since their peak in 2004 (Joint United Nations Programme on HIV and AIDS [UNAIDS], 2019). Acquired immune deficiency syndrome was first recognized as a new disease in June of 1981 (Gallo & Montagnier, 2003; Sharp & Hahn, 2011) when the Centers for Disease Control and Prevention (CDC) received reports from two physicians in Los Angeles and New York. Both reported opportunistic infections, which included Kaposi Sarcoma, a rare skin cancer, in young gay men who had sexual intercourse with shared partners (Montagnier, 2010). Since the discovery of HIV, it has become one of the most significant health problems in the world (Akansel, Aydin, Ozdemir, & Tore, 2012; Dharmalingam, Poreddi, Ganhi, & Chandra, 2015; Kok, Guvenc, & Kaplan, 2018; Leyva-Moral et al., 2017). Human immunodeficiency virus is transmitted through condomless oral, vaginal, or anal sex with an infected person (Kalichman et al., 2016; Kalichman, Kalichman, Cherry, & Grebler, 2016; Kalichman, Mathews, Banas, & Kalichman, 2020). Human immunodeficiency virus can be spread through sharing needles during intravenous drug use (Dyer et al., 2017; Shiao, Arpadi, Yin, & Martins, 2017). It may also be spread from a mother to her unborn child during pregnancy, delivery, or feeding with mother's breast milk (Armstrong-Mensah, Ramsey-White, Pavao, McCool, & Bohannon, 2017; HHS, 2020f).

When HIV was discovered, there were no medications to treat the disease. The first anti-HIV medication was approved in 1987, and 25 years later, there were more than 25 compounds licensed to treat HIV (De Clercq, 2009). Most recently, there are more than 30 drugs approved to treat HIV (Zhan, Pannecouque, De Clercq, & Liu, 2015) in

more than seven classes of medications (HHS, 2020g). Antiretroviral therapy (ART) is the only treatment for HIV and decreases virus levels to undetectable, which reduces the risk of transmission. Unfortunately, ART does not offer a cure. Patients take ART indefinitely (Lu et al., 2018), but with consistent ART and clinical care, many patients can expect a near-normal life expectancy (Fitch, 2019; Gallant, Hsue, Shreay, & Meyer, 2017; Lerner, Eisinger, & Fauci, 2020).

With advances in ART, people living with HIV (PLWH) live longer than before (Fitch, 2019; Frain, 2017; Gallant et al., 2017). People living with HIV have a higher risk of developing heart disease, kidney disease, liver disease, osteopenia, osteoporosis, and cancers that are not related to their HIV/AIDS diagnosis (Fitch, 2019; Lerner et al., 2020) and may consequently require numerous health care visits (Frain, 2017). It is likely that PLWH may develop at least one comorbidity not related to the virus, such as hypertension, diabetes, or dyslipidemia in their lifetime (Fitch, 2019). Additionally, PLWH may develop health-related concerns at a younger age (Lerner et al., 2020), due to the constant low-grade inflammatory process in the body (Gallant et al., 2017; Lerner et al., 2020). People living with HIV who are not engaged in routine clinical care and have sustained elevated levels of virus create a nationwide health concern that places uninfected sexual partners at a higher risk of HIV infection. It is estimated that greater than 60% of new infections stem from those patients who have been lost-to-care and are not taking ART (Colasanti, Stahl, Farber, Del Rio, & Armstrong, 2017; Mugavero, Amico, Horn, & Thompson, 2013). Inconsistent clinical care and poor compliance to ART also places patients at risk of complications from HIV (Mangus et al., 2013).

Many PLWH also have difficulty accessing HIV care due to transportation issues, unstable housing, mental illness, or substance abuse (Schumann, Westergaard, Meier, Ruetten, & Vergeront, 2019). These social determinants of health may compound the problems associated with access to health care and the stigma of living with an HIV infection. Stigma is defined as a characteristic or element that is viewed negatively by the public (Holzemer et al., 2009). Additionally, stigma associated with HIV and AIDS remains a barrier to health care and may cause poor health outcomes due to the avoidance of clinical care (Christopoulos et al., 2018; Davtyan, Olshansky, Brown, & Lakon, 2017; Frye et al., 2017). Stigma regarding HIV/AIDS is the negative social perception that devalues PLWH (Shah, Heylen, Srinivasan, Perumpil, & Ekstrand, 2014; Varas-Diaz,

Neilands, Rodriguez-Madera, & Padilla, 2016). Societal stigma results when a majority group labels a minority group as unworthy because of actions or attributes that are deemed socially disgraceful (De, Pozen, & Budhwani, 2019). Conservative views may be more prominent in certain areas of the United States than in other areas. States, including Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee are disproportionately affected by HIV infections and stigma. These states are traditionally recognized for their socially conservative values that might unintentionally perpetuate stigma and may contribute to the avoidance of health care for PLWH (Batey et al., 2016; Kerr et al., 2014; Sprague & Simon, 2014; Stringer et al., 2016; Tan & Black, 2018).

The stigma associated with PLWH is considered complex because of its association with commonly marginalized groups. Deficient knowledge related to HIV transmission and limited or incorrect information are responsible for stigmatizing behaviors and discrimination of PLWH (Boakye & Mavhandu-Mudzusi, 2019; Leyva-Moral et al., 2017; Nagothu et al., 2018; Ouzouni & Nakakis, 2012; Pickles, King, & Belan, 2012; Shah et al., 2014; Sweeney & Venable, 2016). Health care professionals may exhibit discriminating behavior that is the result of poor knowledge or personal beliefs. Several studies of nursing education found that stigma and discrimination among some nurses may be related to homophobia, bias against those who use intravenous drugs, or personal opinions about sexual promiscuity (Leyva-Moral et al., 2017; Ouzouni & Nakakis, 2012; Pickles et al., 2012).

Data consistently show that many health care professionals worldwide, including nurses, have negative perceptions of PLWH due to inadequate knowledge regarding how HIV is transmitted and fear of contracting the virus (Akansel et al., 2012; Akpotor et al., 2018; Davtyan, Olshansky, & Lakon, 2018; Jacob, Von Lindeman, Klewer, & Kugler, 2016; Phillips et al., 2018; Ugoji & Agokei, 2012; Worthington et al., 2016). The first diagnosis of AIDS was more than 30 years ago; however, stigmatization of PLWH continues to occur worldwide and represents a difficult challenge for those who are infected (Davtyan et al., 2017; Diesel, Taliaferro, & Ercole, 2017; Sweeney & Venable, 2016). Because different types of stigma have been shown to create barriers for routine and specialized HIV care, it is necessary to design educational opportunities for pre-

licensure nursing students that enhance knowledge and potentially decrease stigma toward PLWH (Kok et al., 2018; Pickles et al., 2012; Suominen et al., 2015).

Statement of the Problem

Although it has been shown that HIV transmission rarely occurs from patient to health care provider, research confirms that some health care providers are still reluctant to care for patients with HIV or AIDS (Frain, 2017; Phillips et al., 2018; Pickles et al., 2012). However, HIV remains prevalent and those infected develop comorbidities as they age (Fitch, 2019; Frain, 2017; Lerner et al., 2020). As PLWH live longer and require continued health care, inclusion of educational opportunities to advance knowledge of transmission risks, while decreasing stigma, is important. Despite advances in care for PLWH, many health care providers are not provided educational opportunities to learn and practice unbiased care, which could perpetuate stigma or discrimination through inappropriate actions or words (Frain, 2017; Phillips et al., 2018). Studies worldwide seek to understand undergraduate nursing student's knowledge, attitudes, and beliefs that may perpetuate stigmatizing behavior in caring for PLWH (Akansel et al., 2012; Akpotor et al., 2018; Boakye & Mavhandu-Mudzusi, 2019; Dharmalingam et al., 2015; Jacob et al., 2016; Kok et al., 2018; Leyva-Moral et al., 2017; Mangus et al., 2013; Ouzouni & Nakakis, 2012; Pickles et al., 2012; Pickles, King, & DeLacy, 2017; Ugoji & Agokei, 2012). However, most studies do not offer guidance to develop comprehensive supplemental nursing curriculum with HIV-related content. However, one study provided HIV/AIDS specialized curriculum that included PLWH as guest panelists to increase contact with students. Persons living with HIV presented positive stories of health care experiences while offering students suggestions in caring for patients who are infected (Frye et al., 2017). Two other studies introduced PLWH as guests to undergraduate nursing students in an effort to reinforce how stigma and the occurrence of discriminatory care affect PLWH. The PLWH were also encouraged to share stigmatizing experiences and answer student questions to help students increase compassion in caring for PLWH (Nagothu et al., 2018; Shah et al., 2014).

In the present study, the investigator, who is also a full-time HIV nurse practitioner, provided a comprehensive supplemental educational intervention. The investigator, with PLWH as guest panelists, aimed to address gaps in the literature regarding basic HIV transmission knowledge and attitudes of pre-licensure nurses that

may perpetuate stigma in the care of PLWH. Nursing curriculum addressing basic transmission knowledge, attitudes, perceived discrimination, and equity may aid in stigma reduction and discrimination toward PLWH (Dharmalingam et al., 2015; Frain, 2017; Kok et al., 2018; Phillips et al., 2018; Pickles et al., 2017).

Purpose of the Study

The purpose of this study was to determine if a comprehensive supplemental educational intervention for accelerated pre-licensure nursing students, provided by an HIV nurse practitioner and panelists living with HIV, produced a significant increase in basic HIV transmission and prevention knowledge and a significant difference in the attitudes, perceived discrimination, and equity for PLWH.

Questions to be Answered

1. Is there a significant increase in the knowledge level of accelerated pre-licensure nursing students regarding HIV transmission and HIV prevention strategies after completion of a comprehensive supplemental educational intervention?
2. Is there a significant difference in accelerated pre-licensure nursing student's attitudes, perceived discrimination, and the health and social equity of PLWH after completion of a comprehensive supplemental educational intervention?

Definitions of Key Terms

Acquired Immune Deficient Syndrome - HIV attacks the T-lymphocyte cells causing a weakened immune system that leaves the body vulnerable to life-threatening infectious diseases and cancers (HHS, 2020h).

Antiretroviral Therapy - Combination of HIV medications that target different mechanisms of viral replication to suppress the virus in the bloodstream. Antiretroviral therapy is the current standard of care to stop the spread of HIV and decrease morbidity and mortality of PLWH (HHS, 2020h).

Centers for Disease Control and Prevention – Federal agency that protects the health and safety of people in the United States and overseas, while working to promote health, prevent and control diseases, and injury (HHS, 2020h).

Comorbidity – The incidence of two or more diseases or conditions at the same time in one person (a person with hypertension may also have diabetes) (HHS, 2020h).

Diabetes – Disease when the body cannot produce enough insulin, which causes high levels of glucose (blood sugar) in the blood stream and urine (HHS, 2020h).

Dyslipidemia – Related to increased or decreased lipids (fats) in the blood stream at levels that are considered abnormal (HHS, 2020h).

Epidemiology – The study of the distribution, source, and clinical characteristics of disease or health status in a population (HHS, 2020h).

Human Immunodeficiency Virus – The virus that destroys the immune system and causes acquired immunodeficiency syndrome. It is transmitted through blood, semen, and vaginal fluids. It can also be transmitted from mother to her unborn child during pregnancy, delivery or by breastfeeding with mother's breast milk (HHS, 2020h).

Hypertension – Long-term elevation of blood pressure, which can harm the arteries and increases the risk of stroke, heart attack, and kidney failure (HHS, 2020h).

Metabolic – Related to the metabolism, which is the physical and chemical processes that create and use energy with living creatures (HHS, 2020h).

Opportunistic Infection – An infection that occurs more frequently or is more severe in people with a weakened immune system, such as people with HIV or cancer patients receiving chemotherapy (HHS, 2020h).

Osteopenia / Osteoporosis – Decreased bone mass and bone mineral density.

Osteopenia often starts before more severe bone loss (osteoporosis) (HHS, 2020h).

Retrovirus – Type of virus that uses ribonucleic acid (RNA) (one of two kinds of genetic material found in all living cells and many viruses) as its genetic material. After it infects a cell, the retrovirus uses an enzyme called reverse transcriptase to convert its RNA into Deoxyribonucleic acid (DNA) (genetic material that carries genetic instructions for reproduction). The retrovirus then inserts its viral DNA into the DNA of the host cell, which allows the retrovirus to replicate. Human immunodeficiency virus, the virus that causes AIDS, is a retrovirus (HHS, 2020h).

T-Cell Lymphotropic Virus – Retrovirus that infects only T-lymphocytes (T-cells).

Human T-cell lymphotropic virus type 1 (HTLV-1) is transmitted through an exposure to contaminated blood or bodily fluids, through unprotected sexual contact. It may also be transmitted from a mother who has the virus to her child at birth or through breastfeeding with mother's breast milk. HTLV-1 can cause adult T-cell leukemia or lymphoma, which is a rare and aggressive cancer of the white blood cells (HHS, 2020h).

T-Lymphocyte Cell - Type of white blood cell. There are two major types of T-lymphocytes: CD8 cells (cytotoxic T-lymphocytes) and CD4 cells (helper T-

lymphocytes); both types of T-cells are essential for a healthy immune system. HIV infects and destroys CD4 cells, slowly destroying the immune system (HHS, 2020h).

Virologist – Person trained in the study of viruses and viral diseases (HHS, 2020h).

Possible Application of Findings

The results of this study were used to evaluate whether a comprehensive supplemental educational intervention for accelerated pre-licensure nursing students produced a significant increase in their basic knowledge and prevention strategies while also producing a significant difference in their attitudes, perceived discrimination, and equity for PLWH. Based on results of a pre-test, educational intervention, and post-test format, this educational intervention may be used yearly at the University of Mississippi Medical Center (UMMC), School of Nursing (SON), for a supplemental educational intervention regarding HIV and may help to mitigate potential stigma and discrimination towards PLWH.

Summary

There are currently 1.2 million PLWH in the United States, and in 2017 there were over 90,000 people over the age of 65 years old with HIV (CDC, 2019). Without a cure for HIV, those infected will require health care for comorbidities related to aging and associated with HIV (Fitch, 2019; Lerner et al., 2020). High-risk groups, such as men who have sex with men (MSM), intravenous drug users, and sex workers, are disproportionately affected by HIV. Additionally, they experience stigma and discrimination more frequently, which discourages them from seeking healthcare services (Gallant et al., 2017; Phillips et al., 2018). Nurses will be required for the care of PLWH, even if it is not their primary employment setting (Frain, 2017). Data suggest that nursing education that promotes increased knowledge, acceptance, and non-discrimination is vital to help nursing students form positive attitudes toward PLWH (Akansel et al., 2012; Dharmalingam et al., 2015; Kok et al., 2018; Nagothu et al., 2018).

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

A comprehensive supplemental educational intervention for accelerated pre-licensure nursing students that focuses on increasing knowledge of human immunodeficiency virus (HIV) transmission risks and provides an opportunity for personal interaction with people living with HIV (PLWH) may prevent future stigmatizing behaviors and discrimination. As student nurses transition into the workforce, this type of opportunity is important. Despite the progress made with HIV treatment, stigma remains an overwhelming barrier affecting the care that PLWH receive (Christopoulos et al., 2018; Diesel, Taliaferro, & Ercole, 2017; Marshall, Brewington, Allison, Haynes, & Zaller, 2017; Phillips et al., 2018; Sweeney & Venable, 2016). The following chapter is a comprehensive literature review that focuses on advances in medication, which have prolonged the lives of millions and reduced HIV to a chronic disease, rather than a fatal diagnosis. The literature review also explores how patients are surviving with HIV, but developing comorbidities, not related to their HIV diagnosis. Barriers to care for PLWH are discussed, in addition to HIV/acquired immunodeficiency syndrome (AIDS) stigma as an obstacle to care. Further, review of literature informs the reader how a lack of knowledge regarding HIV transmission may perpetuate stigma and discrimination in society. Studies worldwide demonstrate that limited or incorrect information regarding HIV is responsible for stigmatizing behaviors and discrimination of PLWH (Davtyan, Olshansky, Brown, & Lakon, 2017; Frye et al., 2017; Nagothu et al., 2018; Phillips et al., 2018; Pickles, King, & Belan, 2012; Sweeney & Venable, 2016; Varas-Diaz, Neilands, Rodriguez-Madera, & Padilla, 2016). This review of literature examines the global impact of HIV/AIDS education for pre-licensure nursing students and how a comprehensive supplemental educational intervention, provided by the investigator and students' personal contact with PLWH, may benefit future health care professionals. Finally, the literature review highlights how adult learners best obtain information about HIV transmission and how accurate information may alleviate the fear that causes stigmatizing behaviors towards PLWH.

Discovery of HIV Medication and Increased Lifespan

When HIV was discovered, there were no medications to treat the disease (De Clercq, 2009; Lu et al., 2018; Montagnier, 2010). The first anti-HIV medication was approved in 1987 (De Clercq, 2009), and more recently there have been more than 30 drugs approved to treat HIV (United States Department of Health and Human Services [HHS], 2020g; Zhan, Pannecouque, De Clercq, & Liu, 2015). Additionally, 20 single tablets contain a combination of antiretroviral therapy (ART) that patients take once per day (HHS, 2020g). Currently, ART is the only treatment for HIV and can decrease virus levels to undetectable, which reduces the risk of transmission, morbidity, and mortality. However, ART is not a cure, and patients must take the medications for the rest of their lives (Lu et al., 2018). With consistent medication adherence and clinical care, many patients can expect a near-normal life (Gallant et al., 2017). Fitch (2019) acknowledges that improvements in ART are the predominate reason PLWH have a longer life expectancy, but also have an increased risk of developing at least one metabolic comorbidity. The chances of developing hypertension, diabetes, or dyslipidemia are estimated to increase from 29% to 85% between 2010 and 2030. Lerner et al. (2020) agree that even if new HIV infections are almost eradicated due to ART and coordinated efforts by HHS, PLWH may still develop cardiovascular disease, chronic kidney disease, osteopenia, osteoporosis, liver disease, and cancers. Persons retained in HIV care will achieve better health outcomes, increase viral suppression, and decrease morbidity and mortality (Enns, Reilly, Horvath, Baker-James, & Henry, 2019; Schumann, Westergaard, Meier, Ruetten, & Vergeront, 2019). Conversely, inconsistent care and poor compliance with ART is associated with increased risk of death, elevated virus levels, disease progression, and possible drug resistance (Enns et al., 2019).

Barriers to HIV Care

Many patients may have difficulty accessing HIV care due to transportation issues, unstable housing, mental illness, and substance abuse (Mangus et al., 2013; Schumann et al., 2019). Holzemer et al. (2009) recruited a convenience sample of PLWH (N=726) from 14 clinical sites throughout Africa, Puerto Rico, and the United States. The authors identified poverty, stigma, and depression, among other factors that affect the quality of life for PLWH. Additionally, patients may not be aware of the

importance of consistent clinical care or may distrust the healthcare system, which is confounded by conspiracy theories that may be widespread within their communities (Mangus et al., 2013). Bogart et al. (2016) surveyed 247 African Americans in a Los Angeles community and found that conspiracy theories related to HIV are prevalent with 48% of respondents believing that HIV is manmade, 53% believing that there is a cure for HIV that is being withheld from those in poverty, and 44% believing that people who take ART are human guinea pigs indebted to the government. For over three decades, stigma associated with HIV and AIDS remains an overwhelming barrier to health care access and may cause poor health outcomes due to the avoidance of clinical care (Christopoulos et al., 2018; Davtyan et al., 2017; Frye et al., 2017). Stigma regarding HIV/AIDS is the negative social perception that is assigned to PLWH and may negatively contribute to their mental health and well-being (Varas-Diaz et al., 2016). The stigmatization of PLWH is devaluing and may lead to detrimental effects of physical and psychological health (Shah, Heylen, Srinivasan, Perumpil, & Ekstrand, 2014).

Stigma and Poor Health Outcomes

Data consistently show that HIV stigma and discrimination are associated with poor health outcomes for PLWH (Davtyan et al., 2017; De, Pozen, and Budhwani, 2019; Earnshaw, Smith, Chaudoir, Amico, & Copehaver, 2013; Frye et al., 2017; Marshall et al., 2017). In a study by Davtyan et al. (2017), healthcare workers (N=27), including physicians, nurses, and medical assistants were interviewed for 20-45 minutes and asked a series of questions about HIV related stigma, to perhaps reveal how PLWH may perceive stigma from healthcare staff. Study participants used language that identified unfavorable portrayals of HIV as deadly, uncontrollable, and highly contagious. They referred to HIV infections as the result of deviant immoral lifestyles such as homosexuality, prostitution, and intravenous drug use. They described how information from the original AIDS cases in the media is still perceived to be true regarding PLWH today.

Likewise, De et al. (2019) found similar data in a study of 9,389 PLWH in New York City. The authors analyzed data from the 2016 New York City Community Health Survey and used bivariable and multivariable methods to examine rates of perceived stigma and how stigma affected the patient's health care access, physical health status,

and mental health status. Overall, data revealed that participants perceived stigma from health care workers and their community. Their perception of stigma was associated with lower rates of health care access, higher rates of depression, worsening depression, and poor physical health.

In a longitudinal assessment study of patients at an HIV clinic in Minneapolis, Minnesota, electronic medical records (EMR) were analyzed between 2008 and 2015. Patients were assigned to classes one through five, based on care events associated with the Positive Care Center (PCC), which is a hospital-based HIV clinic in Minneapolis. A care event was defined as a PCC visit to see a prescribing provider or any HIV-related lab test results that were obtained, even if the patient did not see a PCC provider. Patients were followed using the EMR from their first observed care event until transfer, relocation, death, or completion of the study. Of the 2,110 patient records reviewed, only 73.9% of participants were categorized in class one and obtained viral suppression of fewer than 200 copies of HIV in their bloodstream by the end of the study. Additionally, 61.1% were categorized in class two, had decreasing frequency in care, and did not sustain viral suppression by the end of the study. Classes three through five were seen as having suboptimal care with greater than 50% of patients not reaching viral suppression (Enns et al. 2019). Therefore, poor health outcomes may be related to inconsistent care and consistent viremia. In a study by Schumann et al. (2019), 10 patient navigators were hired by multiple southern Wisconsin clinics for a nine-month intervention to retain 540 PLWH in clinical care. The goals of the study were to increase the number of PLWH that were: (a) familiar with their HIV lab work and how the lab work related to their health status; (b) linked to HIV medical care within three months of diagnosis; (c) retained in high-quality HIV medical care; and (d) were able to reach viral suppression of HIV. Patient navigators focused on heightened levels of contact and communication to help resolve all patient barriers to care as they guided them through the continuum of HIV specialty care. Many patients had such secure emotional connections to their patient navigators that they were hesitant to leave the study upon completion. The authors hypothesize that HIV-specific navigation was successful. Patient navigators were assigned patient caseloads of 30 persons on average and were able to provide much greater levels of emotional support, which was very important for patients who lacked

other support systems. This study was designed as a short-term program with a specified discharge date and separation from their assigned patient navigator; therefore life expectancy was not analyzed. The authors acknowledge that more studies should be conducted to examine the effectiveness and costs associated with such programs.

Internalized Stigma

Internalized stigma is related to the feelings that a person has about himself or herself. They may feel unclean or undeserving of care, and these feelings may manifest as depression, psychological distress, or low self-esteem (Earnshaw et al., 2013). Human immunodeficiency virus stigma is well documented in the United States (U.S.) health care setting (Christopoulos et al., 2018; Earnshaw et al., 2013; Mangus et al., 2013).

In a study conducted within Louisiana State University Health Systems, patients who attended any six of their health system's HIV clinics were recruited as part of a comprehensive evaluation of Louisiana Public Health Information Exchange (LaPHIE). Patients were interviewed between February 2009 and July 2011. The authors reviewed detailed demographics, clinical information, and perception data and 479 patients (97.2%) met inclusion criteria for further study analysis, which examined a break or delayed entry into care of greater than one year. Data reveal that almost one third (30%) of the participants reported a break or delayed entry into care of greater than one year. Further, those who experienced gaps in care were more likely to report negative experiences with physicians and nurses who did not listen to concerns (20.7%) and did not take time to explain information adequately (17.9%). Additionally, challenges of scheduling HIV clinical care (9.3%) were reported (Mangus et al., 2013).

In a study in the Bronx, New York, participants 18 years and older were recruited from a community clinic. Ninety-five participants met inclusion criteria. Participants' internalized, anticipated, and enacted stigma was measured using previously validated stigma scales from two other studies. Researchers used both self-reported information and medical records for the participants' responses. Internalized stigma was measured with six-items, anticipated stigma was measured with nine-items, and enacted stigma was measured with nine-items. Items measured were rated using a five-point Likert scale with higher scores demonstrating more significant stigma. The results demonstrated that internalized stigma, which is the negative thoughts that someone has about themselves,

had the strongest associations with feelings of helplessness, additional breaks in HIV care, and marginal non-adherence to ART. Anticipated stigma, which is the expectation that an organization or health care provider will treat PLWH poorly, was associated with a higher probability of comorbidities and chronic illness. While enacted stigma, which is poor health care from providers, rejection from friends and family, or physical violence from others, was associated with a greater chance of having a chronic illness and a T-lymphocyte count of fewer than 200 copies, which indicates a clinical diagnosis of AIDS (Earnshaw et al., 2013).

Christopoulos et al. (2018) report that in a Center for AIDS Research Network of Integrated Clinical Systems (CNICS) cohort study, EMR data were obtained including demographics, laboratory tests, appointments, medications, vital status, and comorbid conditions. The participants were from seven academic medical centers in the United States, including University of Alabama (Birmingham), University of Washington, University of California (San Diego), University of California (San Francisco), Fenway Community Health Center of Harvard University, the University of North Carolina (Chapel Hill), and Johns Hopkins University. Participants were administered a survey to record patient-reported outcomes (PROs) on a touch screen tablet or computer every four to six months as part of their routine care visit in the HIV clinic. The PROs survey asked questions about ART adherence, sexual risks, sexual orientation, gender identity, substance abuse/use, and depression symptoms. From February 2016 through November 2017, a short four-item validated stigma scale was introduced into PROs, which was adapted from a longer six-item scale that measured affective health and well-being. The original scale developers calculated an alpha of 0.85 with the shorter four-item adaptation. Each site used the four-item scale for different periods of stigma assessment ranging from nine to nineteen months. During the assessment period, 13,183 CNICS patients were seen in the clinic at least once, and 6,448 (49%) agreed to complete the stigma assessment. About one-quarter of the patients agreed with at least one of the stigma questions, but the overall mean stigma score was not elevated. This study varies from previous studies because the authors did not find high levels of stigma. The levels of internalized stigma were about two on a scale of one to five. Additionally, in adjusted analysis, each unit of heightened internalized stigma increased the odds of missed HIV

appointments with concurrent virus increases by 10% to 15%. Therefore, the authors assert that even small levels of stigma are significantly associated with missed primary care appointments and detectable virus counts, which may cause increased morbidity and mortality.

Societal Stigma

Societal stigma results when a majority group labels a minority group as unworthy because of actions or attributes that are deemed socially disgraceful (De et al., 2019; Kerr et al., 2014). A study in the Northeast and the Southeast United States measured HIV-related stigma among African-American youth ($N=1,606$) as part of an HIV prevention intervention strategy. The study found insufficient knowledge in both areas of the country, but higher rates of HIV stigma in the Southeast while linear regression indicated a direct correlation between HIV stigma and HIV knowledge (Kerr et al., 2014).

The Southeast has a higher prevalence of HIV/AIDS nationwide, and African-Americans are disproportionately affected. States in the Southeast, including Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee are disproportionately affected by HIV infections and stigma. Research suggests that stigma in these states may be related to socially conservative values and traditional religious beliefs (Batey et al., 2016; Kerr et al., 2014; Sprague & Simon, 2014; Stringer et al., 2016; Tan & Black, 2018).

Stringer et al. (2016) conducted a study of various healthcare organizations in Mississippi and Alabama. The study adopted the survey “Measuring HIV Stigma and Discrimination among Health Facility Staff,” which is publicly available. The staff members who responded worked in public health departments and other primary healthcare settings and were provided online questionnaires to assess stigma and discrimination. Questions included socio-demographic characteristics, work setting, aspects of HIV-related stigma, HIV-related policies, and protections for PLWH in their facilities. The survey consisted of 34 questions in an on-line format, and participants completed them between January and April 2013, with 777 healthcare workers responding. The majority of participants endorsed at least one stigmatizing attitude. Few respondents believed HIV is punishment for bad behavior (2.3%), PLWH should be

ashamed (1.5%), or PLWH do not care if they infect others (9.1%). About one-third of respondents did believe that PLWH could have avoided the virus if they had tried, and 35.3% believed PLWH contracted the virus due to irresponsible behavior. The authors concluded, based on responses from a variety of locations and clinics, that stigma and discrimination are prevalent in the South and may exist in all types of locations and health care settings. Additionally, perceptions of individual staff members, specific types of clinics, and how staff perceives clinic policy enforcement have been identified as possible areas for addressing stigma reduction. The authors caution against nationwide generalization of the study because it was only administered in Alabama and Mississippi, but they agree that the findings of the study help to provide data that show HIV stigma in the southern United States remains.

Complexities of Stigma

The stigma associated with PLWH is considered complex because of its association with commonly marginalized groups such as homosexuals, intravenous drug users, and those who are sexually promiscuous (Sweeney & Venable, 2016). Stigma and discrimination among some health care providers may be related to homophobia (Pickles et al., 2012), condemnation of intravenous drug use and sexual promiscuity, or personal religious beliefs (Leyva-Moral et al., 2017; Ouzouni & Nakakis, 2012). In two international studies, religion was found to influence attitudes towards PLWH. In a four-year undergraduate nursing degree program in Barcelona, Spain, an observational, descriptive, cross-sectional study was performed with 139 nursing students and 47 faculty members. Data were collected between January and March 2014 using the validated EASE scale, which is the Spanish acronym for Nursing Attitudes to AIDS. The scale is a 21-item Likert scale with five possible responses that ranged from agreement to complete disagreement. The questionnaire was administered in an online platform to first-year through fourth-year students. The results of the study demonstrated that in general, there were positive attitudes toward PLWH, especially among fourth-year students and faculty. Part of the study assessed religious affiliation, in which students and faculty were categorized into those who held some religious beliefs and those with no religious beliefs. Throughout the study, more positive attitudes about caring for PLWH were associated

with those participants who claimed no religious affiliation, than those who claimed some religious beliefs (Leyva-Moral et al., 2017).

Ouzouni and Nakakis (2012) conducted a descriptive cross-sectional study in Greece with 279 nursing students in their first, third, fourth, and sixth semesters with a response rate of 77.5%. The students were asked to complete a four-part self-administered questionnaire that was scored using a five-point Likert scale. Data were collected using four self-administered instruments. The first was the international AIDS questionnaire, the second was the source of HIV/AIDS questionnaire and sources of communication, the third was the sexual behaviors/practices and attitudinal questions about AIDS, and the final instrument requested demographic and personal information of participants. Overall, the study results showed that nursing students had fair knowledge of HIV/AIDS, but the authors considered their knowledge to be insufficient for future health care professionals. Of the surveyed students, 39.8% believed that mosquitoes could transmit HIV, 38% believed that the virus could be contracted from toilet seats, and 15.4% believed that HIV could be contracted in a swimming pool. Ninety-five percent of students believed that condoms could decrease the risk of transmission, and 43.7% were willing to volunteer to work with AIDS patients. A majority of students obtained HIV information through television (80.7%) or through magazine and newspaper articles (64.6%). A vast majority of respondents reported sexual experience (80.7%), and all reported that they were heterosexual except for two male and one female student. Lastly, the demographic and personal information section revealed that female respondents and older students were more knowledgeable and held more positive attitudes about PLWH or AIDS, compared to younger male students. Respondents who professed no religious beliefs were found to have more knowledge regarding HIV/AIDS issues and also held more favorable attitudes for PLWH and AIDS. The authors theorize that those students who were more religious may consider HIV/AIDS a forbidden topic, and their perceptions may restrict them from being adequately informed and accepting of PLWH.

Deficient Knowledge Regarding PLWH

Research suggests that deficient knowledge related to HIV transmission and limited or incorrect information is responsible for stigmatizing behaviors and discrimination of PLWH (Davtyan et al., 2017; Frye et al., 2017; Nagothu et al., 2018;

Phillips et al., 2018; Pickles et al., 2012; Sweeney & Venable, 2016; Varas-Diaz et al., 2016). A survey of health care providers and facilities in Los Angeles County, California was conducted between April and August 2015. Physicians, nurses, and clinical medical assistants were interviewed one time and in-person. All sessions were 20-45 minutes and audio-recorded, where participants were asked about their personal perception of HIV-related stigma. Several interviews revealed that historically negative depictions of HIV presented at the onset of the AIDS epidemic have caused intense public fear and panic, which has continued to perpetuate HIV stigma. Some study participants also noted that stigma towards PLWH in health care settings could be attributed to inadequate education and training. Participants agreed that academic curriculum varied across medical and nursing programs. Several physicians reported attending lectures that were facilitated by PLWH to gain insight and develop sensitivity for PLWH, however many participants had never received any type of education regarding stigma (Davtyan et al., 2017).

In New York City, an educational program was provided to help reduce stigma and homophobia. The program title, *Challenge HIV Stigma, and Homophobia and Gain Empowerment* (CHHANGE) was a community-based intervention with three primary components that were designed by a 54-member steering committee that included PLWH as key stakeholders from the affected communities. The program offered community education and provided residents personal contact with PLWH to promote anti-stigma and reduced discrimination. The CHHANGE initiative was deemed successful because it integrated friend networks, families, the small business community, and HIV prevention and lesbian, gay, bi-sexual, transgender, and questioning (LGBTQ) organizations, unlike similar anti-HIV stigma interventions across the United States (Frye et al., 2017).

In a systematic review of educational interventions for higher education, pre-licensure health care providers were found to lack the knowledge and skills to care for PLWH. The 19 studies that were identified focused on short-term interventions with information presented in a didactic format and emphasis of knowledge development. Conversely, five studies involved PLWH as participants in intervention planning, implementation, and evaluation of educational material. Researchers concluded that institutions of higher learning should engage PLWH in health care training programs to

prevent ongoing stigma and discrimination by health care providers and nurses (Phillips et al., 2018).

Finally, SPACES, an intervention that is named for a promotional tagline (stigma-free spaces in medical scenarios), was tested in Puerto Rico with medical students. The intervention consisted of nine hours of content in three sessions. Medical students in their second year were recruited from the four largest medical schools in Puerto Rico and randomized into groups of 20 students and placed in either an intervention group or a control group. The control group received an HIV epidemiology workshop, and the intervention group received the HIV stigma-reduction intervention. Of the 507 students selected, 385 students completed all components of the study. The study findings revealed that the positive emotions experienced in the intervention group resulted in lower levels of stigma of PLWH. The control group experienced information only, which was found not to influence stigma reduction. The authors agree that the outcomes of this study demonstrate that information regarding HIV/AIDS alone should not be the only mechanism used for HIV/AIDS stigma reduction and attitudinal changes (Varas-Diaz et al., 2016).

Nursing Education in the Care of PLWH

A review of literature regarding undergraduate nursing student education revealed that content on HIV/AIDS knowledge, attitudes, and beliefs are limited in the United States. However, a few studies have achieved notable results. In an educational intervention in Missouri, undergraduate nursing students were provided specialized education that incorporated PLWH. Students in their final year of the nursing program were tested before and after the six-week educational intervention. Before the educational intervention 29% felt unprepared to provide care to PLWH, 64% felt somewhat prepared, and 7% felt totally prepared. After the educational intervention, no students felt unprepared to provide care for PLWH, 46% felt somewhat prepared, and 54% of students felt totally prepared. There were significant differences in the overall HIV knowledge and reduction in stigma associated with PLWH after the study period; however, the researcher suggests more research in this area is needed to include multiple sample sizes and multiple schools of nursing (Frain, 2017).

In a quasi-experimental cohort design, senior level nursing students were offered an educational intervention regarding HIV/AIDS-related knowledge, attitudes, and beliefs. The nursing students were from Cameroon (n=53), Honduras (n=31), and the United State (n=24). Two groups of American students provided education on HIV/AIDS and teaching practices. All participants were tested before the course workshop, at the conclusion, and 60 days later. While all groups showed reduced stigma, willingness to provide care, improved attitudes, and increased knowledge for PLWH, the improvements varied between countries (Diesel et al., 2017).

International Nursing Education

Studies around the world have identified misconceptions by nurses and pre-licensure nursing students regarding HIV transmission and the care of PLWH (Boakye & Mavhandu-Mudzusi, 2019; Leyva-Moral et al., 2017; Shah et al., 2014; Suominen et al., 2015). In a quantitative cross-sectional study of 247 nurses across five selected health care facilities in Kumasi, Ghana, general knowledge of HIV/AIDS was satisfactory; however, some participants still believed outdated information or misconceptions about HIV and how it is transmitted. A significant proportion of nurses (22.3%) believed that a nurse taking care of PLWH could transmit the virus to their family, although the nurse was HIV negative. A majority (59.2%) had never received any training regarding HIV/AIDS, although they were providing care for PLWH. Likewise, a large group (45%) had never attended any type of in-service on HIV/AIDS. Limitations of the study are that it was performed in five selected hospitals in Kumasi and would only apply to the same type of setting. Additionally, the nurses surveyed were working nurses, not pre-licensure nursing students (Boakye & Mavhandu-Mudzusi, 2019).

Shah et al. (2014) conducted a study of 91 female undergraduate nursing students between the ages of 18 and 29 years in Karnataka, India. At the beginning of the study, only 45 students were on campus to receive the educational intervention. The other 46 students were off-campus in clinical rotations. Hence, the students on campus were designated as the intervention group ($n = 45$), and the other students were designated as the control group ($n = 46$). In the first session, the intervention group received a 45-minute presentation that detailed HIV transmission, transmission myths, transmission prevention, and the proper use of personal protective equipment (PPE) in the hospital

setting. The second session focused on HIV related stigma and was facilitated by a person living with HIV and a fourth-year medical student from the United States. The PLWH shared stories about his life before his HIV diagnosis and how the virus affected him and his family. Students were allowed to ask questions, and then he shared stories of positive experiences within the health care setting. Lastly, he and the students brainstormed about how to reduce stigma within health care. Before the educational intervention, 57% of nursing students had at least one misconception about how HIV is transmitted, and 38% blamed PLWH for their own infection, while 87% of students exhibited intent to discriminate through unnecessary precautions or refusal to dispense medications. Following the educational intervention, there was an increase in overall knowledge from 78% to 87% with a decrease in transmission misconceptions, blame, and intent to discriminate. The authors admit that not all differences were statistically significant, which may be related to a small sample size.

Suominen et al. (2015) conducted a study of 102 Russian nursing students. Participants were asked to complete a questionnaire that had initially been developed in the United States and modified by Finnish nursing schools in Europe. Responses were provided on a five-point Likert scale with about 70% understanding that HIV could not be contracted through casual contact. About 20% responded they do not know and 14% responded possibly to the misconception that HIV could be contracted through personal contact. The majority of students were afraid of personal contact with HIV/AIDS patients and 62% were concerned that personal contact would place them at risk of transmission. These data emphasize the need for continued education to reduce stigmatizing behaviors toward PLWH. Limitations of this study are due to a small sample size and advances in medication and technology that were not included, which renders this survey instrument dated. The authors recommend an updated instrument and a larger sample to generalize results. The study does, however, reveal educational deficits of nursing students that might be addressed before they enter the workforce.

A survey of 139 nursing students and 47 faculty members in Spain revealed positive attitudes about taking care of PLWH through first, second, third and fourth year students, but the more positive attitudes were held by fourth year students (80.0%) and faculty (84.0%). In the four semesters of nursing education, including first (12.2%),

second (23.1%), third (15.2%), and fourth (23.1%) and among faculty (10.6%) there was still a small percentage who believed that they could contract HIV through routine nursing care. These data reinforce the need for a specialized HIV curriculum in nursing education (Leyva-Moral et al., 2017).

Recommendations for Nursing Education

Research indicates that supplemental education in pre-licensure nursing programs in the United States that aims to reinforce HIV transmission knowledge and reduce stigma and discrimination towards PLWH is limited (Diesel et al., 2017; Frain, 2017). Therefore, the use of international research in pre-licensure nursing education is warranted to provide insight that may assist educators in preparing nursing students to care for PLWH. International data suggest that nursing education promoting acceptance and non-discrimination is vital to help nursing students form positive attitudes toward PLWH (Akansel, Aydin, Ozdemir, and Tore, 2012; Dharmalingam, Poreddi, Ganhi, & Chandra, 2015; Kok, Guvenc, and Kaplan, 2018; Nagothu et al., 2018). In a study in Turkey, 88 first-year pre-licensure nursing students between the ages of 17 and 24 years were provided a questionnaire regarding what sources of information were used to glean knowledge of HIV/AIDS prior to entering nursing school. The questionnaire also asked perceptions of HIV/AIDS transmission and intentions to care for AIDS patients. They were also given an AIDS Attitudes Scale (AAS) to determine attitudes toward AIDS and PLWH. Four weeks after the initiation of HIV/AIDS education, the students were given the same questionnaire to measure differences. Although some pre-licensure nursing students had basic knowledge obtained through high school (50%), most referenced television, radio (69.3%), and print advertising (50%) as sources of AIDS knowledge. Before the educational program, some students described AIDS as an immune (21.6%) and sexually transmitted disease (18.2%) while 11.4% were not able to define AIDS. The authors of this study conclude that high school education, television, and print media are not sufficient to educate future nurses to care for PLWH and may unintentionally perpetuate stigma. After the educational intervention, only 2.3% of nursing students were not able to define AIDS, but 40.9% of students still considered nursing a high risk occupation when taking care of PLWH/AIDS. The authors acknowledge due to the size of the study, results may not be generalizable, but felt that the study showed promise in

using planned education in a school of nursing, which increased knowledge about HIV/AIDS (Akansel et al., 2012).

Results of a similar study of 172 Bachelor of Science in nursing (BSN) students in India ages 18 to 22 years, showed that most students knew about HIV/AIDS (99.4%). However, nearly one-third of the students still believed that someone could contract HIV/AIDS from mosquito bites, swimming with an HIV-infected person, blood donation, or secretions from an HIV positive person coughing or spitting near them. Nearly three-fourths of the students reported gaining knowledge from mass media. However, the majority (67.4%) had positive attitudes for caring for PLWH, while 32.6% continued to have negative attitudes about caring for PLWH/AIDS. The authors concluded that continuous education is needed to provide culturally sensitive curricula and training in cultural competence in caring for PLWH. Limitations include a small sample size from one university. Therefore, the authors do not support generalizability of the study results (Davtyan et al., 2017).

Kok et al. (2018) conducted a study of 325 female nursing students in Turkey. Of the students surveyed 99.1% reported that they had never met a PLWH, and 97.5% said that they would be concerned about contracting AIDS while providing routine care. Therefore, the authors also recommend that pre-licensure nursing curriculum should aim to address negative attitudes in the care for PLWH and AIDS.

Lastly, Nagothu et al. (2018) conducted a study to compare the HIV-related stigma of nursing students to the time they spent working with PLWH at Bel-Air College of Nursing in Panchgani, India. The study surveyed 310 BSN students and 119 auxiliary nurse midwife students (ANM) who completed the survey questionnaire in the first two weeks of each new school semester. Bel-Air Hospital and College of Nursing promote nondiscriminatory care for PLWH. The results of the study show a direct correlation between lower overall stigma and the amount of time that nursing students spend caring for PLWH. The students were given a 24-item stigma scale with four subscales at different times during their nursing education. The more time that students spent with PLWH, the less likely they were to show stigmatizing behaviors.

Best Practices in Adult Education

In the surveyed research, the age of students in pre-licensure nursing programs worldwide varies, but most students were at least 18 years old, with some older than 40 years old. The range of ages for pre-licensure nursing students classifies them as adult learners, who require education that support specific learning needs. Adult learning theory is referred to as andragogy and has a long history of growth and advancement. The term andragogy was first used by a German educationalist named Alexander Kapp in 1833, but the concept of andragogy was not accepted among educational scholars until 1926 when Eduard C. Lindeman continued work on the topic. In 1959, Malcolm Knowles continued work previously done and developed andragogy into the theory of adult learning (Chan, 2010).

Malcolm Knowles introduced five assumptions about how adults learn and their attitudes and motivation toward learning. Knowles postulated that adult learners are: (a) self-directed and independent, (b) have accumulated life experience and learn because of a need to know, (c) possess learning needs that integrate with their everyday life, (d) want information that helps to solve problems immediately, (e) need to have learned something before their new educational experience, and (f) have an internal motivation to participate in learning (Chan, 2010; Spies, Seale, & Botma, 2015).

Kaufman (2003) asserts that Knowles also derived seven principles of andragogy that are designed to guide instructors in the education of mature learners. First, the learning climate must feel safe and comfortable for students to express themselves openly and without judgment. Second, learners should have an opportunity to make decisions in planning suitable methods and curricula content, when feasible. Third, educators should allow learners to identify what they need in the educational experience so that they are more engaged with the process. Fourth, educators should provide an opportunity for students to develop individual learning objectives for control of their learning experience. Fifth, educators should encourage learners to identify resources that they feel will benefit the learning experience. Sixth, educators should support adult learners to carry out their plans in education. Seventh, self-evaluation is essential, so that learners can develop the skill of critical reflection (Kaufman, 2003).

In a study by Grandinetti (2015), the author examines the predictors of self-directed learning readiness (SDLR) of BSN students related to their readiness to learn, learner autonomy, and intellectual curiosity. The target population was four randomly selected BSN programs across the United States holding chapters of Sigma Theta Tau International (STTI) honor society of nursing. Malcolm Knowles' Adult Learning Theory (ALT) and Imogene King's Theory of Goal Attainment (TGA) were used as the theoretical foundation for the study. Participants were selected randomly across the United States and were required to be over 18 years old and were sophomore baccalaureate nursing students. In a study of 154 students, researchers gathered information using the Academic Motivation Scale (AMS), the Autonomous Learner Index (ALI), the Curiosity and Exploration Inventory II (CEI II), and the Self-Directed Learning Readiness Scale for Nursing Education (SDLRsNE), and also collected demographic data. The AMS scale examines self-determination through 28-items and seven subscales while the ALI is designed to measure independent and dependent learning behaviors. The CEII scale was designed to measure curiosity and exploration that may facilitate positive learning experiences and personal growth. The SDLRSNE consists of 29-items with three subscales that are designed to measure self-management, desire for learning, and self-control. Study results found that students surveyed had higher learning autonomy, a high incentive to learn, and high intellectual curiosity towards nursing education. Further, the data revealed that students who possessed two predicted variables from the testing had a higher self-directed learning readiness than students with one single variable.

Additionally, Spies et al. (2015) used a qualitative descriptive research design to analyze information that nursing educators should know about mature nursing students. Malcolm Knowles' theory of andragogy was selected for the study due to the age and experience of the participants. In this study, 18 participants' data were gathered using a nominal group technique (NGT) about one month after their last learning simulation and debriefing session. The NGT was designed to overcome the disadvantages of an unstructured face-to-face interview. The NGT allows every participant to provide input data and is a cost-effective and time-efficient way to reflect the participant's thoughts accurately. The study revealed that students enjoyed debriefing sessions, and this

supports the principle that adult learners need immediate feedback as they progress through learning activities. They also requested that learning simulations be video recorded, which exposed a self-directed desire for a more profound educational experience.

In contrast, the students in this study did not show the level of confidence expected in an adult learner, but instead were more rule-oriented, hesitant, and overwhelmed in certain situations. Additionally, students did not take full advantage of familiarizing themselves with the simulation environment before educational exposure, which opposes Knowles' principle that adult students are motivated by internal, rather than external factors. Therefore, the authors concluded that this study supports the need for more research regarding the complexities surrounding the adult learning process (Spies et al., 2015).

The accelerated nursing program at the UMMC SON is a non-traditional accelerated program for students that have received the minimum of a bachelor's degree from a four-year college in a degree other than nursing. These students will complete their program in 12 months of study in preparation for taking the National Council Licensure Examination (NCLEX), which is developed and kept current by the National Council of State Boards of Nursing (NCSBN) (UMMC, n.d.a). Therefore, these students are considered adult learners and non-traditional pre-licensure nursing students.

Summary

Although there have been extensive international research to examine pre-licensure nursing student's knowledge, attitudes, and beliefs that might cause discrimination and stigma of PLWH, only a few studies in the United States have focused on nursing education in a school of nursing at an academic medical center. The results of this study will assist nursing educators in the assessment of pre-licensure nursing student's prior HIV knowledge and attitudes and may present an alternative option for education by using the study investigator and interaction with PLWH.

METHODOLOGY

CHAPTER III

METHODOLOGY

Numerous international studies of nurses and pre-licensure nursing student education have examined the knowledge, attitudes, and beliefs of students toward persons with human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) (Akansel, Aydin, Ozdemir, and Tore, 2012; Boakye & Mavhandu-Mudzusi, 2019; Dharmalingam, Poreddi, Ganhi, & Chandra, 2015; Kok, Guvenc, and Kaplan, 2018; Leyva-Moral et al., 2017; Nagothu et al., 2018; Shah, Heylen, Srinivasan, Perumpil, & Ekstrand, 2014; Suominen et al., 2015). However, fewer studies in the United States focus on the education of pre-licensure nursing students while also assessing their prior knowledge of HIV/AIDS and their perceptions of people living with HIV (PLWH). The quantitative design of this study utilized a pre-test, an HIV/AIDS comprehensive supplemental educational intervention provided by an HIV nurse practitioner, PLWH as guest panelists, and a post-test format. The investigator collected quantitative data using a pre-test composed of two validated scales. The first scale was designed to assess students' prior knowledge of HIV transmission risks and prevention strategies, and the second scale evaluated students' attitudes, perceived discrimination, and their beliefs regarding health and social equity of PLWH. The investigator provided an HIV-specific educational intervention that included PLWH as patient volunteer panelists. Lastly, a post-test that contained the same scales as the pre-test was administered to evaluate any significant difference from the pre-test findings.

Purpose

The purpose of this study was to determine if a comprehensive supplemental educational intervention for accelerated pre-licensure nursing students at the University of Mississippi Medical Center (UMMC) School of Nursing (SON) produced a significant increase in basic HIV transmission knowledge while also producing a significant difference in their attitudes, perceived discrimination, and equity for PLWH. The 65 participants were nursing students in the last semester of their accelerated 12-month program at the UMMC SON. Quantitative data were collected using two validated instruments that assisted the investigator in determining if there was a significant difference in prior knowledge regarding basic HIV transmission and prevention, attitudes,

perceived discrimination, and equity for PLWH that could possibly perpetuate stigma for PLWH, after students enter the workforce.

Questions to be Answered

1. Is there a significant increase in the knowledge level of accelerated pre-licensure nursing students regarding HIV transmission and HIV prevention strategies after completion of a comprehensive supplemental educational intervention?
2. Is there a significant difference in accelerated pre-licensure nursing student's attitudes, perceived discrimination, and the health and social equity of PLWH after completion of a comprehensive supplemental educational intervention?

Research Design

The research design was a quantitative approach with a quasi-experimental design. The research participants were a single group of accelerated pre-licensure Bachelor of Science in Nursing (BSN) students and the investigator implemented an educational intervention during the study (Creswell & Creswell, 2018). The study used a pre-test for baseline measurements of BSN student's prior HIV transmission knowledge, HIV prevention strategies, attitudes, perceived discrimination, and beliefs regarding health and social equity for PLWH. An educational intervention was implemented during the study to provide the students with a comprehensive supplemental HIV/AIDS educational intervention by an HIV nurse practitioner and interaction with PLWH. The same assessment was used as the post-test to determine any significant difference from baseline pre-test scores.

The first scale evaluated basic knowledge regarding HIV transmission and HIV prevention strategies that students may or may not have attained prior to their nursing education or during their previous semesters in nursing school. The HIV Knowledge Questionnaire (HIV-KQ) was a 45-item questionnaire created by Carey, Morrison-Beedy, and Johnson (1997). Reliability analysis for the HIV-KQ (N=1,033) showed internal consistency of ($\alpha=0.91$), which remained stable over a 12-week interval. Validity was established using known groups of HIV educators and experts and was compared to several samples of non-experts. Carey and Schroder (2002) shortened the original HIV-KQ to an 18-item questionnaire for the development and psychometric evaluation of HIV knowledge. The brief HIV-KQ overlapped significantly with the original HIV-KQ with a

correlation of ≥ 0.90 . The brief HIV-KQ scale was chosen because of its simplicity and suitability in a variety of clinical, educational, and public health settings.

The *Project Accept Stigma Scale*, developed by Genberg et al. (2009) measured stigma using three subscales that gauge negative attitudes, perceived discrimination, and health and social equity for PLWH. Survey questions were designed in collaboration with five study sites using two pilot investigations in Thailand, Zimbabwe, Tanzania, and two in South Africa where respondents were presented with 22 statements about people living with HIV or AIDS. The developers also included questions retrieved from previous instruments used in similar settings. Respondents (N=1,422) were asked to choose answers on a five-point Likert scale. Items that were worded positively were reverse coded for consistency in meaning and a minimum of 0.40 was set as factor loading for scale inclusion. The initial exploratory factor analysis yielded a three-factor solution, which confirmed the factor structure of the pilot study. The first two subscales showed good internal consistency with a Cronbach's alpha measurement of 0.82 and 0.81 overall. The internal consistency of the third subscale was deemed acceptable at 0.68 overall. The stigma scale was chosen because it was validated in four countries and aligns with the investigator's desire to measure attitudes, perceived discrimination, and equity that may perpetuate stigma towards PLWH.

Next, the investigator, who is also a full-time HIV nurse practitioner, provided education in four, one-hour sessions using HIV/AIDS specific content. The education was developed using Malcolm Knowles' Adult Learning Theory of Andragogy, which focuses on five assumptions about how adults learn and their attitudes and motivation toward learning (Chan, 2010). Knowles hypothesized that adult learners possess qualities of:

- self-directed and independent study;
- life experiences and education because of a desire to know;
- possess learning needs that integrate with their everyday life;
- want information that helps to solve problems immediately;
- have learned something before their new educational experience; and
- have an internal motivation to participate in learning (Chan, 2010; Spies, Seale, & Botma, 2015).

The educational intervention was provided on-line through a synchronous learning format and focused on the history of HIV/AIDS, the pathophysiology of HIV, actual and perceived transmission risks, prevention strategies, medications to treat HIV, and interactive case studies. The case studies were designed to elicit student responses using Nearpod, which is a digital instructional platform for immediate student feedback in a collaborative learning experience (Nearpod, n.d.). The investigator collaborated with the UMMC SON lead instructor for N413-3 *Health and Illness across the Continuum* to create course objectives for the *Immunity* module that met the needs of the research study and the needs of the BSN program (Appendix A). The first one-hour session was used to consent participants, collect demographic data, administer the pre-test, and provided an introduction to the history of HIV infection in the United States and how stigma and discrimination affect PLWH. The second session focused on basic pathophysiology of HIV and how the virus replicates within the human host. The investigator also emphasized current information regarding transmission and prevention of HIV while dispelling common myths associated with these topics. The third session included how HIV is diagnosed and how antiretroviral therapy (ART) is designed to stop the replication of the virus. The investigator also explained laboratory analysis of blood work that identifies disease progression and the difference between a diagnosis of HIV or AIDS. Advances in ART and how pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) are used to mitigate the spread of HIV was discussed. Further, the investigator discussed common side effects of ART and how health care providers might encourage PLWH to maintain medication adherence, healthy diet, exercise, and rest. The fourth educational session introduced PLWH, who were asked to share personal experiences about HIV-related stigma and discrimination and how their HIV diagnosis has affected them personally. Panelists were also asked to highlight any satisfying encounters that they had experienced in the health care setting. Questions were collected from students after the second one-hour presentation and were presented anonymously to the group. The investigator presented questions to the panelists to help facilitate the educational intervention. Once questions were answered, the panel of PLWH and the nursing students examined how the health care system might provide a stigma-free environment for PLWH.

Lastly, students were asked to complete the post-test, which included the previously discussed assessments. The educational intervention aimed to clarify the fundamental understanding of transmission risks and prevention strategies while emphasizing how negative attitudes, discrimination, and unequal distribution of health and social equity might promote stigma in caring for PLWH. Data from the pre-test and post-test were analyzed to determine if any significant change occurred after the comprehensive supplemental HIV educational intervention.

Setting

The study took place through a synchronous virtual learning format at UMMC SON, which is located in Jackson, Mississippi. The Jackson metropolitan area has a population of over 578,000 people and includes Copiah, Hinds, Madison, Rankin, and Simpson counties, which are located in the center of the state. The total population of Mississippi is almost three million people (Data USA, 2019). University of Mississippi Medical Center is located in Hinds County, which has a population of 237,085. The majority of residents in Mississippi are Caucasian (59.1%), African American (37.8%), Hispanic/Latino (3.4%), and other (3.1%). The median household income from 2014 to 2018 was \$43,567 with 19.7% of persons in poverty. In Hinds County the majority of residents are African American (72.7%), Caucasian (25.5%), Hispanic/Latino (1.6%), and other and other (1.8%). The median household income from 2014 to 2018 was \$43,005 with 19.4% of persons in poverty (United States Census Bureau, 2018). In 2015, Florida, Georgia, Louisiana, Mississippi, South Carolina, and Texas had the highest rates of infection per 100,000 persons in the southeast United States (CDC, n.d.d). In 2018, Mississippi reported 19 new HIV diagnoses for every 100,000 persons and 381 persons living with HIV for every 100,000 persons. At the same time, Mississippi had 477 persons newly diagnosed with HIV in 2018 (Center for AIDS Research at Emory University, n.d.). Additionally in 2018, 9,355 persons were living with HIV in Mississippi, but only 50.3% of those diagnosed had reached viral suppression (CDC, n.d.e). These data reinforce the need for educational intervention regarding HIV/AIDS that may better prepare accelerated pre-licensure student nurses in a region of the nation that is disproportionately affected by HIV/AIDS.

The UMMC SON program provides two locations for the accelerated program at UMMC, with one located on the University of Mississippi campus in Oxford, Mississippi, and the other located on the UMMC campus in Jackson, Mississippi. This educational intervention took place at the UMMC, Jackson, Mississippi location. The UMMC SON is nationally ranked for excellence in nursing education and offers the state's first accelerated, second-degree BSN program (UMMC, n.d.a). The UMMC campus is also home to schools of Dentistry, Graduate Studies, Health Related Professions, Medicine, Pharmacy, and Population Health (UMMC, n.d.b). There are four major hospitals located on campus, which offer an exceptional learning environment to all UMMC nursing programs (UMMC, n.d.a).

Participants and Sampling Methods

The target population for this study consisted of 65 students enrolled in the pre-licensure Accelerated BSN nursing program at UMMC. These students had all received the minimum of a bachelor's degree in another field of study and were now enrolled in the 12-month accelerated nursing program. All of the Accelerated BSN students were invited to participate in the study at their first HIV educational session. All students were provided the comprehensive supplemental educational intervention as part of their BSN educational requirements. However, participation in the study was voluntary. The investigator obtained an informed consent agreement for participation in the research study from each student who agreed to participate.

Instrument

Before HIV-specific education was provided, the students were asked to take the pre-test, which consists of two distinctive scales for data collection. The first scale was created by Carey and Schroder (2002) and contained 18 questions that were designed to assess basic HIV transmission knowledge and prevention strategies (Appendix B). The authors assert that the 18-question scale provides strong levels of internal consistency and test-retest stability while demonstrating sensitivity to knowledge changes resulting from risk reduction strategies that contained an educational component. Participants have a choice of "true, false, or I don't know" for this scale. The students were instructed to avoid guessing and only answer questions when they were sure of the answer. If they were unsure, they were instructed to answer the question, I don't know. The second scale

was created by Genberg et al. (2009) and examines stigma related to PLWH/AIDS. The results of Genberg's study illustrated that negative attitudes and perceived discrimination of PLWH were related to lack of knowledge about ART, lack of time spent discussing HIV/AIDS, and lack of a prior history of HIV testing by participants. It contained 18 statements that are scored on a five-item Likert scale with answers ranging from strongly disagree to strongly agree (Appendix C). The students were asked to choose the answer that best aligned with their beliefs about each statement. The investigator provided ample time for participants to complete the tests, which was captured in the Research Electronic Data Capture (REDCap) software (REDCap, n.d.).

Data Collection

The surveys were recreated and distributed through the REDCap software and study data was collected and managed using REDCap software, which is a secure web-based application designed to build and manage online research surveys and databases while supporting data capture used in research studies (Harris et al., 2019; Harris et al., 2009; REDCap, n.d.) The REDCap electronic data capture tool is hosted by UMMC and is the recommended data collection software for all researchers to collect and store data (UMMC, n.d.c). The link for the REDCap surveys was distributed through Canvas software, which is managed by Instructure. Instructure is an online learning management platform for all levels of education, including K-12 and higher education (Instructure, n.d.). All nursing students at UMMC were enrolled in Canvas as a part of their academic curriculum.

Data Analysis

Quantitative data analysis using a quasi-experimental research study model follows a standard formula that involves data collection with the use of participants and design, procedure, and measurement. This type of data analysis uses precise methods that will establish the validity and reliability of the research findings (Creswell & Creswell, 2018). The IBM SPSS Statistics 26 was used to analyze data for better understanding and accurate conclusions about the research (IBM, n.d.). The quantitative data were collected utilizing the REDCap survey software, which provides secure automated data export to IBM SPSS Statistics 26 to capture descriptive information and assist with the statistical testing (REDCap, n.d.). A statistician assisted the investigator

with analysis using the IBM SPSS Statistics 26 and the review of data for accuracy and completeness. Paired samples *t*-tests were used to analyze data for this portion of the study. The investigator evaluated the pre-test and post-test mean scores for significant differences after the comprehensive supplemental educational intervention.

Ethical Considerations/Consent

After Institutional Review Board (IRB) review, and a determination of study definition or an approval was granted, the study commenced. The Associate Dean of Academic Affairs for the BSN students was contacted to grant permission for the educational intervention in the Accelerated BSN program, when IRB provided documentation to proceed with the study (Appendix D). The HIV educational intervention was offered in the *Immunity* module of course N413-3 *Health and Illness across the Continuum* in the fall 2020 semester. Permission was obtained from Carey and Schroder (2002) through electronic mail on February 4, 2020, for the use of their HIV knowledge scale (Appendix E). Permission was also obtained from Genberg et al. (2009) by electronic mail on February 27, 2020, for the use of their *Project Accept Stigma Scale* (See appendix F). After IRB and doctoral committee approval to proceed, an introduction was provided through an online learning format to the BSN students at the beginning of the study. Before the pre-test and the first educational session, consent was documented when each participant completed and submitted the questionnaire, which served as their consent to participate (Appendix G). Participants were provided a REDCap link in the Canvas educational platform and the investigator asked each student to create random six-digit non-sequential number to protect their confidentiality and provide anonymity for the study. Students were asked to remember the six-digit number, as they had to recall the same number for the post-test. The investigator will store all data for six years in a digital format within REDCap, which provides secure storage with password-protected access.

Timeline

The investigator presented the proposed study to the Doctor of Health Administration (DHA) committee for approval in September 2020. The application was then submitted to IRB for approval in September/October 2020. The study began after IRB approval in November 2020 and included four, one-hour sessions. During each one-

hour session, students received HIV/AIDS specific educational content from the investigator, and the last hour of content introduced a panel discussion with PLWH. After the study period, the investigator and statistician analyzed the data in January and February 2021 to complete and finalize the doctoral project data. The investigator composed the final chapters of the doctoral project in March 2021 and will defend the project April 14, 2021. A visual timeline is presented below.

Table 1

Visual Timeline for DHA Project

Task	Timeline by Month									
	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020	Jan 2021	Feb 2021	March 2021	April 2021	May 2021
Proposal to DHA committee										
IRB Approval										
Educational Intervention										
Data Collection & Analysis										
Write Chap 4&5										
Defend Project										

Note. This table serves as a visual timeline for the doctoral project, starting with the proposal to the doctoral committee and submission to IRB and ending with the investigator's doctoral defense.

Conclusion

Studies worldwide demonstrate that limited or incorrect information may be partially responsible for stigmatizing behaviors and discrimination of PLWH (Davtyan, Olshansky, Brown, & Lakon, 2017; Frye et al., 2017; Nagothu et al., 2018; Phillips et al., 2018; Pickles, King, & Belan, 2012; Sweeney & Venable, 2016; Varas-Diaz, Neilands, Rodriguez-Madera, & Padilla, 2016). Therefore, educational opportunities that focus on HIV/AIDS and personal contact with PLWH in pre-licensure nursing programs may help educators assess students' basic prerequisite knowledge of HIV transmission and adapt educational interventions to enhance knowledge, negative attitudes, perceived discrimination, and health and social equity of PLWH that might potentially perpetuate

stigma. The results of this study may be used as an initiative to augment current HIV/AIDS education within the UMMC SON. The results of this study may also provide direction for future studies and the implementation of potential best practices within the pre-licensure student nursing educational community.

SOLUTION

CHAPTER IV

SOLUTION

The purpose of this study was to determine if a comprehensive supplemental educational intervention for accelerated pre-licensure nursing students at the University of Mississippi Medical Center (UMMC) School of Nursing (SON) might produce a significant increase in basic knowledge and a significant difference in attitudes, perceived discrimination, and equity for people living with human immunodeficiency virus (PLWH). While the didactic content focused on the history of human immunodeficiency virus (HIV), how stigma affects PLWH, pathogenesis of HIV, primary prevention, transmission of HIV, diagnosis, and treatment, the final portion of the educational experience included a panel of patient volunteers who answered questions about living with HIV/AIDS in their community. The aim of this quantitative study was to answer the following questions: 1) Is there a significant increase in the knowledge level of accelerated pre-licensure nursing students regarding HIV transmission and HIV prevention strategies after completion of a comprehensive supplemental educational intervention? 2) Is there a significant difference in accelerated pre-licensure nursing student's attitudes, perceived discrimination, and the health and social equity of PLWH after completion of a comprehensive supplemental educational intervention?

This chapter includes findings from the investigation, which involved pre-test and post-test data from a voluntary convenience sample of pre-licensure accelerated nursing students before and after a comprehensive supplemental educational intervention. Due to advancements in medication therapy, HIV has become a chronic, rather than fatal disease. However, stigma related to the disease remains. The findings presented in this chapter reflect responses from a small but diverse group of nursing students and findings illustrate the need for continued focus on current and relevant education for health care professionals.

Description of Participants

This investigation involved 65 students enrolled in the pre-licensure Accelerated Bachelors of Science in Nursing (BSN) nursing program at UMMC in Jackson, Mississippi. Students were enrolled in this course as part of their BSN academic requirements and all 65 students were asked to volunteer for the study. Of the 65

students, 45 provided informed consent and participated in the pre-test. All 65 students were then provided the *Immunity* module as part of course N413-3 *Health and Illness across the Continuum*. The accelerated pre-licensure nursing students represented in this sample were in the last semester of their nursing program. They had previously received some basic information about HIV transmission and prevention before this course and module in their general BSN academic work. After the four hours of instruction, all students (45) who participated in the pre-test were asked to complete the post-test. Of the 45 students who participated in the pre-test, 33 participated in the post-test. The initial response rate for the pre-test was N=45 (69% of the 65 students). The response rate for the post-test, along with the general module evaluation, was N=33 (73% of the 45 students). During data cleaning to ensure quality of data collected and also during the data coding in IBM SPSS, three sets of data were omitted due to duplicate student identification numbers and incomplete student answers. The final number of matching student pre-test and post-test scores were analyzed (N=30).

The first four questions of the pre-test requested demographic data about each participant. The students were asked their gender, race/ethnicity, previous degree, and marital status. The demographic section was not mandatory, and of those who answered, 24 (80%) were female, and two (6%) were male, while four (13%) did not respond. Regarding race, the majority of participants who answered identified as White/Caucasian 23 (77%), while three (10%) identified as Black/African American, one (3%) as Asian, and three (10%) did not answer. Previous degrees varied widely. Accounting, elementary education, public health, and biological science were reported, but 17 of the students (57%) reported having earned a degree in biological sciences. Regarding marital status, most students (19) were single (63%), while eight (27%) were married, and three (10%) did not answer that question.

Data Analysis

Data were collected in REDCap, an online tool, which provides automated data export to standard analysis packages to capture descriptive statistics and interpret findings. The data were exported to IBM SPSS Statistics 26 software for analysis to determine any significant change in pre and post-test scores after participants completed the HIV educational intervention. Statistical analysis was used to confirm that all data

sets passed the appropriate assumptions. All statistical tests were performed with a commonly accepted alpha value, $\alpha=0.05$, which refers to a (5%) probability that the investigator is comfortable making a Type I error (Creswell & Creswell, 2018). The first data analysis was performed on the pre and post-test knowledge instrument. These data were analyzed using a paired *t*-test. Statistical analysis of paired data is often used in research to compare outcomes between the same groups. Statistical methods used in data analysis depend on the type of outcome desired. The paired *t*-test was chosen because the data collected in this study is normally distributed and derived from a matched sample in the form of a pre-test and post-test (Xu et al., 2017). On the second instrument, a paired *t*-test was used to analyze the data regarding attitudes, perceived discrimination, and health and social equity of PLWH on a five-point Likert scale. The Likert scale included five responses that ranged from strongly disagree to strongly agree, which is designed to gauge participant's beliefs about each statement presented.

Findings

Pre-test and post-test data were collected using two unique instruments. The first instrument was created by Carey and Schroder (2002) and consisted of 18 questions that are designed to assess basic knowledge related to HIV transmission and prevention strategies. For each question, participants had a choice of "true, false, or I don't know." The second instrument was created by Genberg et al. (2009) and examined stigma related to PLWH/AIDS. It contained 18 statements scored on a five-item Likert scale. The students were asked to choose the answer that best aligned with their beliefs about each statement.

The data from the first instrument were analyzed using IBM SPSS 26 Statistics. Questions from the instrument created by Carey and Schroder (2002) were meant to investigate three distinct domains. These included knowledge related to: 1) HIV transmission, 2) HIV prevention, and 3) signs and symptoms of acute HIV infection. Test questions were counted as correct if the accurate response was chosen, while questions that were answered incorrectly or "I don't know" were marked as incorrect. Overall, knowledge level related to the 18 questions, which each received a one-point value on the pre-test and post-test was 13.83 and 17.37, respectively. The mean difference was 3.54. The resulting *p*-value from the paired *t*-test was less than 0.001,

which shows a highly significant improvement in the knowledge gained after the comprehensive supplemental educational intervention.

The Carey and Schroder (2002) instrument was further stratified into groups of questions related to HIV transmission, prevention, and acute signs and symptoms. On the questions related to knowledge regarding HIV transmission, there was a pre-test mean score of 22.8 and a post-test score of 29.1, with a mean difference of 6.3. Utilizing a paired *t*-test, the true *p*-value was calculated at 0.01, which is considered statistically significant for increased knowledge related to HIV transmission. On the questions related to HIV prevention strategies, the mean for the pre-test and post-test were 23.14 and 28.57, respectively, with a mean difference of 5.43. The calculated *p*-value was 0.05, which is considered significant, with $p \leq 0.05$. The final question measured knowledge regarding the recognition of acute signs and symptoms of HIV disease. However, there was only one question on this topic, so no paired *t*-test was conducted. On this question, "People who have been infected with HIV quickly show serious signs of being infected," raw data revealed that 25 students chose the correct answer on the pre-test, and 30 students chose the correct answer on the post-test. Therefore, 83% of students chose the correct answer on the pre-test and 100% of students chose the correct answer on the post-test.

The instrument developed by Genberg et al. (2009) measures attitude, perceived discrimination, and health and social equity for PLWH. Specifically, the instrument measures the participant's attitude related to PLWH. The discrimination statements measure the participant's perception of how PLWH are treated within their communities and the health and social equity statements measure the participant's beliefs related to equitable treatment of PLWH. Responses to statements are based on a five-item Likert scale, using the following values: 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree, 5 = Strongly Agree. The mean score of participant responses on the pre and post-test were compared using a paired *t*-test to calculate the mean difference, and data were analyzed to determine if a statistical difference in pre and post-test responses were found. Of the 18 questions on the instrument, only four questions showed statistical differences in the pre and post-test scores, suggesting an improvement in students' level of compassion toward PLWH. The first two questions on the instrument

were related to attitudes towards people living with HIV or acquired immunodeficiency syndrome (AIDS). Analysis of responses to the first statement, “People living with HIV/AIDS should be ashamed,” resulted in a mean of 1.31 on the pre-test and 1.10 on the post-test, with a mean difference of 0.21. The p -value was found to be 0.012, which is significant at the 0.05 level of acceptance. Seven students “disagreed” with the statement on the pre-test. However, on the post-test 27 students “strongly disagreed” that people living with HIV/AIDS should be ashamed. Although the final study size was limited ($n=30$), of the student responders, the data suggests that students felt more compassion towards PLWH after the comprehensive educational intervention. Analysis of responses on the next statement, “People who have AIDS are disgusting,” revealed a mean of 1.28 and 1.10, pre-test and post-test, respectively. The mean difference was 0.18, and the p -value was 0.023, which is statistically significant. In the pre-test data, six students “disagreed” with the statement presented and on the post-test nearly all students “strongly disagreed” with the statement, which suggests that the level of students compassion increased after the comprehensive educational intervention that included PLWH.

The final two statements that revealed a statistically significance difference were related to how participants perceived discrimination of PLWH/AIDS within their communities. The statement “People living with HIV/AIDS in this community face neglect from their family,” received a mean of 3.76 on the pre-test and 4.17 on the post-test with a mean difference 0.41. The p -value was 0.02, which is statistically significant at the 0.05 level. Pre-test data revealed that fifteen students “agreed” that PLWH could face neglect from their families, while seven students “neither agreed nor disagreed” with the statement, and two students “disagreed” with the statement. After the educational intervention and interaction with PLWH, the majority of students “agreed or strongly agreed” with the statement. These results illustrate a possible lack of social awareness that exists regarding discrimination toward PLWH. Analysis of the final statement, “People living with HIV/AIDS in this community face physical abuse,” received a mean pre and post-test score of 3.55 and 3.93, respectively. The mean difference was 0.38, and the p -value was 0.009. The p -value demonstrates a statistical significance where $p \leq 0.05$. The pre-test results reveal that 14 students “neither agreed nor disagreed” with the statement and that 11 “agreed.” Analysis of the post-test results revealed a change in

student's awareness that PLWH/AIDS could potentially face physical abuse within their community with post-test results showing that nine students "neither agree nor disagreed" and 12 students "agreed."

Upon completion of the post-test instrument, students were asked to complete an evaluation to assess the instructor's knowledge, delivery of content, and course materials. Students were also asked if the information increased their knowledge, was important to learn, and if the information gave them the desire to learn more about the topic. Seven statements were evaluated using the same type Likert scale mentioned earlier, which included five responses that ranged from strongly disagree to strongly agree while the final question prompted the students to submit comments or suggestions for the instructor. Students mostly responded to the statement, "The instructor was well prepared for this module with "strongly agree" (27 students). Twenty-seven students "strongly agreed" and three "agreed" that the instructor was comfortable and prepared to teach the HIV/AIDS content. On the statement, "The instructor showed an interest in helping us learn," 29 (97%) students "strongly agreed" with the statement while one student "agreed." These answers suggest that the students perceived that the instructor cared about their success by helping them to grasp the information presented. The next statement, "The course materials complemented each other," assessed the type of course material used and how they worked together to benefit learning. Twenty-eight students (93.3%) "strongly agreed" and two students "agreed."

Responses to the statement, "The course was organized in a manner that helped me understand the concepts," 27 students "strongly agreed" and three students "agreed." These responses validate that information was arranged in a way that helped students learn. Twenty-eight students responded "strongly agree" to the statement, "The instruction and resources increased my knowledge in the subject matter," while two students responded, "agree." Responses to this statement suggest that all students believed that they had gained understanding during the comprehensive educational experience. Analysis of the statement, "I believe that what I am being asked to learn in this course is important," revealed 28 students who "strongly agreed," and two students that "agreed." Responses to this statement demonstrate that the students perceived value in the information provided. The statement, "This module gave me more desire to learn

about the subject,” elicited three different answers. The majority, 24 students, “strongly agreed,” four students “agreed,” and two students “neither agreed nor disagreed.” The final statement of the evaluation offered the students an opportunity to, “Please include any comments or suggestions that you would like the instructor to know.” Twenty-three students (77%) completed the comments section and all comments were positive.

Student comments are presented below.

Table 2

Student Comments

Student Comments
I really enjoyed this module and think there should be more opportunities like this and more education on this type of material. Thank you for this and thank you for sharing.
Thank you so much for teaching us and giving me a new perspective on people living with HIV and AIDS.
This was great! My only suggestion is doing this earlier in the program. Many students are burnt out and would probably pay deeper attention if it were sooner in the year.
This was great! My only suggestion is doing this earlier in the program. Many students are burnt out and would probably pay deeper attention if it were sooner in the year.
I enjoyed learning more about HIV/AIDS. There is a huge stigma around HIV/AIDS and these two days have helped me recognize my previous bias and I am grateful for the opportunity to learn from Mr. Miller and hear from people who are and have been living with HIV for years. I am thankful for all of the knowledge that I gained over this week. Thank you!
Instructor was very enthusiastic about the subject matter, which was contagious. Enjoyed the honest communication with HIV survivors. Before it started, I wanted to feel sorry for them. I am old enough to remember all the stigma attached to HIV/AIDS... so I may have a different perspective than the younger members of the class. Their open and honest communication helped me to understand that they do not want my pity... just my respect.”
Thank you for setting up the panel with the individuals living with HIV. It can be very easy to dehumanize diseases when learning about them. It was extremely helpful to hear their thoughts and feelings, and I will definitely take what I learned from them and this module into my practice.

Note. This table provides multiple student comments regarding the instructor and the comprehensive supplemental HIV educational experience.

Summary

In this chapter, the findings of an investigation of nursing students’ knowledge related to HIV transmission, prevention, and acute signs and symptoms were presented, as well as their attitudes, perceived discrimination, and equity for PLWH before and after a supplemental comprehensive educational intervention were presented. The findings of

this study may be used to develop educational content to supplement traditional HIV/AIDS education within UMMC SON. Educational opportunities that focus on HIV/AIDS and include an opportunity to interact with PLWH may not only help educators assess students' basic prerequisite knowledge of HIV transmission, but may also help educators to adapt educational interventions to enhance learning. The inclusion of the panel of PLWH is important because it provides students with an opportunity to empathize with PLWH and ask personal questions about how HIV has affected their lives. Further, it is essential that these educational opportunities also aim to decrease potential negative attitudes, perceived discrimination, and health and social equity of PLWH, all of which could perpetuate stigma. Study data can be used to assist academic health science centers in evaluating current processes and making improvements to augment future educational opportunities for educational content and delivery of all health professions.

IMPLEMENTATION

CHAPTER V

IMPLEMENTATION

This chapter includes information regarding human immunodeficiency virus (HIV) education and the implementation of a comprehensive educational intervention for accelerated pre-licensure Bachelor of Science in Nursing (BSN) students at an academic medical center. This chapter also includes resources for the use of this content as extracurricular professional development for students enrolled in the other six schools at the University of Mississippi Medical Center (UMMC). These resources can also be presented to practitioners, through a continuing educational activity. By utilizing this material, educators have an opportunity to offer resources to enhance current content while potentially mitigating possible bias among health professionals. This chapter will discuss application of study findings, implementation plan, limitations of the present study, and suggestions for future research on the topic.

Discussion

Misconceptions regarding HIV transmission and incorrect HIV information cause stigma and discrimination toward people living with HIV (PLWH), and these findings suggest that robust educational curriculum, with the inclusion of HIV-related stigma reduction content, might potentially decrease stigma by healthcare professionals (Kok et al., 2018; Pickles et al., 2012; Suominen et al., 2015). The present study involved a comprehensive educational intervention, which aimed to fill gaps in HIV education for Accelerated BSN students. The results of this study indicated that there was a lack of prerequisite knowledge regarding HIV transmission and prevention, which might perpetuate stigma and discrimination of PLWH. Findings also demonstrated that along with the didactic presentation, the introduction of patient volunteers who are HIV positive might have resulted in heightened levels of compassion towards PLWH.

Although this study focused on accelerated pre-licensure nursing students, the content and format may be beneficial for other medical disciplines at UMMC. A systematic review by Geter, Herron, and Sutton (2018) found that HIV stigma reduction was needed among healthcare providers. Two articles reviewed revealed that limited exposure to PLWH in clinical rotations caused more HIV stigma while healthcare providers who received some type of HIV-related training in the prior 12 months showed

lower stigmatizing attitudes. Likewise, Rathbun, Durham, Farmer, Zuckerman, and Badowski (2020) found the limited amount of time provided for didactic content, exposure to PLWH on clinical rotations, and the prior HIV experience of the faculty or preceptor teaching the student this topic were areas of weakness identified in educational curricula for pharmacy programs. Parish and Santella (2018) discovered similar findings involving dental students.

Currently, the Josiah Macy Jr. Foundation, a non-profit organization dedicated to improving the education of health professionals by advancing diversity, equity, and inclusion for students in educational programs, acknowledges that there is actually bias within the education system for health professionals. Without diversity, equity, and inclusion of all people, including those in the lesbian, gay, bi-sexual, transgender, or queer/questioning (LBGTQ) community, the health care industry cannot provide the highest quality patient-centered care, nor address social determinants of health. Realizing this is the first step in reducing health inequities, and fostering trust between providers and their patients (Josiah Macy Jr. Foundation, 2020). Therefore, inclusion of HIV-related educational opportunities such as the one presented in this chapter may help to advance knowledge of health professionals, while decreasing stigma and discrimination for PLWH.

Implementation Plan

As a result of findings of this study, an instructor's guide (Appendix H), which includes learning objectives, case studies, and lecture/didactic content has been created by the investigator, who is a full time HIV nurse practitioner, to assist health care programs at UMMC to augment basic knowledge of HIV transmission, prevention strategies, and bias and discrimination against PLWH and LGBTQ persons.

Based on data outcomes and positive student feedback, the investigator has been invited to teach the HIV module in the fall at UMMC School of Nursing (SON) (Appendix I). The accelerated program at UMMC is a 12-month program for students who have finished at minimum a four-year degree in any subject. The material presented is, after last fall's module on this content, now the preferred academic curriculum for all students in the pre-licensure Accelerated BSN program. Other faculty may also use the HIV instructor's guide, as it contains learning objectives, didactic content, and case

studies to prompt conversation and enhance understanding for students. The investigator has been invited by the Mississippi AIDS Educational Training Center (MSAETC) at UMMC to present findings of this study on June 30, 2021 in virtual format continuing educational event that is offered to physicians, nurse practitioners, nurses, and social workers (Appendix J). The investigator will also potentially participate in training offered each fall in Jackson, MS, as an accredited continuing education course for various health professions. The next iteration of the CE activity, *HIV 101*, is offered to nurses and social workers from the Southeast and includes multiple workshops and speakers in a one-day event. The mission of MSAETC is to improve the quality of life for PLWH by providing high-quality, professional education, and provider training. The educational services provided by MSAETC range from novice to expert and focus on HIV care (Mississippi AIDS Educational Training Center, n.d.). The Instructor's Guide may be used to augment participants' learning and provide them with the tools to present their own stigma reduction training in their field of work.

Finally, the training will be developed online, and will be added to UMMC's Co-curricular Catalog, a list of self-paced independent learning opportunities for students in all schools at UMMC. Students who participate in co-curricular learning have the opportunity to advance their knowledge about topics that may not be included in their formal curriculum. The successful completion of these courses will be documented with UMMC's digital credential, U Med Cred, and may also, in the near future, be included on their academic transcript.

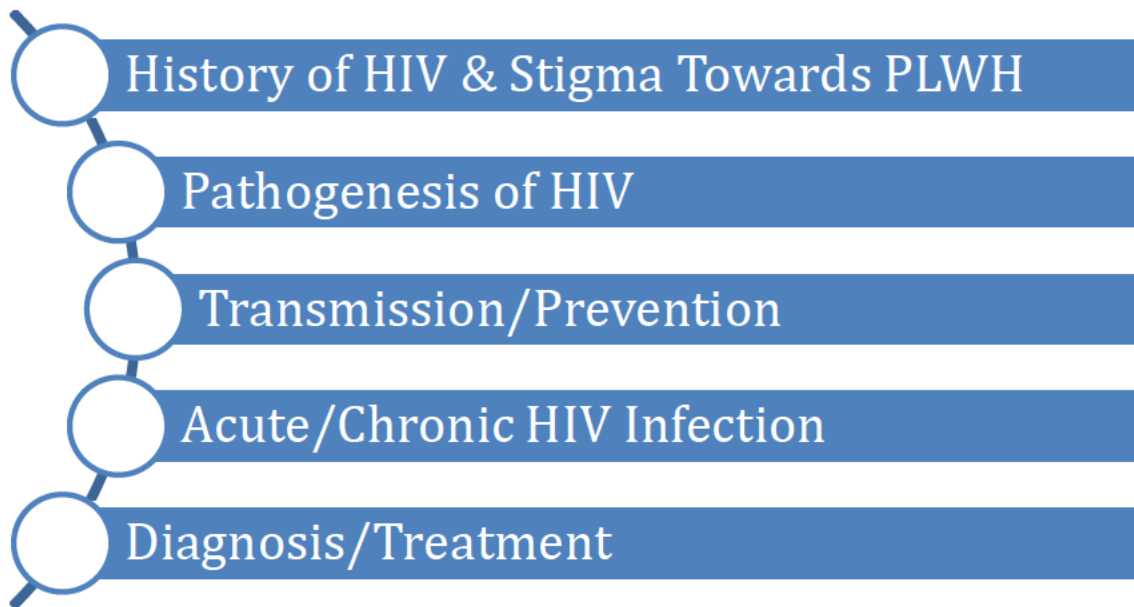


Figure 1. This illustration depicts the topic areas in the HIV module used in this study and included in the newly developed Instructor's Guide.

The outline of topics and corresponding learning objectives for the instructor's guide are as follows:

- I. History of HIV and Stigma Towards PLWH
 - a. Review the history of HIV as a worldwide pandemic
 - b. Consider how HIV stigma can adversely impact individuals living with HIV
- II. Pathogenesis of HIV
 - a. Discuss the basic pathogenesis of HIV
 - b. Discuss the primary prevention of HIV in adults and neonates
- III. Transmission and Prevention
 - a. Identify transmission risks
 - b. Identify prevention strategies
- IV. Acute/Chronic HIV Infection
 - a. Discuss the impact of HIV on CD4 cells and immunity
 - b. Compare acute and chronic manifestations of HIV
- V. Diagnosis and Treatment

- a. Define the clinical diagnosis of HIV
- b. Highlight treatments for HIV
- c. Recognize common side effects of antiretroviral therapy (ART)

As the training may be developed for each program or school, the investigator will offer assistance identifying content experts to present and discuss information. Experts will be identified based on years of experience as an HIV provider and/or someone living with HIV. Patient volunteers will be recruited for each program and will be asked to share their personal experiences of living in their community with HIV. The instructor's guide is included as Appendix H.

Product Format and Timeline

HIV – The “H” stands for Human has been designed as a four-hour training session, which will include PLWH as guest panelists for the last hour. Training will take place in a face-to-face classroom setting, but can be modified to a virtual setting if needed. The live classroom session can also be recorded for those who are unable to attend and archived for later use. Ideally, face-to-face interaction with PLWH is recommended to enhance the personal connection that students may experience. However, a virtual and asynchronous online version may also be developed.

Limitations of the Study

Several limitations exist in this study. The study was conducted at the height of the COVID-19 pandemic when all classes at UMMC SON were being conducted virtually. The response rate from the original 65 students was (45) 69%, which may have been lowered by the virtual format. The response rate from the post-test was 79% of the 45 students that had taken the pre-test (equaled 33 sets of student data). During data cleaning to ensure quality of data collected, three sets of data were omitted due to duplicate student identification numbers and incomplete student answers. The final number of matching student pre-test and post-test scores were analyzed (N=30). Additionally, the instrument by Genberg et al. (2009) included questions that were originally written for underdeveloped countries and not for students seeking a degree as a health professional, which likely caused a positive shift in results regarding attitudes, discrimination, and equity of PLWH. Of the 18 questions presented, only four showed a significant difference in pre and post-test scores.

Recommendations for Future Research

The instruments used for this study were validated and used in studies that were not designed for health professionals. The development of an assessment instrument specifically designed for health professionals may yield more appropriate data and provide greater impact for student participants. Future researchers may use findings from this study to develop a more robust tool. Further, the virtual environment was necessary during the COVID-19 pandemic, but this type of instruction, specifically the interaction between students and PLWH, would be best conducted in a face-to-face learning environment. Therefore, gathering the same data, using the same content, in an in-person learning environment might yield a higher N, therefore strengthening the findings.

Conclusion

The purpose of this doctoral project was to determine if a comprehensive supplemental educational intervention for accelerated pre-licensure nursing students might produce a significant increase in basic knowledge, attitudes, perceived discrimination, and equity for PLWH. Students showed a significant increase in knowledge related to HIV transmission and prevention. However, there were only four questions regarding attitudes, discrimination, and health and social equity that revealed a significant difference, which suggests that students' level of empathy for PLWH increased. Therefore, as described in this chapter, the information presented and inclusion of PLWH is effective and would be beneficial for all healthcare professionals.

APPENDICES

APPENDIX A
Lesson Plan

Lesson Plan for Immunity Module HIV/AIDS

At the end of this lesson the student will be able to:

COURSE OBJECTIVES

- Review the history of HIV as a worldwide pandemic.
- Consider how HIV stigma can adversely impact individuals living with HIV.
- Define basic pathogenesis of HIV.
- Discuss primary prevention of HIV in adults and neonates and identify transmission and prevention myths.
- Discuss the impact of HIV on CD4 cells and immunity.
- Compare acute and chronic manifestations of HIV.
- Compare the meaning of the CD4 count and the viral load and identify how each is used in practice.
- Define the clinical diagnosis of HIV and AIDS.
- Highlight the basic treatment of HIV infected patients.
- Recognize common side effects of ART.
- Describe how the nurse can improve medication adherence.
- Describe care of the infant born to a mother with HIV/AIDS.

Discuss other factors beyond medications that can positively impact the patient with HIV/AIDS.

READ:

Chapter 25, p. 535, & Chapter 25, pp. 770-772

Lowdermilk, D. L., Perry, S. E., Cashion, K., Alden, K. R., & Olshansky, E. F. (2020). *Maternity and women's health care* (12th ed.). St Louis, MO: Elsevier, Inc.

Chapter 14, pp. 216- 230

Harding, M. M., Kwong, J., Roberts, D., Hagler, D., & Reinisch, C. (2020). *Lewis's medical-surgical nursing: Assessment and management of clinical problems* (11th ed.). St. Louis, MO: Elsevier, Inc.

ASSESSMENTS:

- Immunity Module Test November 13, 2020

APPENDIX B

HIV-KQ 18

HIV- KQ-18			
For each statement, please circle “True” (T), “False” (F), or “I don’t know” (DK). If you do not know, please do not guess; instead, please circle “DK.”			
	True	False	I don’t know
1. Coughing and sneezing DO NOT spread HIV.	T	F	DK
2. A person can get HIV by sharing a glass of water with someone who has HIV.	T	F	DK
3. Pulling out the penis before a man climaxes/cums keeps a women from getting HIV during sex.	T	F	DK
4. A women can get HIV if she has anal sex with a man.	T	F	DK
5. Showering, or washing one’s genitals/private parts, after sex keeps a person from getting HIV.	T	F	DK
6. All pregnant women with HIV will have babies born with AIDS.	T	F	DK
7. People who have been infected with HIV quickly show serious signs of being infected.	T	F	DK
8. There is a vaccine that can stop adults from getting HIV.	T	F	DK
9. People are likely to get HIV by deep kissing, putting their tongue in their partner's mouth, if the partner has HIV.	T	F	DK
10. A women cannot get HIV if she has sex during her period.	T	F	DK
11. There is a female condom that can help decrease a women’s chance of getting HIV.	T	F	DK
12. A natural skin condom works better against HIV than does a latex condom.	T	F	DK
13. A person will NOT get HIV is she or he is taking antibiotics.	T	F	DK
14. Having sex with more than one partner can increase a person’s chance of being infected with HIV.	T	F	DK
15. Taking a test for HIV one week after having sex will tell a person if she or he has HIV.	T	F	DK
16. A person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV.	T	F	DK
17. A person can get HIV from oral sex.	T	F	DK
18. Using Vaseline or baby oil with condoms lowers the chance of getting HIV.	T	F	DK

APPENDIX C
Stigma Accept Scale

Stigma Scale	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Negative attitudes					
1. Families of people living with HIV/AIDS should be ashamed.	1	2	3	4	5
2. People living with HIV/AIDS should be ashamed.	1	2	3	4	5
3. People who have HIV/AIDS are cursed.	1	2	3	4	5
4. People who have AIDS are disgusting.	1	2	3	4	5
5. People living with HIV/AIDS deserve to be punished.	1	2	3	4	5
6. It is reasonable for an employer to fire people who have AIDS.	1	2	3	4	5
7. People with AIDS should be isolated from other people.	1	2	3	4	5
8. People with HIV should not have the same freedoms as other people.	1	2	3	4	5
Perceived Discrimination					
9. People living with HIV/AIDS in this community face rejection from their peers.	1	2	3	4	5
10. People who have HIV/AIDS in this community face verbal abuse or teasing.	1	2	3	4	5
11. People living with HIV/AIDS in this community face neglect from their family.	1	2	3	4	5

12. People who are suspected of having HIV/AIDS lose respect in the community.	1	2	3	4	5
13. People living with HIV/AIDS in this community face physical abuse.	1	2	3	4	5
14. Most people would not buy vegetables from a shopkeeper or food seller that they knew had AIDS.	1	2	3	4	5
Equity					
15. People with AIDS should be treated similarly by health professionals as people with other illnesses.	1	2	3	4	5
16. People with HIV should be allowed to fully participate in social events in this community.	1	2	3	4	5
17. A person with AIDS should be allowed to work with other people.	1	2	3	4	5
18. People who have HIV/AIDS should be treated the same as everyone else.	1	2	3	4	5

APPENDIX D

Permission to Teach – Northington, PhD



School of Nursing

School of Nursing
2500 North State Street • Jackson, Mississippi 39216
Phone, 601.984.6200

November 2, 2020

James Miller
University of Mississippi Medical Center
2500 North State Street
Jackson, MS 39211

RE: IRB File # 2020V0279

Effectiveness of an Educational Intervention to Reduce Stigma of Accelerated Pre-licensure Nursing Students Toward Patients Living with HIV at an Academic Medical Center
Your Initial Application was reviewed and approved by the Expedited Review process on 10/28/2020. You may begin this research.

Dear James,

With approval from IRB, you are granted permission to instruct students and conduct research with Dr. Elizabeth Franklin, PhD at the University of Mississippi Medical Center, School of Nursing. You will instruct students in class N413-3 Health and Illness across the Continuum in November 2020.

Best Wishes.

LaDonna Northington, DNS, RN, BC

APPENDIX E

Permission Email – Carey, PhD

From: Michael Carey
Sent: Tuesday, February 4, 2020 6:47 AM
To: James S. Miller
Subject: [EXTERNAL]Re: Doctoral Project

Hello James,
 Permission granted. Please see attached.
 Best wishes,
 Mike

Michael P. Carey, PhD
 Director, Centers for Behavioral and Preventive Medicine, The Miriam Hospital
 Professor of Psychiatry and Human Behavior, Alpert Medical School
 Professor of Behavioral and Social Sciences, School of Public Health
 Brown University

Mailing Address:
 The Miriam Hospital
 Centers for Behavioral and Preventive Medicine
 Coro West, Suite 309
 164 Summit Ave
 Providence, RI 02906

On Feb 3, 2020, at 6:36 PM, James S. Miller wrote:

Dr Carey,

My name is Jim Miller and I work for The University of Mississippi Medical Center (UMMC) in Jackson, Mississippi in the state's largest Ryan White funded clinic. I am currently a doctoral student, working towards a Doctor of Health Administration (DHA).

In preparing for my doctoral project, I located your "HIV Knowledge Questionnaire" HIV-KQ-18 and HIV-K-Q online. My doctoral project is examining undergraduate nursing knowledge that may contribute to HIV / AIDS stigma in caring for patients. I would like to reproduce some or all of your questions for a pre and post assessment, as part of my doctoral project.

May I have permission to use the questions? I appreciate any help that you might offer.

Kind Regards,

Jim

James S. Miller, MSN,
 Family Nurse Practitioner
 University of Mississippi Medical Center
 Department of Medicine
 Division of Infectious Disease
 2500 North State Street
 Jackson, MS 39216

umhc.edu

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APPENDIX F

Permission Email – Genberg, PhD

From: Becky Genberg
Sent: Thursday, February 27, 2020 7:35 PM
To: James S. Miller
Subject: [EXTERNAL]Re: Doctoral Project

Hi Jim,

No problem! Best of luck with your research. Also, not sure what the AK9 label refers to – we just call it the Project Accept Stigma Scale, but as long as you cite the work, we are happy it is useful!

Best
 Becky

From: "James S. Miller"
Date: Thursday, February 27, 2020 at 7:13 PM
To: Becky Genberg
Subject: Doctoral Project

Dr. Genberg,

My name is Jim Miller and I work for The University of Mississippi Medical Center (UMMC) in Jackson, Mississippi in the state's largest Ryan White funded clinic. I am also currently a doctoral student, working towards a Doctor of Health Administration (DHA).

In preparing for my doctoral project, I discovered the AK9 stigma scale that was used for your study *"A comparison of HIV/AIDS-related stigma in four countries: Negative attitudes and perceived acts of discrimination towards people with HIV/AIDS."*

My doctoral project focuses on an educational intervention with undergraduate student nurses at UMMC, School of Nursing to measure basic HIV transmission knowledge and perceived stigma. Results will be measured in a pre-test / post-test format. This type of educational intervention is exciting to me, because stigma is still very prevalent in Mississippi.

I am writing to ask if you will give me permission to use the AK9 stigma scale, in my doctoral project. I appreciate any help that you might offer.

Kind Regards,

Jim

James S. Miller, MSN, FNP
 Family Nurse Practitioner
 University of Mississippi Medical Center
 Department of Medicine
 Division of Infectious Disease
 2500 North State Street

Jackson, MS 39216

umhc.edu

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APPENDIX G
Consent to Participate

Informed Consent to Participate in a Quality Improvement Study**University of Mississippi Medical Center, School of Health Related Professions**

Title of Research Project: Effectiveness of an Educational Intervention at an Academic Medical Center to Reduce Stigma of Pre-licensure Nursing Students Toward Patients Living with HIV

Name of Principal Investigator: Elizabeth Franklin, BA, MEd, PhD

Phone Number of Principal Investigator:

Student Investigator: James Miller, MSN, FNP-C

A. PURPOSE AND BACKGROUND

James Miller, MSN, FNP-C, Doctor of Health Administration candidate, is conducting research that will provide valuable information toward improving an educational intervention for a pre-licensure Bachelor of Science in Nursing students. The purpose of your participation in this research is to help the investigator determine if a comprehensive supplemental educational intervention creates a significant difference pre-test and post-test results. You were selected as a possible candidate because you are in the final semester of the Accelerated Bachelor of Science Nursing program and will soon enter the nursing workforce after completion of the National Council Licensure Examination (NCLEX). As the investigator, James Miller, will be supervised by Dr. Elizabeth Franklin, as part of requirements for the Doctor of Health Administration degree.

B. PROCEDURES

If you agree to participate in this research study, the following will occur: You will be asked to complete a pre-test, participate in an educational intervention, and complete a post-test. The pre-test will take 15-20 minutes and the educational intervention is 4-hours of lecture. The post-test will take 15-20 minutes. The 4-hours of content provided is a requirement for the HIV/AIDS Immunity module. There are no personal interviews. There will be no personal information collected and all pre-test and post-test will be anonymous. All information will be collected using REDCap software and each student will be asked to create a personal identification number that consists of six non-sequential numbers to be used on the pre-test and post-test.

C. RISKS

There are no risks associated with this study. The results of the pre-test and post-test will NOT affect the participant's grade and will not be viewed by the nursing school faculty.

D. CONFIDENTIALITY

The records from this study will be kept completely confidential. No individual identities will be used in any reports or publications resulting from the study. All pre-test and post-tests will be identified by the six-digit non-sequential number that is chosen by the participant and stored as the only identification of each participant. Research information will be secured in REDCap, which is password protected. Only the investigator and principal investigator will have access to the files. After the study is completed the information will be held for six years and will be erased after six years has passed.

E. BENEFITS OF PARTICIPATION

You will not receive a direct benefit from participating in this research study. We hope to will learn information that may help others in the future.

F. VOLUNTARY PARTICIPATION

Your decision whether or not to participate in this study is voluntary and will NOT affect your grade in the School of Nursing or the Immunity Module.

G. QUESTIONS

If you have any questions about the study, please contact Dr. Elizabeth Franklin by calling . You can also contact the Institutional Review Board (IRB) by calling with any questions about the rights of research participants or research related concerns.

CONSENT

YOU ARE MAKING A DECISION WHETHER OR NOT TO PARTICIPATE IN A RESEARCH STUDY. CLICKING SUBMIT BELOW WILL SERVE AS YOUR CONSENT TO PARTICIPATE.

APPENDIX H

Instructor's Guide



HIV – The “H” Stands for HUMAN

Instructor's Guide

Course Objectives, Case Studies, Questions, and Didactic Content

I. INTRODUCTION

A. Overview

HIV – The “H” Stands for HUMAN

Course Description: This instructor’s guide includes course objectives with case studies that have been collected from The Adult Special Care Clinic (ASCC) at the University of Mississippi Medical Center (UMMC) in Jackson, Mississippi (MS). The guide also includes didactic content in a PowerPoint slide format and questions for student engagement. The initial presentation was provided to accelerated pre-licensure Bachelor of Science in Nursing (BSN) students as part of their academic coursework during fall semester 2020. There are 3-hours of didactic content with interactive case studies and a 1-hour panel discussion that features people living with human immunodeficiency virus (PLWH) as patient panelists.

HIV-The “H” Stands for Human: is a module designed to teach students basic knowledge about HIV transmission and prevention strategies, as well as provide face-to-face interaction with people living with HIV (PLWH), which may potentially decrease HIV-related stigma or discrimination.

Learners may be from different health profession programs; therefore, instructors may adjust some content to provide what is required for each program of study.

The module is divided into five topics that will address course objectives. The case studies were derived from Mississippians who attend the ASCC where they receive specialized HIV care.

B. Target Audience

Healthcare professional students from the seven schools at UMMC; medicine, nursing, dentistry, health related professions, graduate studies, population health, and pharmacy would benefit from this coursework as a supplemental educational intervention.

Additional learners may include health professionals in practice, including providers and faculty from health care institutions.

C. Disclaimer

Case studies are based on actual patient scenarios from the ASCC HIV clinic at UMMC. Individual’s names, age, and details of the patient visit have been changed to protect patient identity.

II. Module Topics and Learning Objectives with Corresponding Case Studies

History and Stigma of HIV

- d. Review the history of HIV as a worldwide pandemic.
- e. Discuss how HIV stigma can adversely impact individuals living with HIV.

Case Study 1	Prompts for Group Discussion
Mr. Smith is a 36 yo straight male and has recently presented to the clinic for treatment. His wife is also positive and attends the clinic regularly. He has never received HIV care. He works as a police officer and believes that if he “eats right and works out, he can beat this.” He is embarrassed and private about his diagnosis. He has never received care, because he is afraid that someone may find out about his diagnosis.	<ul style="list-style-type: none"> - What type of stigma would prevent him from receiving care? - Would he be stigmatized if co-workers were aware of his diagnosis? - How might stigma impact his job as a police officer? - Can eating right and working out prevent disease progression?

Pathogenesis

- f. Discuss the basic pathogenesis of HIV
- g. Discuss the primary prevention of HIV in adults and neonates

Case Study 2	Prompts for Group Discussion
Ms. Silver is a 19 yo bisexual female who presents to the clinic newly diagnosed with HIV. She has recently found out that she is 6 weeks pregnant. She cannot believe that she is HIV positive and pregnant. She is frightened and worried about her baby.	<ul style="list-style-type: none"> - What should she know about delivering a healthy baby? - Why is it important for her to know how HIV is transmitted? - Given her positive pregnancy, should she begin HIV medications? - When should she consider starting HIV medications?

Transmission and Prevention

- h. Identify transmission risks
- i. Identify prevention strategies

Case Study 3	Prompts for Group Discussion
Mrs. Thomas is a 62 yo straight female. She presents to the clinic as newly diagnosed HIV positive. She does not believe that she could have HIV, as she has been dating the same person for the last 5 years. He has been tested and is HIV negative. They have never used condoms in their monogamous relationship.	<ul style="list-style-type: none"> -Why would she test positive and he test negative in this relationship? -What is the appropriate response to Mrs. Thomas? - Given her positive diagnosis, should her partner receive further testing?

Acute/Chronic HIV Infection

- j. Discuss the impact of HIV on CD4 cells and immunity
- k. Compare acute and chronic manifestations of HIV

Case Study 4	Prompts for Group Discussion
Ms. Burns is a 45 yo transgender female and has been HIV positive for 5 years. She is transferring to your clinic from out of town. She has been out of medication for 6 months. She has been fatigued, has swollen inguinal lymph nodes, and recently developed oral candidiasis.	<ul style="list-style-type: none"> - What is important to tell her about her diagnosis and corresponding symptoms? - Why is it important to have blood work drawn at her first visit? - Why would it be important to know what medications that she was taking previously?

VI. Diagnosis and Treatment

- Define the clinical diagnosis of HIV
- Highlight treatments for HIV
- Recognize common side effects of antiretroviral therapy (ART)

Case Study 5	Prompts for Group Discussion
Mr. Jones is a 28 yo gay male and has recently presented to the clinic as newly diagnosed HIV positive. He is unsure sure when he could have contracted HIV, but has had sex with multiple partners. His VL is 350,000 and CD4 is 221. He asks if the medication will make him ill?	<ul style="list-style-type: none"> - What do his current lab numbers indicate about his HIV infection? - When should he begin taking HIV medications? - What are common side effects of antiretroviral therapy (ART)?

III. Suggested Didactic Content

I. History and Stigma of HIV

PowerPoint Presentation One

History of HIV
<ul style="list-style-type: none"> - Human immunodeficiency virus (HIV) was first discovered in the United States in 1981 (United States Department of Health and Human Services [HHS], 2020). - First cases were young gay men who have sex with men (MSM) who developed Pneumocystis pneumonia (PCP) and Kaposi Sarcoma (KS), a rare skin cancer (Montagnier, 2010). - Worldwide more than 74 million people have been infected, and 32 million have died from acquired immunodeficiency syndrome (AIDS) related illnesses (Markel, 2020).

History of HIV ₂
<ul style="list-style-type: none"> - No medications approved to treat HIV until 1987 (De Clercq, 2009). - First drug approved to treat HIV/AIDS was zidovudine (Retrovir or AZT) (HHS, 2020h). - HIV has become one of the most significant health problems in the world (Akansel, Aydin, Ozdemir, & Tore, 2012; Dharmalingam, Poreddi, Ganhi, & Chandra, 2015; Kok, Guvenc, & Kaplan, 2018; Leyva-Moral et al., 2017).

History of HIV₃

Where did HIV come from?

- HIV infection in humans came from a type of chimpanzee in Central Africa.
- The chimpanzee version of the virus (called simian immunodeficiency virus, or SIV) was probably passed to humans when humans hunted these chimpanzees for meat and came in contact with their infected blood.
- Studies show that HIV may have jumped from chimpanzees to humans as far back as the late 1800s.
- Over decades, HIV slowly spread across Africa and later into other parts of the world. - We now know that the virus has existed in the United States since at least the mid to late 1970s before we knew what it was (Centers for Disease Control and Prevention [CDC], n.d.).

HIV/AIDS Stigma

- Stigma is defined as a characteristic or element that is viewed negatively by the public (Holzemer et al., 2009).
- Societal stigma results when a majority group labels a minority group as unworthy because of actions or attributes that are deemed socially disgraceful (De, Pozen, & Budhwani, 2019).
- Stigma regarding HIV/AIDS is the negative social perception that devalues PLWH (Shah, Heylen, Srinivasan, Perumpil, & Ekstrand, 2014; Varas-Diaz, Neilands, Rodriguez-Madera, & Padilla, 2016).

HIV/AIDS Stigma₂

- Advances in antiretroviral therapy (ART), people living with HIV (PLWH) live longer (Fitch, 2019; Frain, 2017; Gallant et al., 2017).
- Stigma associated with HIV and AIDS remains a barrier to health care and may cause poor health outcomes due to the avoidance of clinical care (Christopoulos et al., 2018; Davtyan, Olshansky, Brown, & Lakon, 2017; Frye et al., 2017).
- It is estimated that greater than 60% of new infections stem from those patients who have been lost-to-care and are not taking ART (Colasanti, Stahl, Farber, Del Rio, & Armstrong, 2017; Mugavero et al., 2013).

HIV/AIDS Stigma3

- Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, and West Virginia are disproportionately affected by HIV infections and stigma (Center for AIDS Research at Emory University, n.d.).
- These states are traditionally recognized for their socially conservative values, which may often result in the avoidance of health care for PLWH (Batey et al., 2016; Kerr et al., 2014; Sprague & Simon, 2014; Stringer et al., 2016; Tan & Black, 2018).

Video / HIV Stigma

<https://www.youtube.com/watch?v=AxYRYzQMiek>

(Centers for Disease Control and Prevention, 2012)

HIV/AIDS Stigma4

- Data consistently show that many health care professionals worldwide, including nurses, have negative perceptions of PLWH.
- Negative attitudes are caused by inadequate knowledge regarding how HIV is transmitted and fear of contracting the virus (Akansel et al., 2012; Akpotor et al., 2018; Davtyan, Olshansky, & Lakon, 2018; Jacob, Von Lindeman, Klewer, & Kugler, 2016; Phillips et al., 2018; Ugoji & Agokei, 2012; Worthington et al., 2016).
- As health care providers, you are sometimes the person that works most closely with the patient who is trying to cope with living with HIV (Harding, Kwong, Roberts, Hagler, & Reinisch, 2020).

HIV/AIDS Stigma5

- Stigma associated with PLWH is considered complex because of its association with commonly marginalized groups.
- Deficient knowledge related to HIV transmission and limited or incorrect information are responsible for stigmatizing behaviors and discrimination of PLWH.
- Stigma and discrimination among some health care providers may be related to homophobia, bias against those who use intravenous drugs, or personal opinions about sexual promiscuity (Leyva-Moral et al., 2017; Ouzouni & Nakakis, 2012; Pickles et al., 2012).

HIV/AIDS Stigma6

- HIV-related stigma refer to negative beliefs, feelings and attitudes towards people living with HIV, their families, people who work with them (HIV service providers), and members of groups that have been heavily impacted by HIV, such as gay and bisexual men, homeless people, street youth, and mentally ill people (Centers for Disease Control and Prevention, n.d.a).

HIV/AIDS Stigma7

What is HIV discrimination?

- HIV discrimination refers to the unfair and unjust treatment of someone based on their real or perceived HIV status. Discrimination can also affect family and friends, and those who care for people with HIV. HIV discrimination is often fueled by myths of casual transmission of HIV and pre-existing biases against certain groups, certain sexual behaviors, drug use, and fear of illness and death. Discrimination can be institutionalized through laws, policies, and practices (Centers for Disease Control and Prevention, n.d.a).

Question

The home health nurse is making an initial home visit to the client currently living with family members after being hospitalized with pneumonia and newly diagnosed with AIDS. Which statement by the nurse best acknowledges the client's fear of discovery by his family?

- A) "Do you think that I could post a sign on your bedroom door for everyone about the need to wash their hands?"
- B) "Is there somewhere private in the home we can go and talk?"
- C) "I hope that all of your family members know about your disease and how you need to be protected, since you have been so sick."
- D) "It is your duty to protect your family members from getting AIDS."

Answer/Rationale

Answer:

- B) "Is there somewhere private in the home we can go and talk?"

Rationale:

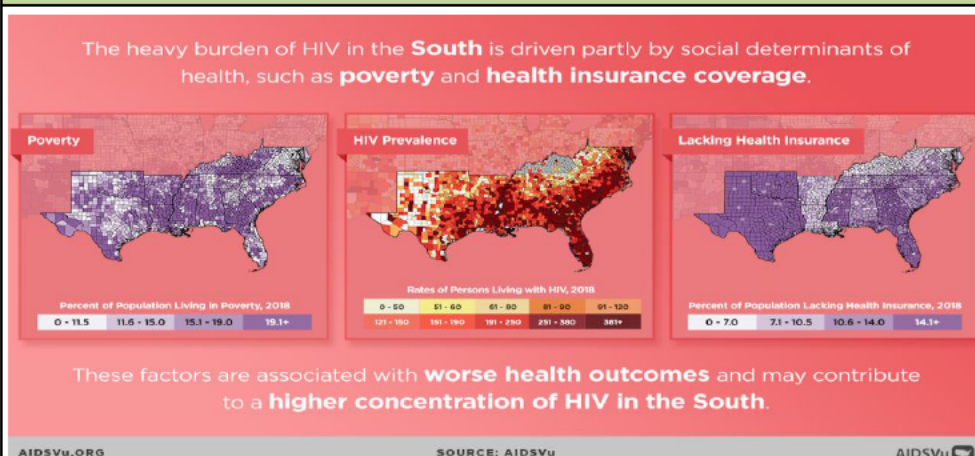
A nonthreatening approach initially to find out whether the client has informed family members or desires privacy is very important.

Video / HIV Stigma

<https://www.youtube.com/watch?v=Ig-g4FNTrP4>

(Centers for Disease Control and Prevention, 2013)

HIV Southeast



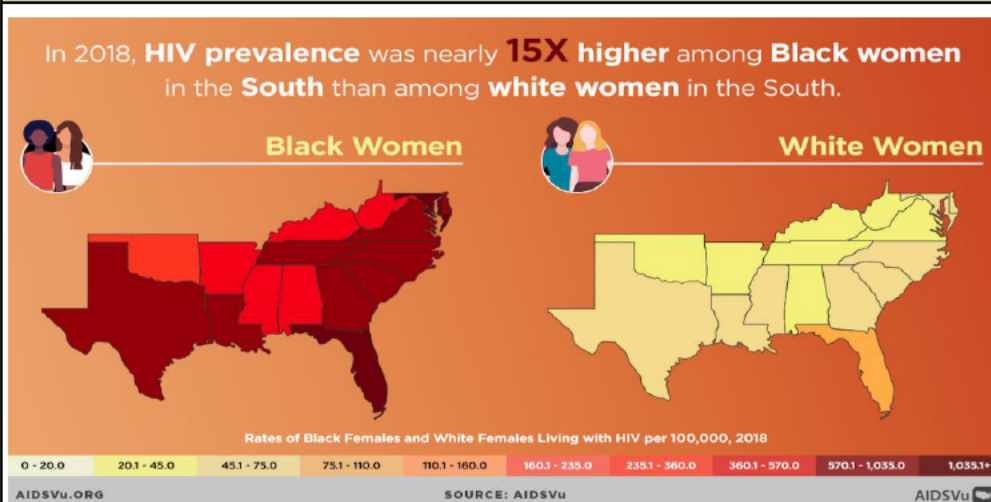
(Center for AIDS Research at Emory University, n.d.)

Video / HIV Stigma

<https://www.youtube.com/watch?v=NZ9vg-RXZUM>

(Centers for Disease Control and Prevention, 2013)

HIV Southeast



Video / HIV Stigma

<https://www.youtube.com/watch?v=Ig-g4FNTrP4>

(Centers for Disease Control and Prevention, 2013)

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II. Pathogenesis / Transmission and Prevention

PowerPoint Presentation Two

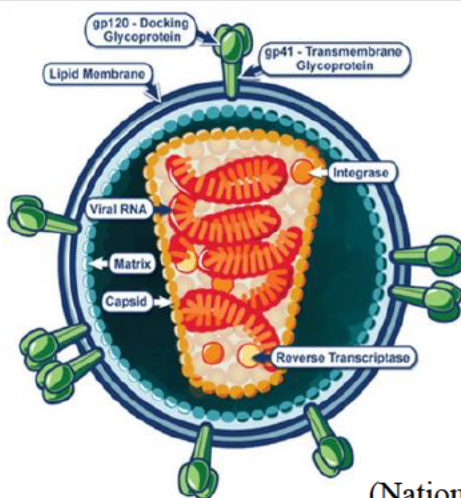
Objectives

- Discuss basic pathogenesis of HIV.
- Discuss the primary prevention of HIV in adults and neonates
- Identify transmission risks.
- Identify prevention strategies.

Pathogenesis – Questions to Consider

- How does the virus target and destroy the immune system?
- How does the virus replicates in the immune system?

Pathogenesis₂



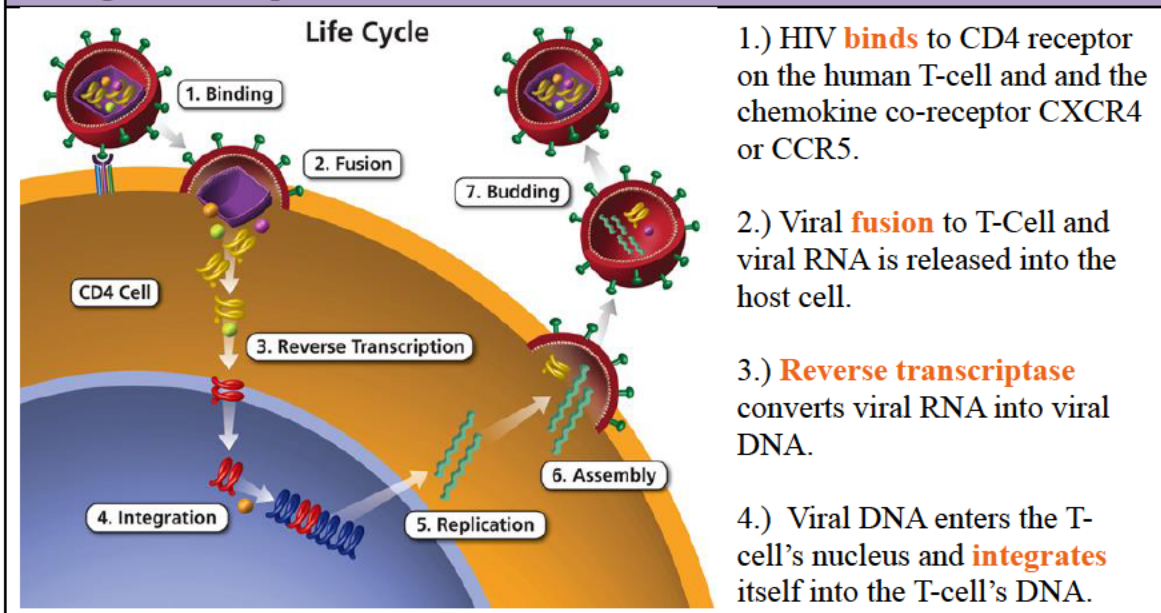
Structure of HIV

(National Institute of Allergy and Infectious Diseases, n.d.)

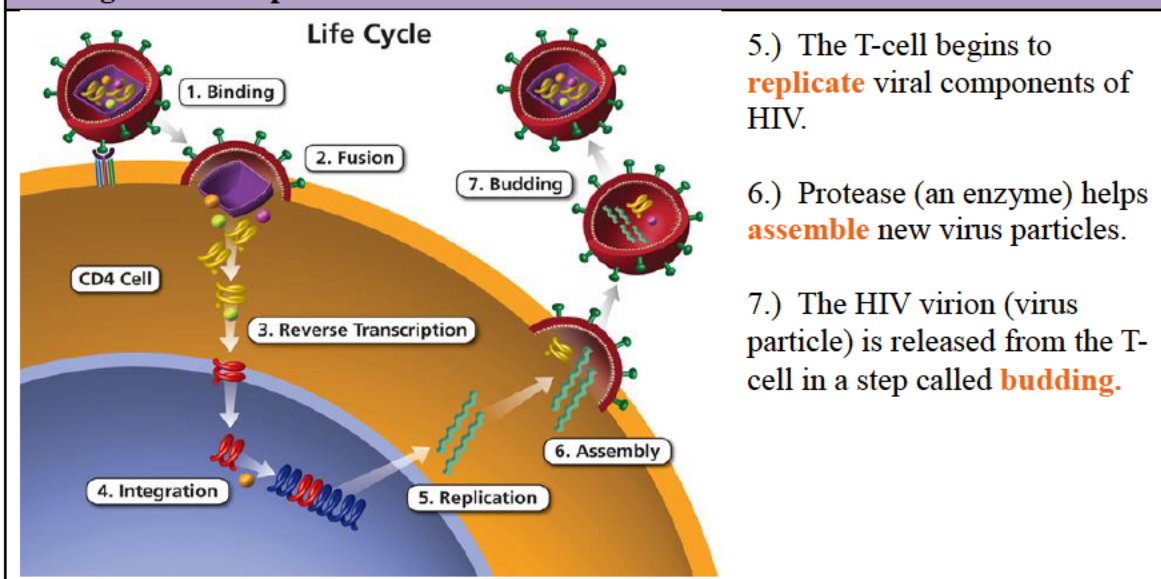
Pathogenesis3

- HIV **binds** to CD4 receptor on the human T-cell and the chemokine co-receptor CXCR4 or CCR5.
- Viral **fusion** to T-Cell and viral RNA is released into the host cell.
- **Reverse transcriptase** converts viral RNA into viral DNA.
- Viral DNA enters the T-cell's nucleus and **integrates** itself into the T-cell's DNA.
- The T-cell begins to **replicate** viral components of HIV.
- The HIV virion (virus particle) is released from the T-cell in a step called **budding**.

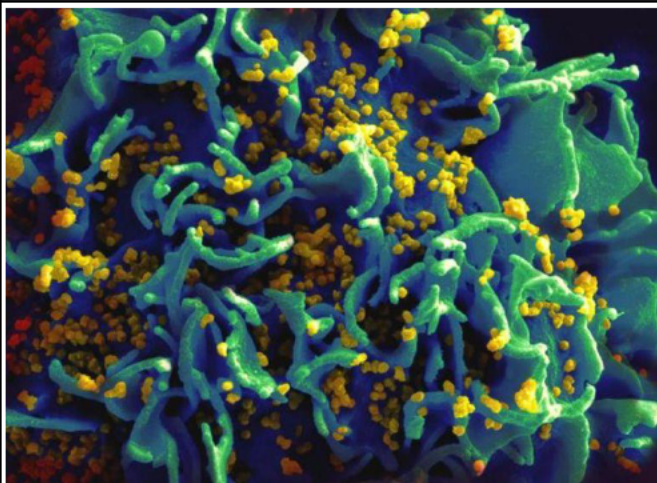
Pathogenesis4 - Replication



Pathogenesis5 - Replication



Pathogenesis – Budding HIV on CD4 Cell



Dynamics of HIV Replication

HIV destroys ~1 billion CD4+ cells daily

- Immune system can keep up at first.
- Over time the body's immune system gets overwhelmed.
- The timeline for disease progression is different in every patient.
- Treatment can significantly alter the pattern of progression.
- Creation of CD4 cells continues even in late-stage disease.
- A person's prognosis is individual.

(Harding, M. M., Kwong, J., Roberts, D., Hagler, D., & Reinisch, C., 2020)

Transmission of HIV – Questions to Consider

- How does someone contract HIV?
- Is HIV easy to contract?
- How might HIV be prevented after a known exposure?
- How do STIs increase the risk of HIV transmission?

Transmission of HIV₂

Transmission FACTS

- HIV is spread through infected blood, semen, vaginal secretions, and breast milk.
- It is not spread through casual contact!

HIV is transmitted through:

- Sex with an infected partner, who has an elevated virus count.
- HIV infected blood or blood products.
- Perinatal transmission during pregnancy, during delivery, or breastfeeding.

(Harding, M. M., Kwong, J., Roberts, D., Hagler, D., & Reinisch, C., 2020)

Transmission of HIV₃

Transmission Myths

It is **not** spread through:

- Coughing, sneezing, sharing food or drinks, hugging, shaking hands, using a toilet seat, or casual contact.

It is **not** spread through:

- Tears, saliva, urine, emesis, sputum, feces, sweat, respiratory droplets, kissing, or enteric routes.

It is **not** spread through:

- Swimming pools, hot tubs, sitting in a tub, or showering after someone.

(Harding, M. M., Kwong, J., Roberts, D., Hagler, D., & Reinisch, C., 2020)

Transmission of HIV₄

Transmission Prevention

- Abstinence
- Latex Condoms (natural lambskin condoms do not prevent HIV)
- Female condoms
- Avoid sex with multiple partners

Standard precautions such as:

- gloves when handling blood, blood products, drawing blood, starting IVs, and NEVER re-cap needles

Who should receive standard precautions?

- EVERYONE (regardless of diagnosis or presumed infections)

(Harding, M. M., Kwong, J., Roberts, D., Hagler, D., & Reinisch, C., 2020)

Transmission of HIV₅

Transmission Prevention Myths

- Pulling out before climax
- "Type" of sex does not prevent HIV
- Washing genitals after sex
- There is NO vaccine for HIV
- Menstruation does not prevent transmission
- Taking antibiotics
- Use of oil based lubricant

(Carey, M. P., & Schroder, K. E. E., 2002)

(Harding, M. M., Kwong, J., Roberts, D., Hagler, D., & Reinisch, C., 2020)

Transmission of HIV₆

Sexual

- Most common form of transmission
- Semen, vaginal secretions or blood all have lymphocytes that can contain HIV
- The receiver is always at highest risk for infection
- Trauma during sex causes and increased risk
- STD's cause increased risk due to break in mucosal surfaces

(Harding, M. M., Kwong, J., Roberts, D., Hagler, D., & Reinisch, C., 2020)

Transmission of HIV₇

Contact with Blood

- Drug paraphernalia: sharing needles, syringes, straws

Contact with Blood Products

- Screening at-risk populations
- Routine screening of blood products
- In countries with routine procedures in place, likelihood of infection for transfusion or hemophilia, unlikely

(Harding, M. M., Kwong, J., Roberts, D., Hagler, D., & Reinisch, C., 2020)

Transmission of HIV₈

Contact with Blood Products₂

- Puncture wounds are most common work-related transmission
- Risk of infection 0.3%-0.4% or 3-4/1000 persons
- Higher risk if patient has high levels of circulating virus (high viral load)
- Deep puncture wound, needle with hollow bore, and visible blood
- Splash exposure to non-intact skin some risk

(Harding, M. M., Kwong, J., Roberts, D., Hagler, D., & Reinisch, C., 2020)

Transmission of HIV₉

Perinatal Transmission

- Transmission can occur with pregnancy, delivery, and breast feeding
- Transmission has declined since 1990's
- No breastfeeding
- In countries outside the U.S. (breastfeeding on ART is acceptable)
- Risk of infection about 25% in untreated mother
- Risk decrease <2% with ART
- Mothers on ART deliver healthy babies

(Carey, M. P., & Schroder, K. E. E., 2002)

(Harding, M. M., Kwong, J., Roberts, D., Hagler, D., & Reinisch, C., 2020)

(Lowdermilk, D. L., Perry, S. E., Cashion, K., Alden, K. R., & Olshansky, E. F., 2020)

Transmission of HIV₁₀

Perinatal Transmission₂

- Transmission reduced significantly
- Universal testing for all pregnant women
- ART given to all pregnant women
- Elective cesarean after 38 weeks, especially in VL >1000 copies/mL
- No premastication
- Majority of infected infants may show signs by 1 years old
- Others may show signs later in life around age 8-10 years old

(Lowdermilk, D. L., Perry, S. E., Cashion, K., Alden, K. R., & Olshansky, E. F., 2020)

Transmission of HIV₁₁

Perinatal Transmission₃

- Children of mothers who are infected should be presumed infected, until proven otherwise
- Standard Precautions
- ART given to baby within 12 hours of life
- Mother adequately treated prenatal, labor, and birth – newborn will be treated with ART for 6 weeks
- When mother was not treated adequately, infants with need combined ART on 2-3 drug regimen.
- Counseling provided and social services may be needed

(Lowdermilk, D. L., Perry, S. E., Cashion, K., Alden, K. R., & Olshansky, E. F., 2020)

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United States Department of Health and Human Services. (2020). *HIV/AIDS Glossary: Life Cycle*. Retrieved September 6, 2020, from <https://aidsinfo.nih.gov/understanding-hiv-aids/glossary/1596/life-cycle/>

III. Acute/Chronic Infection and Diagnosis/Treatment

PowerPoint Presentation Three

Objectives

Contact with Blood Products₂

- Discuss the impact of HIV on CD4 cells and immunity.
- Compare acute & chronic manifestations of HIV.
- Define the clinical diagnosis of HIV
- Highlight treatments for HIV
- Recognize common side effects of antiretroviral therapy (ART)

Diagnosis – Questions to Consider

Contact with Blood Products₂

- How is HIV diagnosed?
- What tests can be used for diagnosis?
- Who should get tested for HIV?
- What are recommended HIV screenings (secondary prevention)?

Diagnosis - Testing

Who does the CDC recommend get tested?

- Everyone between the ages of 13 and 64 get tested for HIV at least once as part of routine health care with high risk groups getting tested more frequently
- High risk groups should get tested more often ~ 3-6 months

Why is important to get tested?

- Knowing your HIV status gives you powerful information to help you take steps to keep you and your partner healthy
- Knowing your HIV status can save your life or someone else's life

(Centers for Disease Control and Prevention, n.d.)

Diagnosis – Laboratory

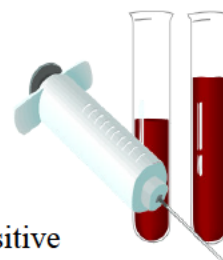
HIV “antibodies” and “antigens” test

Combination or fourth-generation test

Antigens - foreign substances that cause the immune system to activate. The antigen is part of the virus.

Antibodies - produced by the body, in the presence of infection

- Can typically detect in 18- 45 days after exposure
- This test requires a “confirmatory test” to rule out false positive
- At UMMC we use an “HIV differential test for conformation”
- Differential test identifies type of HIV I or HIV II



(Centers for Disease Control and Prevention, n.d.)

Diagnosis – Over the Counter (OTC)

Ora-Quick HIV Test

- Only home test that is FDA approved
- Test involves using an oral swab
- Follow instructions in kit to test
- Provides fast results in about 20 min
- Can typically detect in 23-90 days
- Considered an “antibody” test



(United States Food and Drug Administration [FDA], 2020)

HIV-Infection Stages

Acute HIV Infection

- Lasts 2-4 weeks (window period)
- “Seroconversion” – when HIV antibody or antigens are detectable
- Fever, fatigue, myalgias, rash, night sweats, headache, sore throat
- Most healthcare providers not testing for HIV would say, “you have something viral”
- HIV can be transmitted at any stage of infection, but risk is greater during the acute stage.

(United States Department of Health and Human Services, n.d.)

HIV-Infection Stages²

Chronic HIV Infection (Asymptomatic HIV Infection)

- Lasts approximately 10 years
- HIV continues to multiply but at very low levels
- Without treatment may last for about 10 years, but may be less time in some people

AIDS (Symptomatic HIV Infection)

- Lasts 3+ years
- Risk for opportunistic infection (OI) increases (Thrush, PCP, Shingles, Vaginal yeast infection, Kaposi Sarcoma, Burkitt's lymphoma, etc)
- CD4-cell count approx. <200 cells/mm

(United States Department of Health and Human Services, n.d.)

Diagnostic Criteria for AIDS

AIDS is diagnosed when a person with HIV develops at least one of the following conditions:

1. CD4+ T cell count drops below 200 cells/mm³. CD4+ T-lymphocyte percentage of total lymphocytes of <14%
2. One of the following opportunistic infections (OIs):
 - Bacterial: Mycobacterium tuberculosis (any site); any disseminated or extrapulmonary mycobacteria, including Mycobacterium avium complex (MAC) or Mycobacterium kansasii; recurrent pneumonia; recurrent Salmonella septicemia
 - Fungal: Candidiasis of bronchi, trachea, lungs, or esophagus; Pneumocystis jiroveci pneumonia (PCP); disseminated or extrapulmonary coccidioidomycosis; disseminated or extrapulmonary histoplasmosis

(Harding, Kwong, Roberts, Hagler, & Reinisch, 2020)

Diagnostic Criteria for AIDS₂

- Protozoal: Toxoplasmosis of the brain, chronic intestinal isosporiasis, chronic intestinal cryptosporidiosis
 - Viral: Cytomegalovirus (CMV) disease other than liver, spleen, or nodes; CMV retinitis (with loss of vision); herpes simplex with chronic ulcer(s) or bronchitis, pneumonitis, or esophagitis; progressive multifocal leukoencephalopathy (PML); extrapulmonary cryptococcosis
3. One of the following opportunistic cancers: • Burkitt's lymphoma • Immunoblastic lymphoma • Invasive cervical cancer • Kaposi sarcoma (KS) • Primary lymphoma of the brain
 4. Wasting syndrome. Wasting is defined as a loss of 10% or more of ideal body mass.

(Harding, Kwong, Roberts, Hagler, & Reinisch, 2020)

Question

The nurse is caring for a patient newly diagnosed with HIV. The patient asks what would determine the actual development of AIDS. The nurse's response is based on the knowledge that what is a diagnostic criterion for AIDS?

- A. Presence of HIV antibodies
- B. CD4+ T cell count below 200/mm³
- C. Presence of oral hairy leukoplakia
- D. White blood cell count below 5000/μl

Answer/Rationale

Answer:

- B. CD4+ T cell count below 200 cells/mm

Rationale:

Diagnostic criteria for AIDS include a CD4+ T cell count below 200/mm³ and/or the development of specified opportunistic infections, cancers, wasting syndrome, or dementia. The other options may be found in patients with HIV disease but do not define the advancement of HIV infection to AIDS.

Treatment – Questions to Consider

- Why do we treat people living with HIV?
- What does treatment accomplish?
- How do we know when treatment is working?
- When should someone be treated for HIV?

Goals of ART Treatment

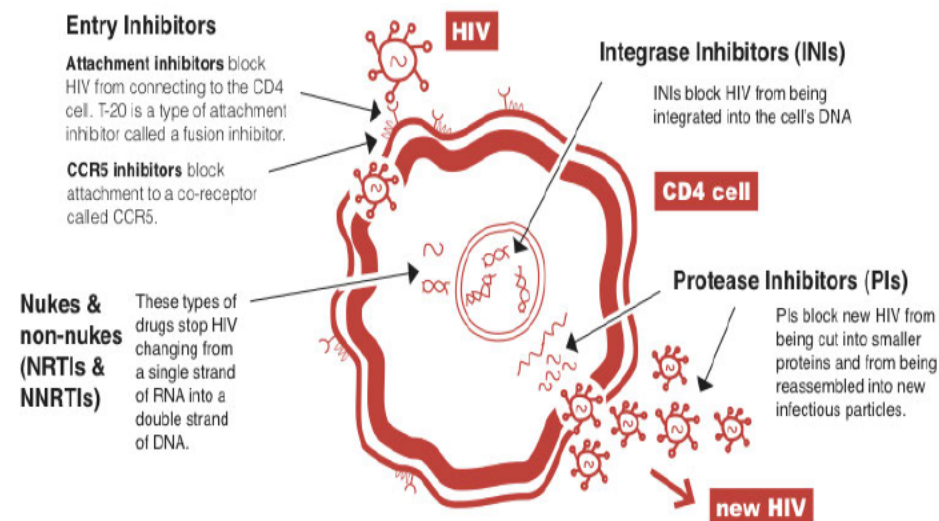
- Maximally and durably suppress HIV viral load
- Maintain or increase the CD4 cells, which restores and/or preserves immunologic function
- Prevent HIV symptoms and opportunistic infections; Reduce HIV-related morbidity; prolong duration and quality of survival
- Delay disease progression
- Prevent HIV transmission

(Harding, Kwong, Roberts, Hagler, & Reinisch, 2020)

Treatment Options		
NRTI - Nucleoside Reverse Transcriptase Inhibitors	NNRTI – Non Nucleoside Reverse Transcriptase Inhibitors	PI - Protease Inhibitors
Abacavir (Ziagen)	Delavirdine (Rescriptor)	Atazanavir (Reyataz)
Didanosine (Videx)	Efavirenz (Sustiva)	Darunavir (Prezista)
doravirine (Pifeltro)	Etravirine (Intelence)	Fosamprenavir (Lexiva)
Emtricitabine (Emtriva)		Indinavir (Crixivan)
Lamivudine (Epivir)		Lopinavir (Kaletra)
Stavudine (Zerit)		Nelfinavir (Viracept)
Tenofovir (Viread)(Vemlidy)		
Zidovudine (Retrovir)		
(Harding, Kwong, Roberts, Hagler, & Reinisch 2020)		

Treatment Options		
Integrase Inhibitor (II)	Entry Inhibitor	CCR5 Antagonist /Entry Inhibitors
Bictegravir* (BIC)	Enfuvirtide (Fuzeon)	Maraviroc (MVC)
Dolutegravir (Tivicay)	Attachment Inhibitor	
Elvitegravir* (EVG)	ibalizumab-uiyk (Trogarzo)	
Raltegravir (Isentress)		
* EVG currently available only in co-formulation in Genvoya and Stribild	* BIC currently available in co-formulation in Biktarvy	
(Harding, Kwong, Roberts, Hagler, & Reinisch, 2020)		

How HIV Medications Work



Adherence

What is drug resistance?

- Drug resistance can develop as HIV multiplies in the body
- The virus sometimes mutates and makes variations of itself.
- HIV medicines that used to suppress the person's HIV do not work anymore.
- Skipping HIV medicines allows the virus to multiply, which increases the risk of drug-resistant HIV developing.

(United States Department of Health and Human Services, 2020)

Adherence₂

Why is medication adherence sometimes difficult?

- Side effects from interactions between HIV medicines and other medicines
- Common side effects – Nausea, vomiting, diarrhea, stomach pain
- Trouble swallowing pills or other difficulty taking medicines
- A busy schedule, shift work, or travel away from home that makes it hard to take medicines on time
- Illness or Depression, Mental Illness
- Alcohol or Drug abuse that interferes with the activities of daily life
- Fear of disclosing one's HIV-positive status to others
- Lack of health insurance to cover the cost of HIV medicines

(United States Department of Health and Human Services, 2020)

Improving Adherence

- Trust in the health care provider (Nurse/HIV provider) (Harding, Kwong, Roberts, Hagler, & Reinisch, 2020)
- Use a 7-day pill box. Once a week, fill the pill box with your HIV medicines for the entire week.
- Take your HIV medicines at the same time every day.
- Set an alarm on your cell phone to remind you to take your medicines. You can also download the *AIDSinfo* Drug Database app to bookmark your HIV medicines, make notes, and set daily pill reminders.

(United States Department of Health and Human Services, 2020)

Improving Adherence₂

- Ask a family member or friend to remind you to take your medicines.
- Plan ahead for changes in your daily routine, including weekends and holidays. If you're going away, pack enough medicine to last the entire trip.
- Use an app or an online or paper medicine diary to record each medicine as you take it. Reviewing your diary will help you identify the times that you're most likely to forget to take your medicines.
- Keep all of your medical appointments. Be sure to refill your prescriptions before you run out of HIV medicines.

(United States Department of Health and Human Services, 2020)

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IV. PLWH Patient Panelists

Face-to-face Questions with Patient Panelists

Patient Panelists

Patient panelists were asked before the lecture to volunteer to share their knowledge of HIV and what it is like to live as an HIV positive person. Students submitted questions after the second PowerPoint presentation. The instructor facilitated the interaction by asking questions and allowing volunteer patient panelists to answer the questions that they were comfortable answering. Student submitted ample questions are listed below.

- I guess I would want to know how they approach dating or marriage after their diagnosis.
- Do they find this to be difficult to discuss with a new partner?
- Is it something you would bring up immediately or do you have a few dates and then bring this up?
-
- What resource(s) have been most beneficial to you since your diagnosis?
- What would you teach others about HIV?
- How has your life changed since your diagnosis?
- What were your first clinical manifestations of HIV?
- Has having HIV affected your quality of life significantly? In what ways has it altered your daily activities?
- Have you been treated differently by friends, family members, co-workers, etc.?
- If so, how have you overcome the negative stigma associated with HIV?
- What is the hardest part about living with your diagnosis?
- What is something that you want healthcare providers to know about your condition and about how you want to be treated?
- What do you experience as the main "stigma" from the general public?
- I believe people don't know what they don't know, and education is so important to helping people understand (about anything really!). I'd love to hear from the panel some of the things they've encountered from others.
- What is an example when you feel comfortable to reveal your diagnosis to someone?

APPENDIX I

Invitation to Teach – Rhodes, PhD



School of Nursing
2500 North State Street • Jackson, Mississippi 39216
Phone: 601.984.6200

March 16, 2021

To James Miller:

Thank you for teaching the HIV content last year in the N413-3 course. If you are available, we would love to have you be a guest speaker again this fall.

Thanks for your consideration.

Sincerely,

Kathy Rhodes

Kathleen Rhodes, Ph. D., RN, FNP-C
Assistant Professor
School of Nursing
University of Mississippi Medical Center
2500 N State St., Jackson, MS 39216

APPENDIX J

Confirmation to Teach – Stephens-Gibson, DrPH

From: James S. Miller
Sent: Friday, March 19, 2021 1:46 PM
To: Sherry Stephens-Gibson
Subject: RE: HIV 101 Conference

Thanks Sherry. I will be all wrapped up and can present final data on June 30th for a Webinar.

Thanks, Jim

From: Sherry Stephens-Gibson
Sent: Friday, March 19, 2021 1:44 PM
To: James S. Miller
Subject: RE: HIV 101 Conference

Hi James,

I hope you are well.

Yes, I would love for you to present. If you want to present preliminary data by June 30, 2021, I can schedule a webinar. If not, I look forward to working with you this fall.

Thanks so much,
 Sherry

From: James S. Miller
Sent: Monday, March 15, 2021 2:42 PM
To: Sherry Stephens-Gibson
Subject: HIV 101 Conference

Sherry,

My doctoral chair, Elizabeth Franklin, was speaking to Vickie Skinner today and after their conversation, they recommended that I contact you. I have taught multiple times for the AETC, HIV 101 Conference. I believe that you had reached out to me to teach prior to COVID, but the conference was cancelled.

I am in the midst of completing my doctor of health administration (DHA), which is focused on HIV stigma and knowledge. I taught at the UMMC school of nursing with an aim to increase knowledge and reduce stigma and discrimination.

The results of the doctoral project revealed a significant increase in knowledge related to basic HIV transmission and prevention while four questions showed a student's felt more compassion for people living with HIV (PLWH). If you are interested, I would like to present the findings of the doctoral project in the HIV 101 Conference in the fall.

Thanks for considering. I promise that I will make the data entertaining, as I know that data can be a bit boring.

Sincerely,

Jim

James Miller, MSN, FNP-C
Director of Nursing - Medical Surgical Units
Children's of Mississippi, University of Mississippi Medical Center
2500 North State Street
Jackson, MS 39216

umhc.edu

APPENDIX K

Doctoral Poster



Educational Intervention to Reduce Stigma of Nursing Students Toward People Living with HIV

James Miller, MSN, RN; Elizabeth Franklin, PhD

Doctor of Health Administration

University of Mississippi Medical Center School of Health Related Professions



BACKGROUND

- Since the discovery of human immunodeficiency virus (HIV) in 1981, more than 74 million people worldwide have been infected, and 32 million have died from acquired immunodeficiency syndrome (AIDS)-related illnesses (Markel, 2020).
- With advances in antiretroviral therapy (ART), people living with HIV (PLWH) are living longer than before (Fitch, 2019; Gallant et al., 2017) and have a higher risk of developing heart disease, kidney disease, liver disease, osteopenia, osteoporosis, and cancers that are not related to their HIV/AIDS diagnosis (Fitch, 2019; Lerner et al., 2020).
- Stigma is defined as a characteristic or element that is viewed negatively by the public (Holzemer et al., 2009). Additionally, stigma associated with HIV and AIDS remains a barrier to health care and may cause poor health outcomes due to the avoidance of clinical care (Christopoulos et al., 2018).
- People living with HIV who are not engaged in routine clinical care and have sustained elevated levels of virus create a nationwide health concern that places uninfected sexual partners at a higher risk of HIV infection. It is estimated that greater than 60% of new infections stem from those patients who have been lost-to-care and are not taking ART (Colasanti, Stahl, Farber, Del Rio, & Armstrong, 2017).

Problem

- HIV transmission rarely occurs from patient to healthcare provider, but there may be fear of contracting HIV/AIDS. The perceived fear might originate from inadequate knowledge and may perpetuate stigma/discrimination.
- Many health care providers, including nurses, may not be provided educational opportunities to increase knowledge of HIV and practice unbiased care, which could perpetuate stigma or discrimination through inappropriate actions or words.

PURPOSE

To determine if a comprehensive supplemental educational intervention for accelerated pre-licensure nursing students, provided by an HIV nurse practitioner with panels living with HIV, produces a significant increase in basic HIV transmission/prevention knowledge and a significant difference in attitudes, perceived discrimination, and equitable treatment for PLWH.

METHODS

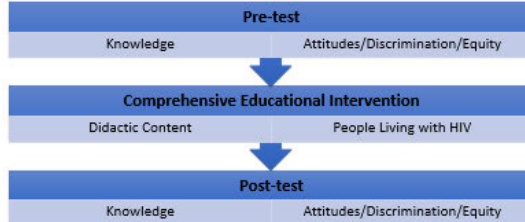


Figure 1. The investigation used a pre-test for baseline measurements of nursing student's prior HIV transmission knowledge, HIV prevention strategies, attitudes, perceived discrimination, and beliefs regarding health and social equity for PLWH. An educational intervention was implemented during the investigation to provide the students with a comprehensive supplemental HIV/AIDS educational intervention by an HIV nurse practitioner and interaction with PLWH. The same assessment was used as the post-test to determine any significant difference from baseline pre-test scores.

EDUCATIONAL INTERVENTION



Figure 2. This photo was taken during the comprehensive educational intervention. The photo shows the instructor (far left) and patient volunteer panelists. Students submitted questions prior to the session and the instructor facilitated the panel discussion by asking questions anonymously.

RESULTS

Eighteen questions measured HIV knowledge and each counted one point. The mean pre-test and post-test was 13.83 and 17.37, respectively. The mean difference was 3.54. The resulting p -value from a paired t -test was less than 0.001, which shows a highly significant improvement. Additionally, student responses on four questions regarding attitudes, discrimination, and health and social equity resulted in a significant difference, which suggested that students' level of empathy for PLWH increased.

Total Instrument Score	Pre-test Mean	Post-test Mean	Mean Difference	P-value
Calculations	13.83	17.37	3.54	Less than 0.001

Figure 3. These calculations illustrate a significant increase in knowledge related HIV transmission and HIV prevention after the comprehensive educational intervention and interaction with patients living with HIV. The level of significance was set at $\alpha \leq 0.05$, which is commonly used.

CONCLUSION

- Is there a significant increase in the knowledge level of accelerated pre-licensure nursing students regarding HIV transmission and HIV prevention strategies after completion of a comprehensive supplemental educational intervention?
- Yes. Students realized a significant increase on knowledge related to HIV transmission and prevention.
- Is there a significant difference in accelerated pre-licensure nursing student's attitudes, perceived discrimination, and the health and social equity of PLWH after completion of a comprehensive supplemental educational intervention?
- Four questions regarding attitudes, discrimination, and health and social equity revealed a significant difference, which suggests that overall students' level of empathy for PLWH increased.

IMPLEMENTATION

- "H is for Human" Instructor's Guide: Includes learning objectives, case studies, audiovisual links, and all didactic content that was created by the investigator to assist health care programs at UMMC to augment basic knowledge of HIV transmission, prevention strategies, and bias and discrimination against PLWH and LGBTQ persons.
- Invitation from School of Nursing: The UMMC SON has invited the investigator to teach the Immunity Module in the fall semester 2021.
- Invitation from Mississippi AIDS Educational Training Center: To present data findings on June 30, 2021 in Webinar. Potential opportunity to teach in HIV 101 course for nurses, nurse practitioners, and social workers in fall of 2021.
- Online Development for Co-curricular Catalog at UMMC: Academic Affairs is planning to develop a list of self-paced independent learning opportunities for students in all schools at UMMC. Students who participate in co-curricular learning have the opportunity to advance their knowledge about topics that may not be included in their formal curriculum.
- IPE: Interprofessional Education development for students currently enrolled at UMMC through co-curricular courses.

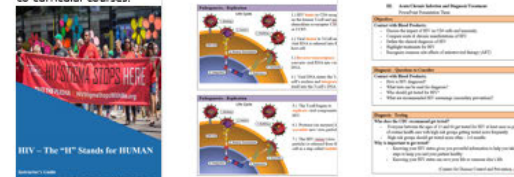


Figure 4. Shows the cover and sample information included in the Instructor's Guide, which aims to provide the educational format and all content to make the course easily reproducible for any audience of health professionals.

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Acknowledgements: Doctor of Health Administration Doctoral Committee and University of Mississippi Medical Center School of Nursing

APPENDIX L
Fair Use Statement



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Chair, Doctor of Health Administration Advisory Committee

April 27, 2021

Date

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