HIV TESTING IN AN URGENT CARE SETTING: PSYCHOSOCIAL DISORDERS AND CLINICAL CHARACTERISTICS

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ABSTRACT

SANDRA KAY SANTUCCI: HIV TESTING IN AN URGENT CARE SETTING: PSYCHOSOCIAL DISORDERS AND CLINICAL CHARACTERISTICS
(Under the direction of Diane Kjervik)

An estimated 26% of the U.S. population over the age of 18 is diagnosed with one or more psychosocial disorders. The prevalence of psychosocial disorders related to HIV infection in the U.S. is unknown. The purpose of this study was to describe the characteristics of psychosocial disorders in patients tested for HIV infection in an urgent care center (UCC). There are gaps in the literature that must be examined before a determination of HIV infection related to psychosocial disorders is statistically significant and, if so, the strengths of those relationships. However, if there is a strong and significant relationship between psychosocial disorders and HIV infection, then targeting patients with diagnosed psychosocial disorders, or a psychosocial disorder discovered at the time of an UCC visit, might prove important in the detection and prevention of HIV infection.

Data abstracted from 414 medical records of patients tested for HIV were used to describe psychosocial disorders. Findings of this study indicate that HIV infection was more prevalent among UCC patients with psychosocial disorders compared to patients without psychosocial disorders. The prevalence of HIV infection associated with high-risk behaviors suggests that health care providers should consider psychosocial disorders as predictors of HIV infection with the same weight given to high-risk behaviors.
DEDICATION

I dedicate this dissertation to my daughter Ariana, who has endured and supported me in more ways than I can possibly mention, and to my husband David for his support during this journey. This dissertation is also dedicated to my aunt Carole, who has been an anchor throughout my life.

Additionally, I dedicate this dissertation to all the people who have died from AIDS and will die before HIV infection is eliminated.
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# TABLE OF CONTENTS

LIST OF TABLES............................................................................................................................................x
LIST OF FIGURES............................................................................................................................................xi

CHAPTER ONE: INTRODUCTION.................................................................................................................1
  Problem Statement...............................................................................................................................2
  Significance of HIV Infection in Nursing............................................................................................3
  Contextual Factors..............................................................................................................................5
  Assumptions..........................................................................................................................................6
  Purpose and Research Questions........................................................................................................7

CHAPTER TWO: LITERATURE REVIEW....................................................................................................9
  Psychosocial Disorders..........................................................................................................................9
    Depression..........................................................................................................................................12
    Criminal Behavior (Incarceration).......................................................................................................14
    Physical Abuse.................................................................................................................................16
    Sexual Abuse.....................................................................................................................................17
    Emotional Abuse.............................................................................................................................17
    Substance Abuse..............................................................................................................................18
  Sexually Transmitted Infections.............................................................................................................21
  Poverty................................................................................................................................................22
  Characteristics of Individuals Targeted for HIV Testing......................................................................24
  HIV Testing in an Urgent Care Center....................................................................................................25
  Conceptual Framework..........................................................................................................................28
  Behavioral Model of Utilization (BMU).................................................................................................30
Research Question 3..........................................................................................58
Research Question 4..........................................................................................60
Null Hypotheses.................................................................................................62
Summary...............................................................................................................64
CHAPTER FIVE: DISCUSSION AND CONCLUSIONS..............................................66
Findings...............................................................................................................66
Conceptual Framework.........................................................................................66
Study Results........................................................................................................67
Demographics.......................................................................................................68
Sexually Transmitted Infections...........................................................................70
Signs and Symptoms of HIV Infection...............................................................70
Psychosocial Disorders.........................................................................................71
  Physical Abuse..................................................................................................71
  Emotional Abuse...............................................................................................72
  Sexual Abuse....................................................................................................72
  Substance Abuse...............................................................................................73
  Criminal Behavior (Incarceration). .................................................................73
  Depression........................................................................................................74
Gaps in the Literature..........................................................................................74
Limitations............................................................................................................75
Future Research...................................................................................................75
Conclusions..........................................................................................................77
APPENDICES........................................................................................................78
A  Definitions.......................................................................................................78
B  IRB Approval and HIPAA Waiver of Research Consent.................................80
C  IRB Renewal and Approval..............................................................................82
D  Codebook........................................................................................................87
LIST OF TABLES

Table

1. Risk Factors that Indicate HIV Testing of Individuals Incarcerated Six Months or Longer ......................................................... 16

2. Signs and Symptoms that Prompt HIV Testing in Urgent Care Centers ........ 26

3. Exclusion Criteria of HIV Tested Patients ........................................ 42

4. Demographic Characteristics in Relation to HIV Serostatus .................. 51

5. Psychosocial Disorders by HIV Serostatus ...................................... 52

6. Sexually Transmitted Infections by HIV Serostatus .......................... 53

7. Signs and Symptoms of HIV Infection by HIV Serostatus .................. 54

8. Psychosocial Disorders Adjusted for Age, Race, and Sex ..................... 57

9. HIV Positive Patients and STIs by Psychosocial Disorders .................. 58

10. Demographics by Patient Requested or Provider Suggested HIV Testing .................................................................................. 59

11. Psychosocial Disorders and STIs by Patient Requested or Provider Suggested HIV Testing ........................................................ 60

12. Demographic Variables by Patient Requested or Provider Suggested HIV Testing in HIV Positive Patients ........................................ 61

13. Psychosocial Disorders and STIs by Patient Requested or Provider Suggested HIV Testing in HIV Positive Patients ......................... 62

14. Psychosocial Disorders by Patient Requested or Provider Suggested HIV Testing ........................................................................ 63
LIST OF FIGURES

Figure

1. Schematic of Patient Characteristics and Pathway of HIV Testing in an Urgent Care Center.................................................................27
2. Original Behavioral Model of Utilization..................................................31
3. Original AIDS Risk Reduction Model.........................................................36
4. Integration of the Behavioral Model of Utilization (BMU) and the AIDS Risk Reduction Model (ARRM)........................................38
5. Construct Variables of Synthesized Model.................................................38
CHAPTER I
INTRODUCTION

Each year, approximately 56,300 Americans are diagnosed with HIV infection. In fact, every 9½ minutes someone in the United States is infected with HIV (Centers for Disease Control and Prevention [CDC], 2009a). Approximately 25% of the 1.2 -1.3 million people with HIV infection in the U.S. are unaware of being infected and approximately 20% of people who know that they are HIV positive are not receiving care and prevention services. Undiagnosed HIV positive individuals are responsible for 54%-70% of the 56,300 new infections annually (CDC, 2008a). Of the total U.S. HIV infections, 25% to 27% are detected in urgent care centers or emergency departments (EDs) when patients present with illnesses that are historically seen in advanced HIV infection or AIDS. Liddicoat, Horton, Urban, Maier, Christiansen, and Samet (2004) report that approximately 67% of HIV positive subjects in their study were not HIV tested despite numerous clinical encounters for illnesses such as diarrhea, respiratory infections, fevers of unknown origin, or night sweats. The CDC continually emphasizes the need for comprehensive testing to discover new HIV infections and the importance of bringing people into care immediately after they test positive. Comprehensive testing decreases the transmission of HIV infection and allows timely physical and psychological evaluations. Although the CDC recommends HIV testing of everyone, ages 13 years to 64 years, at all points of entry into health care, this is not being
done because policies and other structural supports are not in position to encourage routine testing at all health care sites (CDC, 2006).

An estimated 26% of the United States population over the age of 18 is diagnosed with one or more psychosocial disorders (Hammond & Treisman, 2007; Meade & Sikkema, 2007). Psychosocial disorders relevant to this study include physical, sexual, and emotional abuse; substance abuse; criminal behavior (incarceration), and depression (Appendix A). In addition to the biological bases of some of these disorders, other factors believed to contribute to psychosocial disorders are: (a) poverty, (b) lack of education, (c) peer pressure, and (d) conditional interpersonal relationships (Maughan & McCarthy, 1997). Individuals who endure psychosocial disorders frequently have difficulty communicating effectively in social situations and have a lower capacity to deal with everyday life challenges than the general population (Lyon, 2001; Meade & Sikkema, 2007; Senn & Carey, 2009).

**Problem Statement**

Research suggests the importance of testing people with psychosocial disorders for HIV infection; however, little effort has been put forth to assess the magnitude of infection in this population (Senn & Carey, 2009; Liddicoat, Horton, Urban, et al., 2004; Wainberg, McKinnon, Mattos...Cournos, 2007). Individuals known to engage in high-risk sexual activities and injection drug abuse are targeted for HIV testing, whereas individuals with other psychosocial disorders are not high priority for HIV testing. Senn and Carey (2009) report that individuals with psychosocial disorders have a higher prevalence (3%-23%) of HIV infection compared to individuals in the general adult population (0.3%-0.43%); however, the true prevalence of HIV infection in people with psychosocial disorders is
unknown. Psychosocial disorders are often difficult to diagnose because the characteristics of the disorders have a tendency to overlap and the disorders are not well defined.

Beyer, Taylor, Gersing, and Krishnan (2007) report that a retrospective data review from 2001–2004 of outpatients who attended mental health care clinics showed a prevalence of 1.2% HIV infection, which is three to four times higher than HIV in the general U.S. population of 0.47% (CDC, 2006). However, residents in psychiatric hospitals, jails, prisons, and homeless shelters are not routinely tested for HIV infection even though those populations are believed to have a higher incidence of psychosocial disorders than the general population (Beyer, et al., 2007).

**Significance of HIV Infection to Nursing**

The first diagnosed AIDS cases in the United States date back to 1981. In 1984, researchers in the U.S. and France discovered HIV as the cause of AIDS. Patients diagnosed with AIDS during the early 1980s had a life span of approximately six months to one year (Roberts, 1994). Today HIV infection is a chronic condition that depends on evolving bench and clinical research to provide novel and better strategies to prevent transmission of the infection and to ensure that individuals already infected receive adequate care. Advanced practice nurses often specialize in a particular field of nursing for which they have broad-based fundamental proficiencies and experience. Those nurses are well suited to manage HIV health services because they are prepared to interpret and implement evidence-based findings, assess laboratory results, prescribe medications, and educate patients on primary and secondary HIV prevention measures.

Nurses who realize the devastation of HIV infection and other STIs among people with psychosocial disorders have opportunities to develop strategies for HIV prevention. An
understanding of psychosocial disorders, the behaviors associated with each, and how they contribute to HIV infection, will expand the knowledge of nurses working with HIV infected patients. Nursing research, with a focus on the correlation between HIV infection, psychosocial disorders, other STIs, and patient demographics could add substantially to HIV evidence-based nursing knowledge. This study has the potential to provide advanced practice nurses in the HIV care milieu with vital information about the impact of HIV screening of patients with psychosocial disorders in an urgent care setting.

**HIV Infection and Testing**

HIV infection is a chronic disease that produces many ongoing stressors such as financial dependence, physical and psychological discomfort, physical deterioration, and a shortened life span, comparable to other long-term illnesses. Senn and Carey (2009) indicate that individuals who are chronically ill experience a higher prevalence of psychosocial disorders (30% -50%) compared to the general population (15% -30%).

Even though testing is a key component of HIV prevention efforts, actual testing was not necessary to diagnose HIV infection until 2009. Now, in addition to CD4 cell counts or opportunistic infections, testing is required for a definitive diagnosis of HIV infection (CDC, 2009a). In 2008, CDC revised the HIV infection classification stages and the AIDS defining illnesses into one category that delineates the progression of HIV according to CD4+ T-lymphocyte counts or opportunistic infections (CDC, 2008b).

Health care providers usually think of HIV disease process in stages of severity supported by clinical markers such as CD4 cell count changes, generalized symptoms including lymphadenopathy, rashes, diarrhea, or opportunistic infections. Although the HIV disease process is a continuum of increasing severity, not all HIV patients progress to AIDS
at the same rate. There are four stages of HIV disease progression, increasing in severity from stage one through stage three (CDC, 2008b). Stages 1 and 2 have CD4+ T-lymphocyte counts ranging from 200 to $\geq 500$ cells/µL and no AIDS-defining conditions. Stage 3 includes a CD4+ T-lymphocyte count of $<200$ cells/µL or an AIDS-defining illness such as candidiasis, pneumonia, or Kaposi’s sarcoma, among others. Individuals in stage four are HIV positive; however, CD4+ T-lymphocyte counts and AIDS-defining conditions are unknown (CDC, 2008a). HIV infection has progressed to AIDS when CD4+ T cell counts fall below 200 per µL or an AIDS defining illness is evident (CDC, 2008b). Many clinicians describe HIV infection according to the expected duration of each stage. For example, 1) acute, which lasts approximately three months including seroconversion at one to three weeks and the initial production of HIV antibodies around month three, 2) asymptomatic, begins around month three and lasts an average of seven years, 3) symptomatic, which is observed from approximately seven years to 10 years after initial infection, and 4) the final stage, AIDS, which manifests anywhere from seven to 10 years and lasts one year to two years, or longer if patients are receiving HIV treatment (Eaton & Kalichman, 2009).

**Contextual Factors**

HIV is readily transmitted among individuals who engage in high-risk sexual behaviors, such as sex without condoms, sex with multiple partners, or partners who have sex with HIV infected people, especially in poor communities where HIV testing and health care services are not available (Fauci, 2010; Kantor, 2006). Lowering the transmission rate of HIV infection is difficult when people at high-risk for the virus do not have the correct information or materials to prevent contracting or transmitting the virus to others. Lifestyles and high-risk behaviors, such as sex with multiple partners, sex for trade, or injection drug
abuse were triggers for HIV testing from the onset, and still are to a large degree. Injection
drug use is a direct means of HIV infection, especially on the streets and in jails and prisons
where HIV is widespread and sterile injection equipment is not available. Communities of
low socioeconomic status with high crime rates experience an elevated prevalence of HIV
infection compared to communities with lower crime rates (Health Resources and Services
[HRSA], 2007). There is little information about the willingness of people with chronic
psychosocial disorders to be tested for HIV, even though many engage in behaviors that are
high-risk for HIV infection and are in settings where time and expenses are not prohibitive to
testing (Gallego, Gordillo, & Catalan, 2000; Senn & Carey, 2009; CDC, 2009).

Assumptions

Initially, AIDS was a disease of gay men and injection drug users. The ingrained
images of the first AIDS patients seen in the media remain in the minds of many who
propagate the assumption that HIV infection is a disease of an abnormal sexual orientation
and ‘different’ people. Arthur Ashe (athlete), Rock Hudson (actor), Amanda Blake (actress),
Liberace (musician), Rudolf Nureyev (ballet dancer), Michael Foucault (philosopher and
professor), and Ryan White (10 year-old student) are a few of many publicly known
individuals who died from AIDS, demonstrating that HIV is unbiased in terms of race,
gender, social status, and sexual orientation. HIV infection is a pandemic seen in all
populations spanning the globe.

Another assumption is that HIV can be treated with medications that will sustain
health and well-being until the normal life expectancy of 78 years (Central Intelligence
Agency [CIA], 2009). Life years gained in HIV positive individuals depends on the stage of
HIV infection when treatment begins. New antiretroviral drugs introduced before CD4 cell
counts dropped to less than 200 cells/µL added approximately 20 years to the lifespan of HIV infected individuals (Justice, 2010).

Individuals infected with HIV usually appear healthy for approximately five to eight years into the disease process, which leads many people to believe that healthy-looking individuals are not infected with HIV. Without the correct information, or an understanding of the HIV disease process, engagement in high-risk activities remain somewhat common among people who believe they can determine whether a person has HIV infection simply by body appearance (CDC, 2007; United Nations [UN], 2010). HIV infected individuals can transmit the virus from day one of infection, regardless of a healthy appearance, and, in fact, there is a higher viral load shortly after infection than any other stage of the disease progression (Pilcher, Tien, Eron,...Cohen, 2004).

Psychosocial disorders are known to play a role in HIV infection; however, many providers assume that individuals with psychosocial disorders are not sexually active. According to Perry and Wright (2006), 44% - 80% of outpatients with psychosocial disorders do engage in sexual encounters, most of which are unprotected and are high-risk for HIV infection.

**Purpose and Research Questions**

The purpose of this study is to describe the psychosocial disorders and clinical characteristics of patients tested for HIV in an urgent care center. While the HIV literature supports a theory that people with psychosocial disorders have higher proportions of HIV infection than the general population, individuals with psychosocial disorders are not routinely tested for HIV compared to patients with overt signs and symptoms of HIV infection. Even though research has uncovered significant relationships between HIV
infection and psychosocial disorders, there are gaps in the literature that indicate more research is necessary to ascertain whether relationships actually exist and, if so, the strength of those relationships.

Therefore, research questions to consider are:

1. What are the differences between demographic characteristics, psychosocial disorders, STIs, and signs and symptoms of HIV infection of patients who test HIV positive or HIV negative?

2. What are the relationships among HIV seropositivity, psychosocial disorders, STIs, and demographics of patients tested for HIV?

3. What differences in psychosocial disorders, STIs, demographic variables exist between patients who request an HIV test and patients tested for HIV at the request of a health care provider?

4. What differences in psychosocial disorders, STIs, and demographic variables exist between HIV seropositive patients who request an HIV test and patients tested at the request of a health care provider?
Chapter II

Literature Review

Even though HIV infection is more prevalent among individuals with psychosocial disorders than those without psychosocial disorders are, reasons for testing do not reflect this fact. The number of people targeted for HIV testing because of high-risk sexual activity, STIs, and demographic characteristics outweigh the number of individuals tested because of psychosocial disorders. The purpose of this study is to describe the psychosocial disorders and clinical characteristics of patients tested for HIV in an urgent care center. This chapter will present a literature review of: 1) psychosocial disorders associated with HIV infection, 2) STIs associated with HIV infection, 3) characteristics of individuals targeted for HIV testing and, 4) testing in an urgent care setting. The synthesized conceptual framework for this study will then be presented with definitions of the terms relevant to each concept of the model.

Psychosocial Disorders

‘Psychosocial disorder’ is a term common throughout recent literature to describe categorized disorders (Axes) in the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision (DSM-IV-TR). There are five Axes: 1) clinical disorders, 2) personality disorders and mental retardation, 3) general medical conditions, 4) psychosocial and environmental problems, and 5) the Global Assessment of Functioning (GAF), which is used to subjectively rate the functioning of adults. Disorders classified on Axis I, depression and substance abuse, and on Axis IV, physical, sexual, emotional abuse, and criminal
behaviors (incarceration) are the psychosocial disorders for exploration through this research. Several other psychosocial disorders are noted in the medical records of the study sample; anxiety, bipolar disorder, OCD, panic attacks, schizophrenia, and social phobias; however, they are not included in this study for statistical analyses because the numbers are too small and these disorders are difficult to diagnose during a one-time visit.

Psychosocial disorders described in this study are grounded on the DSM-IV-TR and a review of literature published after the DSM-IV-TR was established in 2000 (American Psychiatric Association [APA], 2000). The Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) (1994) provides a classification of mental disorders based on empirical research through 1992. Findings from a literature review subsequent to 1992 necessitated updates to the manual; however, there were no changes or additions to the disorders or subsets of the disorders. ‘Text Revision (TR)’ was added to the DSM-IV title (2000) because the text of the manual was updated to show new, or different, characteristics of the disorders. The DSM-IV-TR (2000) asserts that psychosocial and environmental problems indicated on Axis IV may have an effect on already diagnosed mental disorders. Negative life events, inadequate social support or lack of personal resources, or other problems related to the context in which an individual’s difficulties have developed play a role in the initiation or exacerbation of psychosocial and environmental problems (pp 41-42). An online medical dictionary defines psychosocial disorder as a mental illness caused or influenced by life experiences, as well as maladjusted cognitive and behavioral processes (Online Medical Dictionary, 2011). Depression, criminal behavior (incarceration), physical, sexual, emotional, and substance abuse (illicit drugs and alcohol) are psychosocial disorders
most often associated with HIV infection (Hammond & Treisman, 2007; Kantor, 2006; Penzak, Reddy, & Grimsley, 2000; Gallego, Gordillo, & Catalan, 2000; CDC, 2010).

Throughout the HIV literature are discussions concerning the contribution of psychosocial disorders to the increased rate of HIV transmission; however, extant evidence does not conclude whether psychosocial disorders are associated with an elevated risk of HIV infection or whether people diagnosed with HIV infection have a greater risk of psychosocial disorders (Hammond & Treisman, 2007; Walkup, Satriano, Barry et al., 2002; Blank, Mandell, Aiken, et al., 2002). HIV positive patients are believed to experience psychosocial disorders at some point along the continuum of the infection; however, the exact prevalence of any psychosocial disorder at a given stage is unknown. Throughout the literature are reports of psychosocial disorders diagnosed in HIV positive patients, many are categorized according to sexual orientation, gender, or in relation to other issues, such as unsafe sex, prostitution, or multiple sex partners, that make it difficult to assign a true prevalence to the general HIV population.

The National Institutes of Health, Office of AIDS Research (2009) and Kalichman and Sikkema (1994) maintain that psychosocial disorders are capable of changing thought processes, emotions, and behaviors that result in difficulty with everyday activities. According to Leight (2003), people with psychosocial disorders have an increased susceptibility to adverse health outcomes, less access to resources, lower likelihood of health-seeking behaviors, and a greater risk of acquiring HIV. Unambiguous relationships between psychosocial disorders and HIV infection, if any, are not obvious or supported by the literature (Gallego, Gordillo, & Catalan, 2000). Patients with known psychosocial disorders are not routinely targeted for HIV testing because health care providers, such as psychiatrists
and psychologists, are not inclined to look for signs and symptoms of HIV infection, nor recommend HIV testing. Historically, patients with psychosocial disorders were described, or labeled, according to behaviors associated with the disorders, for instance, drug abusers, alcoholics, or criminals, without evaluating the underlying causes of the behaviors.

Findings from a study of 271 HIV seropositive patients illustrate that after access to appropriate health care services, only 17% of the participants made use of psychological services and the rest did not (Gala, Pergami, Catalan, et al., 1992). Gala et al., (1992) suggest there are five patient characteristics that influence whether a referral for psychosocial intervention will take place on the first health care visit: 1) having a current psychiatric diagnosis, 2) being single, 3) the belief of having a serious physical illness, 4) higher level of education, and 5) no past or current history of substance abuse.

**Depression**

Unrecognized, or undertreated, depression increases morbidity, which can be prevented with appropriate medications and psychotherapy (Epperly & Moore, 2000). Depression is the most common psychosocial disorder reported among HIV seropositive individuals and is the earliest reported psychosocial disorder associated with HIV infection (Cohen & Gorman, 2008). Depression is assumed a consequence of testing HIV positive, although studies have proven otherwise (Silversides, 1998). Penzak (2000) reported that despite the intuition that HIV disease might bring on depression, the evidence suggests that there is rarely a cause-and-effect relationship between the two and that the majority of HIV infected individuals with current depressive disorders have a history of depression that antedates HIV infection. Rabkin (2006) reported that 60-80% of 1,200 HIV positive patients in clinical trials over the course of 15 years had their first episode of depression before
testing HIV positive. A lifetime history of major depression, psychiatric co-morbidity (two or more psychiatric disorders), or a family history of depression indicate an increase for depression regardless of HIV status (Rabkin, 2006; Cartwright, 2008).

According to Phillips (2008), the incidence of clinical depression and anxiety disorders are slightly higher for people with HIV than people in the general population. However, approximately 40%-60% of HIV positive individuals experience an adjustment reaction including sadness, anxiety, or depressive symptoms that subside within a few weeks of learning their HIV seropositivity (Phillips, 2008).

Depression affects physical health, cognition, emotions, and behaviors of people in the general population as well as individuals diagnosed with HIV infection (AIDS InfoNet, 2009; National Institute of Mental Health [NIMH], 2002). Signs and symptoms of depression are often misinterpreted, or not recognized by health care providers, even though depression is a psychosocial disorder among 19% of the U.S. population and is one of the most frequently reported co-morbid psychiatric disorders of individuals who are HIV infected (APA, 2000; NIMH, 2002). The estimated lifetime rate of depression among HIV positive patients is 22% - 60% (NIMH, 2002; AIDS InfoNet, 2009; Phillips, Morrison, Anderson et al., 2001; Penzak, Reddy, & Grimsley, 2000). Depression is more prevalent among people who live in poverty or abuse substances and nearly twice as many women as men are affected by depression.

Many health care providers repeatedly assume that depression is an inevitable consequence of an HIV diagnosis and that adding antidepressant medications to the treatment regimen will do more harm than good. Even though depression may be co-morbid with HIV infection, it is a separate illness that responds well to appropriate antidepressant medications.
Silversides (1998) argues that it is erroneous to consider depression a ‘normal condition’ in patients who are infected with HIV and to assume that people with HIV are overly sensitive to antidepressant medication. Drug treatment and psychotherapy for management of comorbid depression and HIV infection are effective when treatments are tailored to meet the individuals’ needs (Silversides, 1998). Depression was an expected outcome of an HIV positive diagnosis, as many providers thought while caring for patients long-term, which was usually from about six months to two years at the most. However, sadness, which occurred after HIV infection, was because of the short survival time, loosing friends to HIV infection, experiencing body disfigurement, and hopelessness of a cure, was interpreted as depression.

**Criminal Behavior (Incarceration)**

The prevalence of confirmed AIDS among the prison population from 1999 to 2006 was between 2.7 and 4.8 times higher than in the general U.S. population (CDC, 2009b). According to Jafa, McElroy, Fitzpatrick, et al. (2009), prison inmates are more than five times likely to have HIV infection than non-incarcerated individuals. Predisposing characteristics associated with first-time incarceration or recidivism implicate demographics, level of education, age at the onset of a psychosocial disorder, severity of the disorder, and exposure to abuse before age 16 years (Prince, Akincigil, & Bromet, 2007; Kantor, 2006). Georgia State Prison data collected during 2003-2005, warn that there are certain behaviors and characteristics that increase the likelihood of acquiring HIV infection during incarceration. These factors include: 1) high-risk sexual behaviors, 2) tattooing, 3) sharing injection drug paraphernalia, razors, and toothbrushes, 4) age 26 years and above, 5) five or more years of incarceration for the present sentence, and 6) Black race (Kantor, 2006).
The CDC (2009b) suggest risk factors that warrant HIV testing of inmates incarcerated six months or longer based on the U.S. prison population from 1999 to 2006 (Table 1). Over-crowded jails and prisons that are rampant with drug and sex abuse among inmates, and combined with inadequate health care can transform prisons into breeding grounds for infectious diseases. Inmates who live in appalling conditions without HIV prevention supplies, medicines to treat HIV, or educational information on the acquisition and transmission of HIV infection, are at a significantly higher risk for HIV infection than people who are incarcerated in jails and prisons with adequate infection control measures (Nowak, 2010, XVIII International AIDS Conference, Vienna, Austria).

Substance abuse is a reason for incarceration and is a high-risk factor for HIV infection; however, injection drug abuse continues, to some extent, while individuals are serving prison time. The access to drugs in prison is lower in comparison to the street availability, yet the paraphernalia used to inject drugs in prison are crude and unclean, therefore presenting an increased likelihood of transmitting HIV infection. Tattooing, another potential source of HIV infection, is widespread throughout the prison population (Kantor, 2006). Because tattooing in prison is typically performed with primitive methods and unsterile gadgets, it further increases the likelihood of transmitting the virus. Sharing toothbrushes and razors among inmates increase the probability of HIV transmission because of dental diseases and cuts and nicks on faces due to re-using razors. Regardless of the increased risks for transmission and acquisition of HIV infection, not all jails and prisons provide personal care products for inmates and many do not have the products or equipment available for purchase.
Physical Abuse

Physically abused individuals have higher rates of substance abuse, emotional disorders, criminal behavior, violent behavior, and more interpersonal challenges than people who are not abused (Maughan & McCarthy, 1997). Adverse childhood events, particularly physical, sexual, or emotional abuse, contribute to psychosocial disorders and high-risk HIV behaviors later in life. The number of abuse incidents and the victim’s relationship to the person responsible for the abuse are also factors that contribute to the risks for adulthood psychosocial disorders (Maughan & McCarthy, 1997; Senn & Carey, 2009; Briere & Elliott, 2003).

Physical abuse results in bodily injury, pain, or impairment. Approximately 22% of males and 20% of females in the general population experience physical abuse during childhood (Briere & Elliott, 2003). Between 1990 and 1996, 2,864 HIV positive women and
men, age 18 and above, enrolled in an HIV costs and service utilization study with the purposes of estimating the percentage of adults assaulted by a significant other after an HIV positive diagnosis and to determine the percentage of participants who believed their HIV serostatus caused the abuse. Nearly 38% of the participants reported physical abuse of which approximately 16% reported abuse since their HIV diagnosis. The outcomes of the study show that HIV positive individuals are not physically abused at a rate greater than abuse for any cause (Zierler, Cunningham, & Andersen, 2000).

**Sexual Abuse**

Sexual abuse is an act of violence primarily against females of any age or socioeconomic status. Family members, or other people known to the victim, perpetrate greater than 90% of sexual abuse cases (Kilpatrick, 2000). Meade and Sikkema (2007) suggest that patients who have experienced sexual abuse in childhood are more likely to engage in early sexual activity, unprotected sex, sex with multiple partners, and sex for trade as adults than non-sexually abused children. According to published statistics, 60% of sexual assaults are not reported to the police, and approximately 95% of rapists will are never charged with sexual abuse and will never spend a day in jail (Rape, Abuse, and Incest National Network [RAINN], 2009). Out of 245 HIV positive women surveyed every six months for two years, researchers found that 49% were sexually abused as children, 43% suffered sexual abuse as adults, and 41% were or had been in physically violent relationships (Wyatt, Williams, Kitchen, et al., 2011).

**Emotional Abuse**

Emotional abuse is the most common form of abuse and yet the least reported because it is covert and often used as a control tactic, which prevents the victim from
speaking out. The recipient of emotional abuse is repeatedly subjected to one of many forms of control such as aggressive demands or expectations, threats, manipulation, degradation, and punishment. Emotional abuse usually begins in childhood; however, the onset in adulthood is frequent (University of Illinois, 2007). Several forms of emotional abuse considered in this study are witnessing parental abuse, prostitution by force, having sex with an HIV positive partner then learning of the infection, unacceptable living conditions because of spouse or significant other’s drug abuse, or fear of victimization by others. Emotional abuse specifically related to HIV infection is not described in the literature.

Substance Abuse

Substance abuse, including drugs and alcohol, is a psychosocial disorder that increases the likelihood of acquiring and transmitting HIV infection. Various substances, including prescribed medicines, illegal substances consumed orally, by smoking, or injecting, such as methamphetamines, cocaine, marijuana, crack, or heroin, and alcohol, impair judgment and lower sexual inhibitions, therefore increasing the risks for HIV infection (Kuehn, 2008). Drug abuse among HIV infected individuals in the U.S. is high, with a prevalence of 40% to 45% in injection drug users and 25% to 30% in non-injection drug users (International AIDS Society–USA, 2003). In 2004, injection drug use represented 33% of all new HIV infections in the United States (Tobin, Tang, Gilbert, & Latkin, 2004). Out of a sample of 1,000 adult HIV positive patients, regardless of race or sex, 32% reported substance abuse (Health Resources and Services Administration [HRSA], 2009). Many individuals who exhibit behaviors resulting from substance abuse receive incarceration rather than referral to professionals who can assess and treat the underlying psychosocial disorder. Substance abusers are often sensitive about their conditions and believe that health care
providers judge them as having a disorder brought on by their own fault rather than having a psychosocial disorder that, when diagnosed, can be controlled with appropriate treatment. The influence of substances can prevent individuals from seeking treatment for the disorder because intoxication and impaired judgment can prohibit motivation to access a health care system.

A sample of 558 active injection drug users was evaluated to determine the percentage ever tested for HIV. Four-hundred sixty-eight (84%) of the subjects reported ever having an HIV test and 90 (16%) reported never having an HIV test (Tobin, Tang, Gilbert, & Latkin, 2004). Approximately half of the subjects (54%) who reported ever having an HIV test indicated that testing occurred within 12 months of entering the study and that most of the HIV testing took place in emergency departments (EDs) or during scheduled appointments, yet 24% of the subjects were incarcerated when tested for HIV infection. Tobin, et al. (2004) report two variables that are significantly correlated with having an HIV test during the past 12 months prior to the study: female gender (UOR = 1.50; 95% CI = 1.03–2.18) and being incarcerated (UOR = 2.24; 95% CI = 1.52–3.29).

A single-blinded study of 112 injection drug users, including 31 controls, all undergoing treatment for injection drug abuse had blood drawn for HIV testing (81 for actual HIV testing) during 1984-1985. The purposes of the study were to examine the psychosocial and behavioral impacts of HIV testing and to learn the prevalence of HIV infection among the 81 patients tested for HIV (Casadonte, Jarlais, Friedman, & Rotrosen, 1990). Conclusions of the research indicate that all participants tested experienced a higher level of anxiety during 1-2 weeks after testing; however, the anxiety abated spontaneously. Out of 81 participants tested for HIV infection, only 43(53%) signed a release of medical
information required to review their test results, of which 15(30%) were HIV positive. As a result of being tested for HIV, all subjects lowered injection drug use and maintained lower-risk HIV behaviors throughout the remainder of the study and the duration of drug treatment (Casadonte, et al., 1990). The most anxiety-reducing measure of the study was allowing participants to discuss their fears and concerns regarding HIV infection, particularly, the consequences of patients learning each other’s results (Casadonte, et al., 1990). This study suggests that HIV testing alone reduces high-risk behaviors among injection drug abusers for a considerable period, regardless of the test results.

Individuals with psychosocial disorders who reside in jails, prisons, mental care institutions, or homeless shelters are rarely, if ever, tested for HIV infection because gatekeepers have control over what can or cannot take place with residents in the institutions (Kanapaux, 2005). Regardless, many adults with psychosocial disorders outside the confines of institutions take the initiative to request HIV testing out of curiosity to know their HIV serostatus, because of rape, or for reasons related to physical illness, drug overdose, or pregnancy. Injection drug users who seek HIV testing do so mostly because they are concerned about exposure to HIV through injection or sexual behavior, about transmitting the virus, protecting sex partners or children, and curiosity of their serostatus (Tobin, et al., 2004). In comparison, adults without psychosocial disorders request HIV testing, not because they necessarily want to know their serostatus for treatment or intervention, but for employment, military induction, immigration, insurance purposes, or hospitalization (Senn & Carey, 2009). Inungu (2005) suggest that younger adults (18-25 years) request HIV testing out of fear that they contracted the virus through high-risk sexual behaviors.
Sexually Transmitted Infections

Sexually transmitted infections (STIs) are widespread throughout the general population. There are approximately 19 million new STIs in the U.S. annually and 65 million people in the U.S. have at least one viral STI, the most common is genital herpes (HSV2). In 2008, there were more than 1.5 million total cases of chlamydia and gonorrhea reported to the CDC and 13,500 new cases of primary and secondary syphilis. This is an increase of 11,500 syphilis cases over 2007, and the highest number of cases since 1995, when syphilis was on the threshold of elimination. The majority of new STIs are among Black individuals, 15 – 24 years of age (CDC, 2009c). There are no CDC statistics for herpes simplex virus type 2 (HSV2) and human papilloma virus (HPV) cases because these STIs do not require reporting.

Early in the history of HIV infection, STIs were known to be positively correlated with the infection, particularly HSV2 and other ulcerative infections. Kehinde and Lawoyin (2005) found that patients with STIs were more likely to be HIV positive compared to patients without STIs ($p=0.04$). Out of 210 patients treated for STIs at a clinic in Nigeria, 42 (20%) were co-infected with HIV.

Exposure to HIV when an individual has ulcerative STIs, such as syphilis, HSV2, or chancroid, multiplies the likelihood of acquiring HIV two to five times greater than exposure to HIV without ulcerative STIs (CDC, 2008a). Chlamydia, trichomonas, and gonorrhea are non-ulcerative STIs that also increase the possibility of acquiring HIV due to the concentration of cells (CD4) in genital secretions that serve as HIV targets (CDC, 2008a). Subtle STIs are unwittingly transmitted and go undetected until overt symptoms, such as vaginal inflammation, genital pain, or vaginal or penile discharge, are obvious. Bacteria
(chlamydia, gonorrhea, and syphilis) and viruses (HSV2 and HPV - more commonly known as genital warts), are the most common STIs in the U.S. (CDC, 2008a) (Appendix A).

**Poverty**

Although poverty influences the worsening of psychological disorders, life risk, anxiety, and depression are inherent when born into poverty (Lever, Ponil, & Uralde, 2004). Poverty has material and emotional components, and from a scientific perspective, poverty is a well-defined lifestyle (Lever et al, 2004). ‘Poverty culture’ coined in 1968, has a set of values, norms, and behaviors that are characteristic of living in poverty (Lever et al, 2004). Malnutrition, inadequate housing, poor physical health, infectious diseases, and no, or inadequate health care, are characteristics of poverty linked to psychosocial disorders. Conversely, psychosocial disorders may generate poverty. Gee and Payne-Sturges (2004) suggest that people living in poor neighborhoods, even after accounting for their individual socioeconomic characteristics, tend to have worse health outcomes than people living in moderate income neighborhoods.

People living in impoverished communities have high rates of HIV infection; in fact, poverty is a major contributor to HIV infection (Fauci, 2010). Meade and Sikkema (2007) suggest that HIV positive individuals diagnosed with psychosocial disorders from marginalized socioeconomic conditions have a greater tendency to engage in high-risk sexual behaviors and have more co-morbid illnesses than do people from privileged backgrounds. While all socioeconomic groups experience the consequences of the HIV epidemic, lower socioeconomic populations endure the most. Individuals without health insurance or health care resources are unlikely to have an established provider for routine care and prevention services, therefore increasing the probability of discovering HIV in the late stage. Low
socioeconomic status is a well known factor that affects the access and quality of health care for people at high-risk of HIV infection. In addition, overcrowded neighborhoods have profound impacts on whether individuals engage in behaviors that position them at risk for HIV infection and other STIs. For example, people who participate in sex for trade have a high prevalence of HIV, often because education about the acquisition and transmission of HIV is lacking; therefore not knowing the importance of using protection during sex or how to avoid STIs. Prostitutes are often under the influence of drugs or alcohol, that contribute greatly to neglecting safe sex practices, which put others at risk for HIV infection (Battjes, Sloboda, & Grace, 1994).

Researchers at the CDC delivered their findings from a culmination of studies on poverty and HIV infection at the 2010 AIDS Conference in Vienna, Austria in July 2010. The study included 9,000 heterosexual adults living in 23 cities across the U.S. of which 20% lived below the poverty line. Race and ethnicity were not variables in this study because HIV is highly prevalent in areas of poverty regardless of race or ethnicity. Income, employment status, homelessness at any time within the past year, and education level were reported as risk factors for HIV infection. Outcomes of the research show that individuals living below the poverty line had an HIV prevalence of 2.4%, compared with 1.2% for those living above the poverty line (International AIDS Conference, 2010, July). The CDC HIV prevention director, Jonathan Mermin, summed the outcome of the studies “This analysis points to an urgent need to prioritize HIV prevention efforts in disadvantaged communities” (CDC, 2010 July).
Characteristics of Individuals Targeted for HIV Testing

Targeted testing involves performing an HIV test on people at high-risk for infection. Individuals targeted for testing are defined by high-risk sexual behaviors, signs and symptoms of HIV infection and other STIs, and demographic characteristics such as homelessness, living in shelters, or rehabilitation centers. Patients are identified for HIV testing by self-request, tests for other STIs, medical history, and social evaluations. To ensure adequate HIV care, a protocol for follow-up services must be in place before testing is implemented (Health Research and Educational Trust [HRET], 2007).

Historically, heterosexual individuals with multiple partners, IV drug abusers, prostitutes, homeless people, individuals released from jails and prisons, and men who have sex with men were targeted for HIV testing. Many HIV clinical trials are designed to target specific groups, for example, black women, women and poverty, heterosexuals living in poverty, and drug abusers. Recently, the National Institutes of Health (NIH) joined forces with the D.C. government to conduct studies over different periods to understand the high rate of HIV infection in the city. One such study is designed to observe black females living in poverty. The intent of the two-year study is to explore the issues that enable and impede HIV testing of this specific population (NIH, Office of AIDS Research, 2009).

The CDC (2004) published findings from its HIV/AIDS surveillance project conducted during 1997–2000, which included demographic characteristics and high-risk behaviors associated with HIV infection across the U.S. population. Blacks, Whites, and Hispanics, respectively, more males than females, and age groups 30-39 years and 40-49 years, had the highest prevalence of HIV infection over the four-year study. Of the high-risk behaviors reported, among men and women of all race/ethnicities, substance abuse was the
most prevalent. Illness was the primary reason for HIV testing among the sample, provider suggested or patient requested; however, the type of illness was not specified in the report (CDC, 2004).

**HIV Testing in an Urgent Care Center**

Use of ambulatory care services, emergency department (ED) visits, and in-hospital stays have increased over the past few years due to patients in need of health care services related to HIV infection. Several studies conclude that individuals without social support, health insurance, or education beyond high school use EDs more frequently and have longer hospital stays than people with social support and access to routine care (Uphold & Mkanta, 2005).

Vulnerable individuals, such as patients with HIV infection, psychosocial disorders, or low socioeconomic status are more likely to visit EDs for health care services compared to patients without these conditions (Shapiro, Morton, et al., 1999). Approximately 35% of women and 22% of men who present to EDs do so because of domestic violence, a form of physical abuse that occurs every year in 2 - 4 million U.S. women (Newton, 2001). The National Institute of Allergy and Infectious Diseases (NIAID) (2011) published a list of signs and symptoms of HIV infection (Table 2) that should prompt health care providers to suggest HIV testing to patients who present to UCCs with complaints of or actual symptoms related to HIV infection.
Table 2.

**Signs and Symptoms that Prompt HIV Testing in Urgent Care Centers**

<table>
<thead>
<tr>
<th>Early Infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headaches</td>
</tr>
<tr>
<td>Tiredness</td>
</tr>
<tr>
<td>Lymphadenopathy (neck and groin)</td>
</tr>
<tr>
<td>Fever</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Late Infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid Weight Loss</td>
</tr>
<tr>
<td>Recurring Fever or Profuse Night Sweats</td>
</tr>
<tr>
<td>Profound &amp; Unexplained Fatigue</td>
</tr>
<tr>
<td>Prolonged Generalized Lymphadenopathy</td>
</tr>
<tr>
<td>Diarrhea &gt; One Week</td>
</tr>
<tr>
<td>White Patches or Other Findings in Mouth</td>
</tr>
<tr>
<td>Pneumonia</td>
</tr>
<tr>
<td>Purplish, Red, or Brown Blotches on Skin</td>
</tr>
<tr>
<td>Dementia, Memory Loss, Depression</td>
</tr>
</tbody>
</table>

National Institute of Allergy and Infectious Diseases, 2011.

Health care providers in UCCs evaluate and treat patients from underserved segments of the community around the clock because many of the individuals who present to the UCC have structural barriers such as limited, or no access to health care, are without health insurance, and cannot afford to pay primary health care providers for routine care and prevention services. Consequently, without routine care, HIV infection is not detected at the opportune time to implement antiretroviral therapy, which if started early, decreases and suppresses the plasma viral load long-term (Gay, Mayo, Mfalila, … Eron, 2011). The acute HIV infection stage begins on the day of infection and seroconversion usually occurs within four weeks, which mimics viral syndromes, or influenza, and is the most contagious stage of the infection. Even though Pilcher et al. (2004) characterized acute HIV infection, health
care providers outside the domain of infectious diseases were not well informed about the signs and symptoms of acute HIV infection because peer-reviewed publications and research articles that described acute infection were scarce before 2005.

Many individuals obtain UCC services for HIV testing because the testing is straightforward, patient oriented, free of charge to people who cannot pay, and less complex in terms of testing logistics and entanglement with paperwork (Figure 1).

![Figure 1. Patient characteristics and pathway of HIV testing in an UCC.](image-url)
Conceptual Framework

The conceptual framework for this study is comprised of constructs from two theoretical models, the Behavioral Model of Utilization (BMU), developed in 1968 by Ronald Andersen, a medical sociologist, and the AIDS Risk Reduction Model (ARRM), a psychosocial framework, developed in 1990 by three social psychologists, Catania, Kegeles, and Coates. The integration of constructs from the BMU and ARRM comprise a conceptual framework to explore individuals’ predisposing characteristics, motivations, needs, and efforts to access and receive health care services for HIV and other STI testing. Outcomes of the HIV and STI tests will determine the measures necessary to provide long-term care for the patient and to decrease the transmission and acquisition of HIV infection. Both models take into consideration HIV prevention measures believed essential to enact and sustain positive behavior changes that can decrease the prevalence of HIV infection.

Boyer, Barrett, Peterman, and Bolan (1997) designed and implemented a randomized controlled trial to evaluate the efficacy of a cognitive, behavioral skills-building intervention to prevent STIs in high-risk heterosexual adults using the three constructs of the ARRM. A sample of 399 patients was randomly assigned to a six-month cognitive, behavioral intervention (199 cases) or to standardized counseling sessions offered to all patients (200 controls). The purposes of the study were to increase STI prevention knowledge, reduce high-risk sexual behaviors, and build decision-making and communication skills for modification of sexual behaviors based on the ARRM (Catania, Kegeles, & Coates, 1990). The primary outcome of interest was the development of a new STI during the first six months on the study. Subjects were tested at each visit for gonorrhea, chlamydia, syphilis, and HIV antibodies. STIs were categorized into three groups: 1) new STIs, 2) probable STIs,
including presumptive treatment based on contact with an infected sexual partner, and 3) chronic or possible STIs, including HSV2, HPV, and genital tract bacterial infections (Boyer, Barrett, Peterman, et al., 1997).

Psychosocial factors were assessed to evaluate the individual’s knowledge about the risk and prevention of STIs, using constructs from the first and second stages of the ARRM, which are acknowledging and labeling high-risk sexual behaviors as activities that can result in STIs, including HIV infection, and making a commitment to change the behaviors. The third stage of the ARRM, enacting change, was used to assess individual skills in reducing the risk of acquiring STIs. Participants were to ask sexual acquaintances about STI risks and to be cognizant of STI signs and symptoms of long-term sexual partners. Outcomes of the experimental study indicate that there were no statistically significant differences between the case and control groups in the acquisition of a new or probable STI by men or women at six months (Boyer, et al., 1997). This study demonstrates the utility of the ARRM to assess and modify high-risk behaviors related to STI infections and suggests that a cognitive, behavioral approach can be effective with heterosexual adults who engage in high-risk sexual behaviors.

Outcomes of a 2009 study conducted by Olatosi, Probst, Stoskopf, et al., suggest that 42%-59% of HIV infected adults in the U.S. are not receiving health care that can improve the quality of life and assist in reducing transmission of the virus. The Gelberg-Andersen behavioral model for vulnerable populations, including the predisposing, enabling, and need constructs, was used to examine patient characteristics associated with receipt of HIV health care and adherence to treatment regimens (Olatosi, Probst, Stoskopf, et al., 2009).
Out of 5,217 HIV infected adults studied from 2004-2006, 40% were not receiving health care services and 3,300 were receiving only intermittent care. Women had lower odds of not receiving health care than men (AOR, 0.66; 95% CI 0.58-0.74). Adults aged 25 years to 34 years were most likely not to engage health care (AOR, 1.85; 95% CI 1.29-2.65) or intermittent care (AOR, 1.85; 95% CI 1.31-2.62). Only 34.7% of HIV-infected adults remained consistently in care across the three-year period. The study findings suggest that many HIV-infected adults are not optimally compliant with care and that adequate health care utilization may play an important role in survival outcomes and transmission risks (Olatosi, et al., 2009).

**Behavioral Model of Utilization**

Andersen’s work explores health care utilization and the determinants that enable, or disable, people in the general population to seek and access health care services (Aday & Andersen, 1974; Gelberg, Andersen, & Leake, 2000). The Behavioral Model of Utilization has three fundamental concepts: 1) predisposing characteristics, 2) enabling or disabling, and 3) need related to the access and equity of health care services (Andersen & Aday, 1978) (Figure 2). New concepts and variables have been added to the model since its original inception to explore the utilization of health care among other populations, including minority and vulnerable populations. Utilization, as described in the BMU, is not the availability of services but rather the use of services by people who need them the most (Aday & Andersen, 1974; Andersen, 1995; Phillips, Morrison, Andersen, & Aday, 1998; Gelberg, Andersen, & Leake, 2000).

Measurements of the original BMU concepts were at the aggregate level; however, updates to the model make it possible to study individuals with various conditions, such as chronic illnesses (heart disease, diabetes, HIV infection) and psychosocial disorders (criminal
behavior, injection drug use, sexual abuse) (Andersen, 1995; Phillips, Morrison, et al., 1998; Gelberg, Andersen, et al., 2000). Variables related to individuals as delineated in the primary constructs of the model include demographics, attitudes toward health care, beliefs and social norms, social structures, financial resources, acknowledgment of health care needs, and the motivation to seek care (Phillips, et al., 1998; Uphold & Mkanta, 2005). As in the original BMU, predisposing, enabling, and need components of the updated 1998 model predict personal health practices, including the use of health services. A major addition found in the updated 1998 model is an emphasis on utilization of health care based on perceived and evaluated health status outcomes. This model explains the contextual and provider-related patient satisfaction of services and health care delivery attributes, which influence the individual’s motivation to seek or avoid subsequent health care services (Andersen & Aday, 1978). The patient’s level of comfort with health care providers, services, and social and financial costs are important factors that individuals use to determine whether they will return for health care services. The most common provider-related variable that directly influences utilization of health care services is having a regular source of care.

Figure 2. Original Behavioral Model of Utilization created in 1968 (Andersen, 1995).
**Predisposing Characteristics**

Sex, age, health beliefs, and attitudes toward health care are predetermined characteristics in the original model of utilization. Other predisposing factors, such as psychosocial disorders often exhibited by individuals at risk for HIV infection, greatly influence whether individuals take steps to seek health care services, or decide to go without health care altogether (Uphold & Mkanta, 2005). Results from the National Health Interview Survey (NHIS) indicate that most people know AIDS is a deadly and incurable disease, 83%-89% respectively; however, the motivation to change high-risk behaviors is minimal until a true threat occurs (1987 data).

**Enabling Variables**

Enabling health care is a fundamental construct of the BMU, which is consistent with the influence of social conditions on the motivation and behavioral changes of individuals moving through the labeling and commitment stages of the ARRM (Catania, Kegeles, & Coates, 1990). A regular source of health care, resources to access care, availability of care, receipt of public assistance, or social support (obtained through family or case managers) contribute to the well-being of individuals at risk for HIV infection (Tobin, Tang, Gilbert, & Latkin, 2004).

**Need**

Individuals with HIV infection and co-morbid psychosocial disorders show an increased need for health care services and a decrease in the motivation to seek and accept care (Uphold & Mkanta, 2005). HIV and STI testing operationalize the concept of need for which the outcomes of each are necessary for entry into appropriate HIV care and prevention strategies. A qualitative study conducted by Lain, Valverde, & Frehill (2007) used grounded
theory to explore the impact on patient and provider relationships regarding late entry into HIV care. Twenty-two HIV positive potential subjects were contacted to offer enrollment on the study, of which 10 decided to participate. Seven participants entered HIV care late in the course of infection, including those who suspected they were HIV positive but delayed HIV testing. The reasons cited for late or delayed entry to care were personal health beliefs such as health is not important, not at risk for HIV infection, lack of support from family and friends, and structural barriers to health care including lack of health insurance, social support, and money for medications. Previous unpleasant encounters with health care providers also deterred entry into health care (Lain, Valverde, & Frehill, 2007). Negative health care experiences are strong predictors of subsequent health care utilization; however, this provider-related variable is seldom documented or discussed in the literature. Individuals who seek health care, establish relationships with providers, and sustain long-term behavior changes, experience positive health care outcomes (Lain, et al., 2007). The factors that influence sustained care for HIV infection are dependent on the knowledge of prevention, transmission, and acquisition of the virus and other STIs, and the social norms of individuals (Aday & Andersen, 1974). Even though the BMU suggest that sustained health care is necessary for optimal health of people with chronic illnesses, a construct for long-term care is not included in the model.

An updated version of the BMU introduced in 2000, includes vulnerable populations and individuals with psychosocial disorders, which are thought to contribute to the transmission of HIV infection (Phillips, et al., 2000). The revised model (2000) describes vulnerable individuals as having especially high risks for disease, injury, and disability.
Furthermore, these individuals frequently lack the financial and personal resources necessary to manage their problems.

**AIDS Risk Reduction Model**

The AIDS Risk Reduction Model (ARRM), developed in 1990, is a psychosocial, stage-change model that examines high risk sexual activity and the behavior changes necessary to avoid HIV infection. The basic framework of ARRM is built on concepts of the Health Belief Model (1953), the Diffusion of Innovation Theory (1962), and Social Cognitive Theory (1977) (Catania et al, 1990). ARRM focuses on individuals, rather than populations, and is composed of three distinct constructs: 1) labeling of high-risk sexual behaviors as problematic, 2) making a decision to change the behaviors and committing to that decision, and 3) seeking and enacting solutions directed at reducing high-risk sexual activities to prevent HIV infection. Moving through the stages of ARRM is not unidirectional, therefore individuals may move back and forth until the goal of each stage is achieved, or until the motivation to change is abandoned (Figure 3). Health care providers who understand the various factors that influence HIV health care outcomes should encourage the individual to complete the change process (Catania, et al., 1990; Longshore, Stein, Kowalewski, et al., 1998).

**Labeling**

Even though individuals may label their behaviors as high-risk, labeling alone is not sufficient to effect change (Catania et al, 1990). Individuals are more likely to recognize and label high-risk behaviors when they are motivated to change the behavior. Some individuals who engage in high-risk sexual behaviors may mistakenly perceive their behaviors as low-risk, depending on the social norms and context of the behaviors. For example, individuals
who have sex with multiple partners may be aware that the risk of contracting HIV is high, and yet they may perceive their behavior as low risk in regards to survival or if the risks are necessary to provide food for their children.

Only a few researchers have suggested that psychosocial disorders, rather than behaviors, should be the focus of research to establish whether correlations exist with HIV infection (Meade & Sikkema, 2007; Walkup, et al., 2003; Lyon, 2001). Health care providers frequently fail to recognize why individuals participate in high-risk behaviors and the context of the behaviors, consequently, they expect too many changes and deliver too little assistance to make the changes worthwhile to the individual. Psychosocial disorders such as depression, substance abuse, or criminal behavior may influence labeling or weakening of the motivation to seek and accept health care services (Kalichman & Sikkema, 1994). Social networks and norms also influence labeling behaviors by discouraging unsafe sex activities and encouraging safe sex behaviors.

**Commitment**

ARRM is founded upon the basic concept that in order to circumvent HIV infection, individuals engaging in high-risk sexual activities must perceive their behaviors as problematic and commit to change (Catania, et al., 1990). Behavior changes have a higher probability of success when differences such as cultural background, social status, or health care practices are in harmony with the patients’ motivation, goal attainment, and behavior modification strategies (Catania et al., 1990). A decrease in the number of sex partners and avoidance of drugs, through reducing social contacts with people who use or offer drugs, lessen high-risk behaviors and the chances of contracting HIV. A commitment to decrease
high-risk behaviors is difficult when individuals maintain relationships with people who exert destructive social pressures in regards to drug use and unsafe sexual activity.

**Enactment**

Even though people may understand, intellectually, that high-risk sexual behaviors increase their chances of acquiring HIV, a willingness to change from high-risk to low-risk behaviors is more likely when support systems are in place, social costs are low, and the benefits of change outweigh the effort required to make the change (Catania, et al., 1990). Enactment, step three, consists of three overlapping phases: self-help, seeking help from others, and taking action. These three phases can take place one at a time, simultaneously, or they may be omitted altogether, therefore resigning behavioral changes (Figure 3).

![Figure 3. Original AIDS Risk Reduction Model (ARRM). (Catania, Kegeles, & Coates, 1990).](image-url)
Synthesized BMU and ARRM

Neither the BMU nor the ARRM include constructs beyond health care access and enactment. In 1995, Andersen (BMU) added feedback loops to the original model’s predisposing characteristics, enabling, and need concepts that indicate subsequent health care use is based on the provider characteristics and social support; however, this addition is indicated for populations rather than individuals. For this study, HIV serostatus and other STI testing outcomes are necessary to compare the relationships among variables illustrated in the synthesized framework (Figures 4 and 5). Individuals who know their HIV serostatus are more likely to take precautions to protect others from becoming infected and to take measures to prevent contraction of other STIs and illnesses that may further threaten their health status (Senn & Carey, 2009; Liddicoat, Horton, Urban, et al., 2004). Concrete evidence of HIV serostatus, negative or positive, reinforces the importance of decreasing high-risk HIV related behaviors; however, HIV testing is warranted at six-month intervals until change occurs and individuals commit to risk-reduction behaviors (CDC, 2006).

Rothbard, Blank, and Metraux (2003) and Health Resources and Services Administration (HRSA) (2007) conclude that strategies for HIV prevention should be included in the case management of patients with psychosocial disorders given the high cost of treatment for patients with HIV infection and co-morbid psychosocial disorders.
Summary

HIV infection and psychosocial disorders are not known to have an exact correlation, nor has the progression of psychological symptoms along the biological history of HIV infection been elucidated (Gallego, Gordillo, & Catalan, 2000). Although the HIV literature
has a plethora of studies and articles pertaining to high-risk sexual behaviors that result in HIV infection, very little is known about the actual role psychosocial disorders play in the transmission and the acquisition of HIV infection. Psychosocial disorders and STIs are diagnosed among individuals with HIV infection; however, reciprocate causality is not established. In addition, correlations between HIV infection, subsequent high-risk behaviors, and the course of psychosocial disorders are not well described. Poverty plays an important role in the transmission of HIV infection because many individuals are under-educated, therefore not aware of the high-risk behaviors that contribute to HIV infection, sex for trade is common, and health care is not readily available in communities of poverty.
Chapter III

Methods

The purpose of this study is to describe the psychosocial disorders and clinical characteristics of patients tested for HIV in an urgent care center (UCC). Demographic characteristics, psychosocial disorders, STIs, and signs and symptoms of HIV infection will be abstracted from medical records of patients tested for HIV at the UCC from 1999 to 2006, in order to measure the relationships, if any, among the variables. Researchers in various disciplines suggest that it is important to test people with known psychosocial disorders for co-morbid HIV infection; however, few facts are known about the extent or impact of HIV infection in this population (Senn & Carey, 2009; Liddicoat, Horton, Urban, et al., 2004; Wainberg, McKinnon, Mattos, et al., 2007).

The research method proposed for this study is quantitative, which evolved from the epistemological (philosophical) stance of logical positivism first mentioned in 1561, and became popular in the field of science three centuries later (Crotty, 1998). Positivism is the role of science to establish facts based on something that is posited; therefore, positivists deal with factual knowledge, objectivity, validity, and generalizability of quantitative findings.

A quantitative method with a descriptive design will be used to examine data for this study and to determine whether relationships exist among the critical variables to answer the research questions. According to Hopkins (2000), a descriptive design establishes associations between variables without manipulation of behavior or conditions, and those variables are measured one time and used for analyses as quantified. This holds true when
retrospective data are used for research purposes because the variables are already
determined and cannot be manipulated. Burns and Grove (2005), indicate that descriptive
research examines the relationships between two or more variables and strengths of the
relationships between the variables.

Subjects and Setting

Subjects

The source of data for this retrospective study consisted of medical records of patients
who were tested for HIV in an adult Urgent Care Center (UCC) of a large teaching hospital
in the Southeastern region of the U.S. Clinical information collected from medical records of
HIV tested patients from May 1999 through August 2006 were analyzed for study. All
patients tested for HIV infection in the UCC were considered for participation in the study.

The population for study consisted of 1,191 patients, female and male, tested for HIV
infection in an adult urgent care center over a span of nearly six years. Of the 1,191 patients
tested for HIV, 414 patients met the inclusion/exclusion criteria and were included in this
study. Medical records of nearly 20% of patients tested for HIV infection in the UCC,
between 2001 and 2003, were not available for data abstraction because the hospital medical
records system was changing from paper to electronic files. Most likely, if all files were
available for abstraction over the data collection period, more psychosocial disorders, signs
and symptoms of HIV infection, and STIs would have been found in the sample. The
specific reasons for exclusion of patient records are shown in Table 3.
Table 3.

Exclusion Criteria of HIV Tested Patients

<table>
<thead>
<tr>
<th>Excluded Patient Files</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing Data</td>
<td>338</td>
</tr>
<tr>
<td>Not Available</td>
<td>310</td>
</tr>
<tr>
<td>Under Age 18</td>
<td>24</td>
</tr>
<tr>
<td>Transplants</td>
<td>78</td>
</tr>
<tr>
<td>Needle Sticks</td>
<td>10</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>777</td>
</tr>
</tbody>
</table>

Note. Missing data = HIV test orders, HIV test results, missing visit notes. Not available = hard copy files or electronic files not found; files not in circulation; locked records. Transplants = lung, kidney, or heart patients. Needle sticks = to health care providers not at high-risk for HIV infection. Other = UCC patient visits for burns, diabetes mellitus, obstetrics, rheumatoid arthritis, or asthma and lack of patient verification, such as medical records with other patients’ files; medical record numbers with incorrect patient names, or wrong dates of birth for the medical record number.

Setting

Approximately 20% of patients aged 18 and above who presented to the hospital emergency department (ED) for immediate care were triaged as lower acuity and assessed in the adult urgent care center (UCC). The ED consists of three unique areas: 1) Level I trauma center, 2) adult urgent care center, and 3) a pediatric emergency department, which nearly 66,000 adult patients and 25,000 pediatric patients treated annually. Patients who presented
to the ED were evaluated for health care needs regardless of race/ethnicity, sex, socioeconomic status, or ability to pay for services.

**Procedure**

Institutional Review Board (IRB) approval for the research was obtained before data collection took place. A Health Insurance Portability and Accountability Act (HIPAA) waiver of research consent was also approved by the IRB to allow data collection without the patients’ expressed or written consent (Appendix B). The HIPAA waiver ensures confidentiality of all protected health information and requires that all patient identifiers, such as name, address, contact numbers, among 16 others, be completely stripped before data are entered into a research database. Each subject and the data collected specific to the subject are assigned a unique code for research.

Copies of the IRB approval documents were given to the clinical immunology laboratory director who, in turn, provided medical record numbers and laboratory accession dates of HIV samples collected in the UCC from 1999 through 2006. The medical record numbers retrieved from the hospital’s clinical laboratory database was instrumental in finding the correct medical records for the study. Prior to accessing the hospital medical records, copies of the IRB documents were placed on file in the medical record research office and in the central information system (CIS) office to obtain a secure, password protected, log-in code for review of medical records online. Raw data from medical records were downloaded onto an Excel© spreadsheet and then transferred to a flash drive for easy access and analyses. The flash drives were password protected and stored in a locked cabinet.
Bibb (2007) makes clear that the standardization of data is important for internal validity of a study and that it is fundamental for reproducibility of the research. To ensure that abstraction of data took place in a systematic manner according to the rigor and standards required for all quantitative studies, standardized data collection forms were created. Headings on the forms were matched to tabs in the medical records not only to facilitate data collection in a systematic fashion, but also to demonstrate validity of the abstraction methodology.

Medical records were reviewed and data abstracted regarding: 1) demographics, 2) psychosocial disorders, 3) STIs, and 4) signs and symptoms of HIV infection. A codebook (Appendix D) was developed that included each category on the data collection form along with the variables necessary to answer the research questions (Appendix E). All variables were entered into an Excel© database designed specifically to systematize the variables as collected on the standardized forms. Data were entered with consistency among the variables for easy retrieval if needed later. Medical jargon and acronyms were converted into natural language for easy identification and coding (Appendix E). The Emergency Medical Text Processor (EMT-P), a processing system developed to clean ED chief complaint text, was used to convert the abstracted UCC data from clinical jargon to actual words before coding began (Travers & Haas, 2008).

Data Analysis

Descriptive statistics and logistic regression will be used to answer the research questions proposed for this study. Data concerning demographics, psychosocial disorders, STIs, and signs and symptoms of HIV infection will be analyzed to determine whether correlations exist between the variables, and if so, to measure the strengths of the
correlations. To ensure validity of the study, medical records were reviewed and abstracted one-by-one to make certain correct data were entered on the standardized form accurately and concisely for each subject. Studies using retrospective data, in contrast to prospective studies, provide several advantages: 1) they are relatively inexpensive, 2) use existing records, 3) produce findings in a short period, and 4) are less complex to conduct when research is for conditions with a long latency between exposure and disease, such as HIV infection and AIDS (Hess, 2004). However, the disadvantages of using retrospective medical record data include the fact that information collected at the time of the visit was for direct care, not for research purposes.

**Descriptive Analysis**

Descriptive analysis will be utilized to illustrate the basic characteristics of the study variables, including demographics, psychosocial disorders, signs and symptoms of HIV infection, and STIs present at the time of the UCC visit. Frequency distributions of the variables will be displayed in tables or figures.

**Logistic Regression Analysis**

Logistic regression, the most commonly used statistical model to describe relationships between a dichotomous response and explanatory variables, will be used to analyze the psychosocial disorders for this study sample. Logistic regression will be utilized to predict group membership and the strength of relationships among the variables. The sample size for this study is not based on power, or size effect, as are some studies. Power for this study is the number of dichotomous outcomes of each dependent variable in the model (Vittinghoff & McCulloch, 2007). Logistic regression models in this study are used to analyze the odds of having over not having HIV infection in relation to psychosocial
disorders after controlling for age, race, and sex and other confounders. For instance, depression and sexual abuse may have a positive relationship on HIV infection, but when controlling for demographics and sexual abuse, that relationship could change.

HIV serostatus, positive or negative, and patient requested or provider suggested HIV testing are the dichotomous variables on which independent variables, including demographic characteristics, psychosocial disorders, STIs, and signs and symptoms of HIV infection, will be analyzed to determine if relationships exist, and if so, the strength of the relationships.

Research Question # 1 asked ‘What are the differences between demographic characteristics, psychosocial disorders, STIs, and signs and symptoms of HIV infection among patients tested HIV positive or HIV negative?’ This question will be investigated through two steps. Descriptive analysis will provide an intuitive look at the distributions of these variables in each group and logistic regression analyses will be used to examine whether psychosocial disorders correlate with HIV infection after controlling for the effects of other variables in the model.

Research question # 2 asked ‘What are the relationships between HIV seropositivity, psychosocial disorders, and sexually transmitted infections of patients tested for HIV?’ will be addressed by descriptive analysis of the independent variables in relation to HIV seropositivity among the sample.

Research question # 3 asked ‘What differences in psychosocial disorders, STIs, and demographic variables exist between patients who request an HIV test and patients tested for HIV at the request of a health care provider?’ Specifically, psychosocial disorders, STIs,
and demographic characteristics will be addressed by descriptive analysis of the variables and by comparison of the proportions of the variables between the two groups.

Research question #4 asked ‘What differences in psychosocial disorders, STIs, and demographic characteristics exist between *HIV seropositive* patients who *request* an HIV test and HIV positive patients tested at the *request of a health care provider*? This question will be answered by descriptive analysis of the sample variables and by Fisher's exact test, a statistical test to confirm if nonrandom associations between categorical variables show statistical significance.

In order to determine whether differences exist between psychosocial disorders and the various groups, three null hypotheses will be analyzed using Fishers exact test *p* values:

1. \( H_0: \) patients with psychosocial disorders will not show a difference of HIV prevalence than patients without psychosocial disorders

2. \( H_0: \) patients who request an HIV test will not show a difference of psychosocial disorders than patients tested at the suggestion of a health care provider

3. \( H_0: \) HIV positive patients with psychosocial disorders will not show a difference in the incidence of STIs than HIV positive patients without psychosocial disorders

**Summary**

Descriptive statistics will be presented as the first step of analysis to show frequency distributions of the demographic characteristics, psychosocial disorders, STIs, and signs and symptoms of HIV infection. Logistic regression will be used to examine whether psychosocial disorders influence HIV infection, showing the results of the outcomes in the form of odds ratios and Chi square *p* values. Differences in the proportions of independent
variables will show the strength of the relationships between the HIV positive and negative groups. This information will be presented in chapter four.
Chapter IV

Results

The focus of this study was to describe psychosocial disorders and clinical characteristics among patients tested for HIV in an urgent care center (UCC) between 1999 and 2006. A quantitative, retrospective design was used to collect data from medical records for a one-time visit of each patient in the sample. Data were analyzed to determine the correlations among demographic characteristics, psychosocial disorders, sexually transmitted infections (STIs), and signs and symptoms of HIV infection. Additionally, HIV testing, whether provider suggested or patient requested, was analyzed in relation to demographic characteristics, psychosocial disorders, and STIs.

Statistical Analyses

Descriptive statistics and logistic regression analyses were used to answer the proposed research questions and the hypotheses for this study. Descriptive analyses included frequencies of demographic characteristics, psychosocial disorders, STIs, and signs and symptoms of HIV infection displayed in tables.

Analyses of associations between HIV infection and psychosocial disorders were performed using logistic regression analyses. Univariate logistic regression models consisted of one dependent dichotomous variable and one independent variable while multivariate logistic regression models consisted of one dependent dichotomous variable and two or more independent variables while controlling for age, race, and sex. Independent variables were examined in the multivariate logistic regression model to assess associations between
psychosocial disorders and the odds of having or not having HIV infection. Odds ratios with a 95% confidence level (CI) and Chi square p-values with a significance level of $p = .05$ were measures of the logistic regression models to express the association of each psychosocial disorder with HIV infection. Chi square and Fishers exact test were used where appropriate to determine statistical significance of the variables in relation to the odds of having or not having HIV infection and the strength of the associations.

**Demographic Characteristics**

Of 414 patients in the study sample, 391 (94.5%) were HIV negative, indicating that HIV antibodies were not present at the time of the UCC visit and 23 (5.5%) patients, were HIV positive. The overall majority of patients in the study were 18-25 years (34%), male (62%), and predominantly of the Black race (56%). Demographic characteristics of the HIV positive patients were 36-49 (48%) years of age, male (65%), and of the Black race (61%). Two age groups, 26-35 years and 36-49 years, had a higher prevalence of HIV infection compared to patients in the 18-25 year and $\geq$ 50 year age groups (Table 4). Positive statistical significance in age ($p = .163$), sex ($p = .827$), and race ($p = .075$) between the HIV positive and HIV negative groups was not shown. The CDC (2008c) reported that individuals with the highest prevalence of HIV infection in the U.S. population at the end of 2003 consisted of individuals aged 25-44 years (57%), males (74%), and Blacks (47%).
Table 4.

Demographic Characteristics in Relation to HIV Serostatus

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total n = 414 (%</th>
<th>HIV - n = 391 (%)</th>
<th>HIV + n = 23 (%)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group (yrs)</td>
<td></td>
<td></td>
<td></td>
<td>0.1627</td>
</tr>
<tr>
<td>18-25</td>
<td>141 (34)</td>
<td>138 (35)</td>
<td>3 (13)</td>
<td></td>
</tr>
<tr>
<td>26-35</td>
<td>119 (29)</td>
<td>113 (29)</td>
<td>8 (35)</td>
<td></td>
</tr>
<tr>
<td>36-49</td>
<td>121 (29)</td>
<td>108 (28)</td>
<td>11 (48)</td>
<td></td>
</tr>
<tr>
<td>&gt; 50</td>
<td>33 (8)</td>
<td>32 (8)</td>
<td>1 (4)</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td>0.8274</td>
</tr>
<tr>
<td>Female</td>
<td>157 (38)</td>
<td>150 (38)</td>
<td>8 (35)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>257 (62)</td>
<td>241 (62)</td>
<td>15 (65)</td>
<td></td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td>0.0751</td>
</tr>
<tr>
<td>White</td>
<td>122 (29)</td>
<td>118 (30)</td>
<td>4 (17)</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>233 (56)</td>
<td>219 (56)</td>
<td>14 (61)</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>53 (13)</td>
<td>49 (13)</td>
<td>4 (17)</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>5 (1)</td>
<td>5 (1)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Native Amer</td>
<td>1 (0.002)</td>
<td>0 (0)</td>
<td>1 (5)</td>
<td></td>
</tr>
</tbody>
</table>

Note. 95% Confidence Level.
*Fishers Exact Test

Psychosocial Disorders

Psychosocial disorders were documented in the medical records of 104 (25%) study patients: each had at least one psychosocial disorder, 23 patients had 2, and 5 patients had at least 3 disorders (Table 5). Forty-eight percent of HIV positive patients had one or more psychosocial disorders whereas 24% of HIV negative patients had one or more psychosocial disorders. Psychosocial disorders were positively correlated with HIV seropositivity ($p = .023$).
Sexually Transmitted Infections

Sexually transmitted infections (STI) were documented in the medical records of 125 (30%) patients out of 315 (76%) patients tested for STIs that were included in the study sample. Even though a large percentage of patients in the study sample had histories of STIs, only patients with STIs diagnosed at the time of the UCC visit, when HIV testing took place, were included in the data analyses (Table 6). There were no statistically significant correlations in STIs on HIV infection between the HIV positive and negative groups ($p=.49$).
Table 6.

Sexually Transmitted Infections by HIV Serostatus

<table>
<thead>
<tr>
<th>STIs</th>
<th>Total n=414</th>
<th>(%)</th>
<th>HIV - n=391</th>
<th>(%)</th>
<th>HIV + n=23</th>
<th>(%)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>125</td>
<td>(30)</td>
<td>120</td>
<td>(28)</td>
<td>5</td>
<td>(22)</td>
<td>0.4851</td>
</tr>
<tr>
<td>Chancroid</td>
<td>1</td>
<td>(0.24)</td>
<td>1</td>
<td>(0.26)</td>
<td>0</td>
<td>(0)</td>
<td>1.0000</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>39</td>
<td>(9)</td>
<td>38</td>
<td>(10)</td>
<td>1</td>
<td>(4)</td>
<td>0.7115</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>47</td>
<td>(11)</td>
<td>45</td>
<td>(12)</td>
<td>2</td>
<td>(9)</td>
<td>1.0000</td>
</tr>
<tr>
<td>HPV</td>
<td>14</td>
<td>(3)</td>
<td>13</td>
<td>(3)</td>
<td>0</td>
<td>(0)</td>
<td>0.5567</td>
</tr>
<tr>
<td>HSV2</td>
<td>26</td>
<td>(6)</td>
<td>24</td>
<td>(6)</td>
<td>2</td>
<td>(9)</td>
<td>0.6477</td>
</tr>
<tr>
<td>Syphilis</td>
<td>9</td>
<td>(2)</td>
<td>7</td>
<td>(2)</td>
<td>2</td>
<td>(9)</td>
<td>0.0838</td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>18</td>
<td>(4)</td>
<td>18</td>
<td>(5)</td>
<td>0</td>
<td>(0)</td>
<td>0.6131</td>
</tr>
</tbody>
</table>

Note. 95% Confidence Level
*Fishers Exact Test

Hepatitis infections (A, B, C), in addition to other STIs analyzed in this study, was observed in 47 patients, including 7 (30%) who were HIV positive. Even though hepatitis B was the most prevalent among the patients with a hepatitis virus, hepatitis C virus (HCV), which is closely linked to HIV infection, was present in 4 (17%) of the positive patients. Approximately 25% of the people infected with HIV also have HCV and most HCV positive individuals typically engage in injection drug abuse (CDC, 2002).

**Signs and Symptoms of HIV Infection**

Of the 414 patients tested for HIV, 144 (35%) had documentation of one or more signs and symptoms of HIV infection (Table 7) with a higher prevalence in HIV positive patients (61%) compared to HIV negative patients (33%). There was a statistically significant correlation in signs and symptoms of HIV infection on HIV seropositivity.
Weight loss ($p=.001$), night sweats ($p=.007$), pneumonia ($p=.001$), lymphadenopathy ($p=.036$), and fever ($p=.02$) were statistically significant on being HIV infected.

Table 7.

**Signs and Symptoms of HIV Infection by HIV Serostatus**

<table>
<thead>
<tr>
<th>Signs and Symptoms</th>
<th>Total $n=414$</th>
<th>(%)</th>
<th>HIV - $n=391$</th>
<th>(%)</th>
<th>HIV+ $n=23$</th>
<th>(%)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>144</td>
<td>(35)</td>
<td>130</td>
<td>(33)</td>
<td>14</td>
<td>(61)</td>
<td>0.0116</td>
</tr>
<tr>
<td>Candidiasis</td>
<td>17</td>
<td>(4 )</td>
<td>15</td>
<td>(4)</td>
<td>2</td>
<td>(9)</td>
<td>0.2422</td>
</tr>
<tr>
<td>Chills</td>
<td>13</td>
<td>(3 )</td>
<td>12</td>
<td>(3)</td>
<td>1</td>
<td>(4)</td>
<td>0.5297</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>8</td>
<td>(2 )</td>
<td>7</td>
<td>(2)</td>
<td>1</td>
<td>(4)</td>
<td>0.3695</td>
</tr>
<tr>
<td>Fatigue</td>
<td>9</td>
<td>(2 )</td>
<td>9</td>
<td>(2)</td>
<td>0</td>
<td>(0)</td>
<td>1.0000</td>
</tr>
<tr>
<td>Fever</td>
<td>30</td>
<td>(7 )</td>
<td>25</td>
<td>(6)</td>
<td>5</td>
<td>(22)</td>
<td>0.0189</td>
</tr>
<tr>
<td>Headache</td>
<td>23</td>
<td>(6 )</td>
<td>22</td>
<td>(6)</td>
<td>1</td>
<td>(4)</td>
<td>1.0000</td>
</tr>
<tr>
<td>Lymphadenopathy</td>
<td>35</td>
<td>(8 )</td>
<td>30</td>
<td>(8)</td>
<td>5</td>
<td>(22)</td>
<td>0.0355</td>
</tr>
<tr>
<td>Night sweats</td>
<td>8</td>
<td>(2 )</td>
<td>5</td>
<td>(1)</td>
<td>3</td>
<td>(13)</td>
<td>0.0070</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>7</td>
<td>(2 )</td>
<td>4</td>
<td>(1)</td>
<td>3</td>
<td>(13)</td>
<td>0.0046</td>
</tr>
<tr>
<td>Rash</td>
<td>43</td>
<td>(10)</td>
<td>40</td>
<td>(10)</td>
<td>3</td>
<td>(13)</td>
<td>0.7210</td>
</tr>
<tr>
<td>Sore throat</td>
<td>14</td>
<td>(3 )</td>
<td>12</td>
<td>(3)</td>
<td>2</td>
<td>(9)</td>
<td>0.1790</td>
</tr>
<tr>
<td>Weight loss</td>
<td>6</td>
<td>(1 )</td>
<td>2</td>
<td>(0.5)</td>
<td>4</td>
<td>(17)</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

*Note. 95% Confidence Level. Statistically significant p-values are in bold. *Fishers Exact Test  Note.
Outcomes of Research Questions

Research Question # 1

Research Question # 1 asked ‘What are the differences between demographic characteristics, psychosocial disorders, sexually transmitted infections, and signs and symptoms of HIV infection in patients who tested HIV positive and HIV negative?’ This question was investigated through two steps: 1) a descriptive analysis where tabulation was used to provide an intuitive look at the distributions of the variables in each group and, 2) logistic regression univariate models to examine the odds of having or not having HIV infection in relation to each psychosocial disorder individually while controlling for age, race, and sex. Multivariate logistic regression analyses examined the odds of having HIV infection while controlling for age, race, and sex, in association with a) criminal behavior (incarceration), depression, and substance abuse, b) physical abuse and substance abuse, and c) depression and substance abuse (Table 8).

Table 4 illustrates the demographic characteristics of the overall study sample of which the majority of HIV positive patients were male (65%) and of the Black race (61%). There were no statistically significant differences in demographic characteristics between the HIV positive and HIV negative groups on HIV infection (p=.16).

Overall, the HIV positive patients were found to have significantly more psychosocial disorders than HIV negative patients (p =.023). Table 5 shows 93 (24%) of HIV negative patients had one or more psychosocial disorders, of which substance abuse (15%) and emotional abuse (5%), respectively, were the most prevalent. Substance abuse (39%) and criminal behavior (22%), respectively, were the most prevalent psychosocial disorders found in the HIV positive patients.
Univariate logistic regression analyses (Table 8) shows the correlation of psychosocial disorders with HIV infection when controlled for age, race, and sex. The model used for univariate and multivariate logistic regression to analyze psychosocial disorders on the odds of having HIV infection for this study was:

\[
\log \left( \frac{p(HIV=1)}{1-p(HIV=1)} \right) = \beta_0 + \beta_{1 \text{age}} + \beta_{2 \text{ (sex=female)}} + \beta_{3 \text{ (race=white)}} + \beta_{4 \text{ (race=other)}} + \text{disorders}
\]

Age, race, and sex, or provider suggested or patient requested HIV testing had no effect on the odds of having HIV infection in relationship to psychosocial disorders. Each psychosocial disorder was analyzed independently and multivariate logistic regression analyses were performed to find if statistical significance was maintained while controlling for demographics and other disorders. Logistic regression analyses showed that patients with psychosocial disorders were significantly more likely to have HIV infection.

Physical abuse (OR=10.70, 95% CI 2.38-48.23, \(p=0.002\)), substance abuse (OR=3.88, 95% CI 1.51-9.94, \(p=0.005\)), and criminal behavior (OR=19.91, 95% CI 5.27-75.25, \(p=<0.0001\)) were statistically significant in relation to the odds of having HIV infection when controlled for age, race, and sex in univariate logistic regression analyses. Controlling for age, race, and sex on the odds of having HIV infection a) among criminal behavior (incarceration) (OR=14.187, 95% CI 3.314-60.736, \(p=0.0004\)), depression (OR=0.45, 95% CI 0.042-4.76, \(p=.507\)), and substance abuse (OR=2.45, 95% CI 0.81-6.98, \(p=.089\)); b) between physical abuse (OR=8.21, 95% CI 1.74-38.72, \(p=.008\)) and substance abuse; and c) between depression (OR=0.82, 95% CI 0.097-6.85, \(p=.852\)) and substance abuse (OR=3.89, 95% CI 1.52-9.98, \(p=.005\)) substance abuse remained statistically significant on the odds of having HIV infection in univariate and multivariate regression analyses. Substance abuse was
observed in 9 out of 23 (39%) HIV positive patients. There were no statistically significant differences in depression on the odds of having HIV infection. Controlling for age, race, and sex, the sum odds ratio of psychosocial disorders in this study sample was 2.16 (95% CI 1.378-3.386, \( p=.0008 \)) which means that for every one increase in psychosocial disorders, the odds of HIV infection increased by 2.16, irrespective of the disorder.

Table 8.

**Psychosocial Disorders Adjusted for Age, Race, and Sex**

<table>
<thead>
<tr>
<th>Logistic Regression</th>
<th>Odds Ratio</th>
<th>Lower CI</th>
<th>Upper CI</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Univariate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal behavior</td>
<td>19.91</td>
<td>5.268</td>
<td>75.246</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Depression</td>
<td>0.953</td>
<td>0.117</td>
<td>7.725</td>
<td>0.9637</td>
</tr>
<tr>
<td>Emotional abuse</td>
<td>0.926</td>
<td>0.114</td>
<td>7.527</td>
<td>0.9427</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>10.70</td>
<td>2.375</td>
<td>48.229</td>
<td>0.0020</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&gt;999.99</td>
<td>0.9791</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>3.877</td>
<td>1.512</td>
<td>9.94</td>
<td>0.0048</td>
</tr>
<tr>
<td>SumPsyc</td>
<td>2.16</td>
<td>1.378</td>
<td>3.386</td>
<td>0.0008</td>
</tr>
<tr>
<td><strong>Multivariate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal behavior</td>
<td>14.187</td>
<td>3.314</td>
<td>60.736</td>
<td>0.0004</td>
</tr>
<tr>
<td>Depression</td>
<td>0.450</td>
<td>0.042</td>
<td>4.764</td>
<td>0.5070</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>2.466</td>
<td>0.81</td>
<td>6.98</td>
<td>0.0892</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>8.212</td>
<td>1.742</td>
<td>38.723</td>
<td>0.0078</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>3.388</td>
<td>1.299</td>
<td>8.831</td>
<td>0.0126</td>
</tr>
<tr>
<td>Depression</td>
<td>0.816</td>
<td>0.097</td>
<td>6.855</td>
<td>0.8518</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>3.893</td>
<td>1.518</td>
<td>9.981</td>
<td>0.0047</td>
</tr>
</tbody>
</table>

Statistically significant \( p \)-values are in bold. SumPsy = Sum of odds ratio CI = Confidence interval (95%)

* Chi square
**Research Question # 2**

Research Question # 2 asked ‘What are the relationships between *HIV seropositivity*, psychosocial disorders, and STIs of patients tested for HIV?’ This question was analyzed using Fishers exact test to determine if there were correlations between STIs and psychosocial disorders in relation to HIV seropositivity. Table 9 shows that there were no statistically significant differences between STIs and psychosocial disorders in the HIV positive group ($p =1.00$). Five HIV positive patients had STIs and two had psychosocial disorders in addition to STIs. Among the three patients without psychosocial disorders, four STIs were diagnosed at the time of the UCC visit. Both patients with psychosocial disorders had a history of incarceration.

Table 9.

**HIV Positive Patients with STIs by Psychosocial Disorders**

<table>
<thead>
<tr>
<th>STIs</th>
<th>Total $n=23$ (%)</th>
<th>Without Disorders$^a \ n=12$ (%)</th>
<th>With Disorders$^b \ n=11$ (%)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>5 (22)</td>
<td>3 (25)</td>
<td>2 (18)</td>
<td>1.0000</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>2 (9)</td>
<td>2 (67)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>HPV</td>
<td>1 (4)</td>
<td>1 (33)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>HSV2</td>
<td>1 (4)</td>
<td>0 (0)</td>
<td>1 (50)</td>
<td></td>
</tr>
<tr>
<td>Syphilis</td>
<td>2 (9)</td>
<td>1 (33)</td>
<td>1 (50)</td>
<td></td>
</tr>
</tbody>
</table>

*Note. $^a$Without psychosocial disorders  $^b$With psychosocial disorders  
*Fishers Exact Test

**Research Question # 3**

Research Question # 3 asked ‘What differences in psychosocial disorders, STIs, and demographic variables exist between patients who *request an HIV test* and patients tested for HIV at the *request of a health care provider*?’. This question was answered by descriptive
analysis and by comparison of the proportions of the variables between the two groups.

Table 10 presents demographic characteristics (age, race, and sex) of the sample by provider suggested and patient requested HIV testing. There were no statistically significant correlations in demographics on HIV infection between the HIV positive and negative groups.

Table 10.

Demographics by Patient Requested or Provider Suggested HIV Testing

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total n= 414 (%)</th>
<th>Suggested n = 361 (%)</th>
<th>Requested n = 53 (%)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group (Years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>141 (34)</td>
<td>125 (35)</td>
<td>16 (30)</td>
<td>0.4203</td>
</tr>
<tr>
<td>26-35</td>
<td>119 (29)</td>
<td>106 (29)</td>
<td>15 (28)</td>
<td></td>
</tr>
<tr>
<td>36-49</td>
<td>121 (29)</td>
<td>102 (28)</td>
<td>17 (32)</td>
<td></td>
</tr>
<tr>
<td>≥ 50</td>
<td>33 (8)</td>
<td>28 (8)</td>
<td>5 (10)</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td>0.2897</td>
</tr>
<tr>
<td>Female</td>
<td>158 (38)</td>
<td>134 (37)</td>
<td>24 (45)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>256 (62)</td>
<td>227 (63)</td>
<td>29 (55)</td>
<td></td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td>0.8295</td>
</tr>
<tr>
<td>White</td>
<td>122 (29)</td>
<td>105 (29)</td>
<td>17 (32)</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>233 (56)</td>
<td>204 (57)</td>
<td>29 (55)</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>53 (13)</td>
<td>47 (13)</td>
<td>6 (11)</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>5 (1)</td>
<td>4 (1)</td>
<td>1 (2)</td>
<td></td>
</tr>
<tr>
<td>Native American</td>
<td>1 (0.002)</td>
<td>1 (0)</td>
<td>0 (0)</td>
<td></td>
</tr>
</tbody>
</table>
*Fishers Exact Test

Signals that prompted health care providers to suggest HIV testing were symptoms of AIDS, injection drug abuse, reported high-risk sexual activities, and on a smaller scale, STIs. Patients who presented for HIV and/or STI testing only were also encouraged to undergo physical examinations and other clinical tests if co-morbid illnesses were suspected.
There were no statistically significant differences in psychosocial disorders ($p=.50$) and STIs ($p=.15$) by provider suggested testing or patient requested testing in the UCC sample (Table 11).

Table 11.

**Psychosocial Disorders and STIs by Patient Requested or Provider Suggested HIV Testing**

<table>
<thead>
<tr>
<th>Psychosocial Disorders</th>
<th>Total $n=414$</th>
<th>(%)</th>
<th>Suggested $n=361$</th>
<th>(%)</th>
<th>Requested $n=53$</th>
<th>(%)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>104</td>
<td>(25)</td>
<td>93</td>
<td>(26)</td>
<td>11</td>
<td>(21)</td>
<td>0.5002</td>
</tr>
<tr>
<td>Criminal behavior</td>
<td>11</td>
<td>(3 )</td>
<td>10</td>
<td>(3 )</td>
<td>1</td>
<td>(2 )</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>21</td>
<td>(3 )</td>
<td>18</td>
<td>(5 )</td>
<td>3</td>
<td>(6 )</td>
<td></td>
</tr>
<tr>
<td>Emotional abuse</td>
<td>24</td>
<td>(6 )</td>
<td>20</td>
<td>(6 )</td>
<td>4</td>
<td>(8 )</td>
<td></td>
</tr>
<tr>
<td>Physical abuse</td>
<td>12</td>
<td>(3 )</td>
<td>11</td>
<td>(3 )</td>
<td>1</td>
<td>(1 )</td>
<td></td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>14</td>
<td>(3 )</td>
<td>11</td>
<td>(3 )</td>
<td>3</td>
<td>(6 )</td>
<td></td>
</tr>
<tr>
<td>Substance abuse</td>
<td>66</td>
<td>(16)</td>
<td>60</td>
<td>(17)</td>
<td>6</td>
<td>(11)</td>
<td></td>
</tr>
<tr>
<td>STIs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>78</td>
<td>(19)</td>
<td>71</td>
<td>(20)</td>
<td>7</td>
<td>(13)</td>
<td>0.1484</td>
</tr>
<tr>
<td>Chancroid</td>
<td>1</td>
<td>(0.24)</td>
<td>1</td>
<td>(0.28)</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td>Chlamydia</td>
<td>39</td>
<td>(9 )</td>
<td>38</td>
<td>(11)</td>
<td>1</td>
<td>(2 )</td>
<td></td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>47</td>
<td>(11)</td>
<td>43</td>
<td>(12)</td>
<td>4</td>
<td>(8 )</td>
<td></td>
</tr>
<tr>
<td>HPV</td>
<td>14</td>
<td>(3 )</td>
<td>14</td>
<td>(4 )</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td>HSV 2</td>
<td>26</td>
<td>(6 )</td>
<td>24</td>
<td>(7 )</td>
<td>2</td>
<td>(4 )</td>
<td></td>
</tr>
<tr>
<td>Syphilis</td>
<td>9</td>
<td>(2 )</td>
<td>8</td>
<td>(2 )</td>
<td>1</td>
<td>(2 )</td>
<td></td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>18</td>
<td>(4 )</td>
<td>14</td>
<td>(4 )</td>
<td>4</td>
<td>(8 )</td>
<td></td>
</tr>
</tbody>
</table>

*Fishers Exact Test

**Research Question #4**

Research question #4 asked ‘What differences in demographic variables, psychosocial disorders, and STIs exist between HIV seropositive patients who requested an HIV test and HIV positive patients tested at the suggestion of a health care provider? Although this question is similar to research question #3, only HIV positive patients are
analyzed to show statistical differences between provider suggested and patient requested HIV testing (Tables 12 and 13).

Table 12.

Demographic Variables by Patient Requested or Provider Suggested HIV Testing in HIV Positive Patients

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total n= 23 (%</th>
<th>Suggested n = 19 (%)</th>
<th>Requested n = 4 (%)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>3 (13)</td>
<td>2 (10)</td>
<td>1 (25)</td>
<td>0.528</td>
</tr>
<tr>
<td>26-35</td>
<td>8 (35)</td>
<td>6 (32)</td>
<td>2 (50)</td>
<td></td>
</tr>
<tr>
<td>36-49</td>
<td>11 (48)</td>
<td>10 (53)</td>
<td>1 (25)</td>
<td></td>
</tr>
<tr>
<td>&gt; 50</td>
<td>1 (4)</td>
<td>1 (5)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td>0.589</td>
</tr>
<tr>
<td>Female</td>
<td>8 (35)</td>
<td>6 (32)</td>
<td>2 (50)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>15 (65)</td>
<td>13 (68)</td>
<td>2 (50)</td>
<td></td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td>0.394</td>
</tr>
<tr>
<td>White</td>
<td>4 (17)</td>
<td>4 (21)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>14 (61)</td>
<td>12 (63)</td>
<td>2 (50)</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>4 (17)</td>
<td>2 (11)</td>
<td>2 (50)</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Native American</td>
<td>1 (5)</td>
<td>1 (5)</td>
<td>0 (0)</td>
<td></td>
</tr>
</tbody>
</table>

*Fishers Exact Test

Tests of statistical significance were performed focusing on HIV positive patients who had psychosocial disorders and STIs; however, there were no statistically significant differences between patient requested and provider suggested testing because the number of HIV positive patients diagnosed with psychosocial disorders and STIs was small (n=4).

There were no statistically significant differences between the two groups in psychosocial disorders ($p=0.09$) and in STIs ($p=1.0$).
Table 13.

Psychosocial Disorders and STIs by Patient Requested or Provider Suggested

HIV Testing in HIV Positive Patients

<table>
<thead>
<tr>
<th>Psychosocial Disorders</th>
<th>Total</th>
<th>(%)</th>
<th>Provider Suggested</th>
<th>(%)</th>
<th>Patient Requested</th>
<th>(%)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>11</td>
<td>(48)</td>
<td>11</td>
<td>(58)</td>
<td>0</td>
<td>(0)</td>
<td>0.0932</td>
</tr>
<tr>
<td>Criminal behavior</td>
<td>5</td>
<td>(22)</td>
<td>5</td>
<td>(26)</td>
<td>0</td>
<td>(0)</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>1</td>
<td>(4 )</td>
<td>1</td>
<td>(5 )</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td>Emotional abuse</td>
<td>1</td>
<td>(4 )</td>
<td>1</td>
<td>(5 )</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td>Physical abuse</td>
<td>3</td>
<td>(13)</td>
<td>3</td>
<td>(16)</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>0</td>
<td>(0 )</td>
<td>0</td>
<td>(0 )</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td>Substance abuse</td>
<td>9</td>
<td>(39)</td>
<td>9</td>
<td>(47)</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td><strong>STIs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>5</td>
<td>(22)</td>
<td>4</td>
<td>(21)</td>
<td>1</td>
<td>(25)</td>
<td>1.0000</td>
</tr>
<tr>
<td>Chancroid</td>
<td>0</td>
<td>(0 )</td>
<td>0</td>
<td>(0 )</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td>Chlamydia</td>
<td>1</td>
<td>(4 )</td>
<td>1</td>
<td>(5 )</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>2</td>
<td>(9 )</td>
<td>2</td>
<td>(11)</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td>HPV</td>
<td>1</td>
<td>(4 )</td>
<td>1</td>
<td>(5 )</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td>HSV 2</td>
<td>2</td>
<td>(9 )</td>
<td>2</td>
<td>(11)</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
<tr>
<td>Syphilis</td>
<td>2</td>
<td>(9 )</td>
<td>1</td>
<td>(5 )</td>
<td>1</td>
<td>(25)</td>
<td></td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>0</td>
<td>(0 )</td>
<td>0</td>
<td>(0 )</td>
<td>0</td>
<td>(0 )</td>
<td></td>
</tr>
</tbody>
</table>

*Fishers Exact Test

Null Hypotheses

Three null hypotheses were analyzed to determine the differences between psychosocial disorders and HIV prevalence, psychosocial disorders and STIs, and psychosocial disorders and HIV testing, whether patient or provider initiated.

1. $H_0$: patients with psychosocial disorders will not show a significant difference in HIV prevalence in relation to patients without psychosocial disorders (PD)

\[
H_0: \quad P(\text{HIV}=1/\text{PD}=1) = P(\text{HIV}=1/\text{PD}=0)
\]
The null hypothesis was rejected because there were statistically significant differences between HIV positive and HIV negative patients in the prevalence of psychosocial disorders ($p=.02$). (Table 4).

2. $H_0$: patients who requested (R) an HIV test will not show a significant difference in psychosocial disorders in patients tested at the suggestion of a health care provider (PS)

$H_0$: $P(PS=1/R=1) = P(PS=1/R=0)$

The null hypothesis was not rejected. There were no statistically significant differences in the prevalence of psychosocial disorders among patients who requested an HIV test and patients tested at the suggestion of a health care provider ($p = .05$) (Table 14).

Table 14.

*Psychosocial Disorders by Patient Requested or Provider Suggested HIV Testing*

<table>
<thead>
<tr>
<th>Psychosocial Disorders</th>
<th>Total n= 414 (%)</th>
<th>HCP Request (%)</th>
<th>Patient Request (%)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>104 (25)</td>
<td>93 (26)</td>
<td>11 (21)</td>
<td>0.5002</td>
</tr>
<tr>
<td>Criminal behavior</td>
<td>11 (3)</td>
<td>10 (3)</td>
<td>1 (2)</td>
<td>1.0000</td>
</tr>
<tr>
<td>Depression</td>
<td>21 (3)</td>
<td>18 (5)</td>
<td>3 (6)</td>
<td>0.7413</td>
</tr>
<tr>
<td>Emotional abuse</td>
<td>24 (6)</td>
<td>20 (6)</td>
<td>4 (8)</td>
<td>0.5300</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>12 (3)</td>
<td>11 (3)</td>
<td>1 (1)</td>
<td>1.0000</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>14 (3)</td>
<td>11 (3)</td>
<td>3 (6)</td>
<td>0.4034</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>66 (16)</td>
<td>60 (17)</td>
<td>6 (11)</td>
<td>0.4226</td>
</tr>
</tbody>
</table>

*Note.* HCP = Health Care Provider

*Fisher’s Exact Test*
3. $H_0$: HIV positive patients with psychosocial disorders (PD) will not show a significant difference in the incidence of STIs than HIV positive patients without psychosocial disorders

$$H_0: \ P(STI=1/PD=1) = P(STI=1/PD=0)$$

The null hypothesis was not rejected. There were no statistically significant differences between the incidence of STIs in HIV positive patients with psychosocial disorders or HIV positive patients without psychosocial disorders ($p = 1.0$). Three (25%) of the HIV infected individuals with STIs did not have psychosocial disorders whereas 2 (18%) with STIs did.

**Summary**

The study results suggest that psychosocial disorders are positively correlated with HIV infection and were substantially prevalent in the study sample. HIV positive patients in age groups 18-25 years and > 50 years (n=174) had a lower prevalence of psychosocial disorders compared to HIV negative patients in the same age groups. HIV positive patients in age groups 26-35 years and 36-49 years (n=240) had a higher prevalence of psychosocial disorders compared to HIV negative patients in the same age groups. There were statistically significant differences in psychosocial disorders between the HIV negative and positive groups ($p=0.02$). Overall, psychosocial disorders were higher in patients with HIV infection compared to patients without infection. Patients in the study sample with a history of physical abuse, substance abuse, or criminal behavior (incarceration) had significantly higher rates of HIV infection. These findings support the notion that psychosocial disorders have an influence on the transmission and acquisition of HIV infection. Signs and symptoms of HIV
infection were increased nearly two-fold in the HIV positive group compared to the negative group.

Sexually transmitted infections, diagnosed in the UCC, did not show statistically significant positive correlations with HIV infection in the study sample. Demographic characteristics, age, race/ethnicity, and sex, were comparable to other HIV tested samples described in the literature; however, statistically significant associations were not found between demographic characteristics and HIV infection in the study sample. There were no statistically significant correlations between patient-requested and provider-suggested HIV testing in relation to HIV positive patients.
Chapter V

Discussion and Conclusion

The purpose of this study was to describe psychosocial disorders of patients tested for HIV infection during urgent care center (UCC) visits between 1999 and 2006. In addition to psychosocial disorders, clinical characteristics, including demographics, sexually transmitted infections (STIs), and signs and symptoms of HIV infection were examined in relation to HIV infection. The results suggested that signs and symptoms of HIV infection and certain psychosocial disorders were positively and statistically associated with HIV infection in the study sample. This chapter will address the findings, conclusions, and limitations of the study and recommendations for further research concerning psychosocial disorders and the role they play in the transmission of HIV infection.

Findings

Conceptual Framework

The synthesized conceptual model developed for this study was an integration of Andersen’s Behavioral Model of Utilization (BMU) and Catania, Keegles, and Coates’ AIDS Risk Reduction Model (ARRM), which provided a framework for the analyses of psychosocial disorders and clinical characteristics in relation to HIV infection. Predisposing characteristics outlined in the model, known to influence HIV infection, were gender, high-risk sexual behaviors, and psychosocial disorders were supported by the model and were shown to be positively correlated with HIV infection. Entry to care was added to the
synthesized framework to demonstrate the importance of HIV and other STI testing, whether patient requested or provider suggested. The synthesized framework supported follow-up treatment and prevention services for entry into health care, if necessary, for patients who tested positive for any STIs, including HIV infection.

**Study Results**

Results of the study established that the prevalence of HIV infection diagnosed in the UCC patient sample was 5.5%, which exceeded the 1% prevalence threshold recommended by CDC (2006) to test everyone at all points of entry to health care. The high prevalence of HIV infection found in UCC study sample could be attributed to higher testing rates because new and better treatments for HIV infection became available, therefore people were motivated, or had a reason, to seek testing. It also could be that people in the community learned that HIV testing was free of charge to them at the UCC if they did not have resources to pay, and that they could be tested on a walk-in basis without a provider’s written order.

From the investigator's clinical experience, health care providers’ viewpoints toward HIV infection and testing have changed over the last 25 years, for instance, becoming familiar with and more comfortable talking about high-risk behaviors associated with HIV infection, which may have increased testing in the UCC sample. Additionally, the advantages of patients knowing their HIV serostatus and the benefits to society and public health have placed more responsibility on health care providers, than ever, to include HIV testing as part of all health care encounters. Structural barriers to primary health care may have resulted in the high use of the UCC for HIV testing and prevention services, consequently increasing the prevalence of HIV infection diagnosed in the UCC.
Typically, individuals known to engage in high-risk sexual behaviors were targeted for HIV testing since the beginning of the epidemic, as were patients with overt signs and symptoms of HIV infection. Patients with known or suspected psychosocial disorders did not prompt health care providers in UCCs to suggest HIV testing, even though the literature supported the fact that people with psychosocial disorders have higher rates of HIV infection compared to patients without psychosocial disorders (CDC, 2000).

A larger percentage (45%) of females requested HIV testing than females tested by the suggestion of a health care provider (37%), although the opposite was true for males in which 55% requested testing and 63% were tested by the suggestion of a health care provider. The different approaches to HIV testing between females and males could be that warning signs of STIs are more apparent in females than males, and that women were more inclined to seek care if symptoms indicated an STI or HIV infection. Another possibility for higher testing rates in females is that unwanted sexual encounters may have occurred and the only relief for stress and anxiety was having HIV and other STIs tests to rule out possible infections. The high prevalence of HIV infection in this study sample may suggest that specific physical complaints or symptoms of STIs, prompted health care providers to suggest HIV testing; however, there were no statistically significant differences in HIV infection between patient-requested or provider-suggested HIV testing.

Demographics

Overall, demographic characteristics did not have a statistically significant positive correlation on the probability of having HIV infection. Demographics of the study sample were strikingly similar to the demographic composition of other HIV participants in U.S. for the study of HIV serostatus (CDC, 2004). The HIV positive group primarily consisted of
males (65%), majority were Black (61%), and were 36-49 years of age (48%). Two age
groups, 26-35 years and 36-49 years, had a higher prevalence of HIV infection than patients
did in the 18-25 year and > 50 year age groups. A higher rate of HIV infection found in the
26-35 year age group was most likely due to the acquisition of HIV infection during high
school or college years because adolescents believe they are invincible, like to explore, and
can be pressured to engage in undesirable behaviors that, unrealized at the time, may
permanently affect their lives. Furthermore, HIV infection during adolescence mimics adult
HIV infection behaviors rather than HIV infection acquired during early childhood or vertical
transmission. Consequently, parents of adolescents may have been unaware of the warning
signs that should have prompted medical attention, particularly during the acute phase of
HIV infection. Consequently, signs and symptoms of HIV infection may have been
dismissed as flu or upper respiratory infections that thwarted health care services until
opportunistic infections typically seen with HIV infection occurred.

UCC patients diagnosed with HIV infection in their mid-30s to late 40s probably
acquired the virus during unprotected sexual encounters or other high risk behaviors while in
college or soon thereafter. Relatively healthy individuals living on their own without health
insurance may simply have ignored the early symptoms suggestive of HIV infection and
were tested only when the infection became obvious. Individuals diagnosed with HIV
infection in their 30s and 40s and immediately started on drug therapy can expect to live well
beyond age 50, in fact, by 2015, 50% of individuals with HIV infection in the U.S. will be
over age 50 (CDC, 2010).
Sexually Transmitted Infections

Associations between STIs and HIV serostatus in the study sample were not statistically significant ($p = .49$). Even though this finding aligns with previous studies that examined current and past STIs, there may have been statistically significant correlations with HIV infection if STIs reported in the histories of UCC patients were abstracted and included in the analyses. From 1999-2006, gonorrhea and chlamydia, bacterial infections, were among the highest reported STIs in the U.S and were the most prevalent STIs found in the study sample. Gonorrhea had a higher prevalence in the HIV positive group than did Chlamydia whereas syphilis and HSV2 were of the same prevalence as gonorrhea in the HIV positive group. A high prevalence of gonorrhea diagnosed in the study sample was most likely because gonorrhea is a symptomatic STI in females and males that is easily detected and treated, therefore, the convenience of rapid testing and treatment of gonorrhea in the UCC may have increased the number of HIV infections. Gonorrhea found in the study sample did not show a statistically significant positive correlation with HIV infection.

Signs and Symptoms of HIV Infection

The high prevalence of signs and symptoms of HIV infection found in the HIV positive group could be attributed to the fact that individuals were not HIV tested until symptoms became intolerable, which usually occurs in the later stages of HIV infection. Of the 12 signs and symptoms of HIV infection observed in the study sample, fever, weight loss, lymphadenopathy, night sweats, and pneumonia were positively correlated with HIV infection ($p = .012$). Even though fewer signs and symptoms of HIV infection were found in the HIV negative group, many of the signs and symptoms correlated with HIV infection and probably indicated high viral loads found in acute infections. Sophisticated and costly tests
that could determine plasma viral loads within 1-2 weeks of contracting HIV infection were not routinely used during 1999 - 2006. The prevalence of HIV signs and symptoms observed in the study sample mirrored the prevalence of signs and symptoms of other studies described in HIV literature (NIAID, 2011).

**Psychosocial Disorders**

The prevalence of HIV infected patients with psychosocial disorders is reported to be 5% to 23%, compared with a prevalence of 0.3% to 0.4% in the general U.S. population (Senn & Carey, 2008). Six psychosocial disorders discussed in the literature associated with HIV infection were found in the study sample and analyzed to determine if there was a positive correlation with HIV infection. Of the six disorders, substance abuse, criminal behavior (incarceration), and physical abuse showed statistically significant positive correlations with HIV infection. Anxiety, bipolar disorder, obsessive-compulsive disorder (OCD), panic attacks, schizophrenia, and social phobias were other psychosocial disorders mentioned in the medical records; however, the numbers were small for statistical analyses (Appendix D). Additionally, the disorders are transient, making them difficult to observe or diagnose during a one-time visit. Bipolar disorders were inadvertently omitted and should have been included with depression, though the number of patients with bipolar disorder would not have influenced the outcome of the statistical analyses. The psychosocial disorders examined in this study sample were discussed throughout the literature as correlated with HIV infection.

**Physical Abuse**

Physical abuse, in the form of domestic violence, is responsible for 35% of females and 22% of males who seek care in emergency departments annually (Newton, 2001).
Physically abused individuals, whether abuse occurred during childhood or as an adult, have higher rates of HIV infection compared to people who have never been physically abused. Recipients or perpetrators of physical abuse are frequently associated with high risk behaviors in general. Physical abuse showed a statistically significant positive correlation with HIV infection in the study sample ($p=0.024$), which suggests that physical abuse is a serious disorder that should be considered with other high-risk behaviors targeted for HIV testing in UCCs.

**Emotional Abuse**

Statistics on the overall prevalence of emotional abuse in the general adult population is not known because few cases are reported to health care providers. A lack of information about emotional abuse correlated with HIV infection may be due to misunderstandings, or unrecognized signs and symptoms of emotional abuse by providers and patients. Twenty-four patients of the 414 included in the UCC study sample reported emotional abuse; however, statistically significant positive correlations with HIV infection were not found ($p=1.0$).

**Sexual Abuse**

Fourteen patients in the study sample reported sexual abuse as a reason for seeking care in the UCC, of which three requested HIV testing and 11 were tested at the suggestion of a health care provider. The low prevalence of sexually abused patients in the study sample probably reflects the fact that most sexually abused victims who report to the ED are not triaged to the UCC. Discussions of comorbid sexual abuse and HIV infection found in the literature suggest that sexual abuse is positively correlated with HIV infection, although none of the sexually abused patients in the UCC study sample tested HIV positive.
**Substance Abuse**

Substance abuse among HIV infected individuals in the U.S. during the 1990s into the early 2000s was reported to be 25% to 45% (International AIDS Society–USA, 2003). Substance abuse, including alcohol, was found in 39% of the HIV positive patients and 15% of the HIV negative patients and was positively correlated with HIV infection in the study sample \( p=.005 \). Although the root of substance abuse has not been thoroughly examined in relation to HIV infection, substance abuse is described in the literature as a behavior that increases HIV infection due to a number of factors, including lowered inhibitions. The high prevalence of substance abuse found in the study sample suggests that drugs probably were readily available and may have been associated with a drug trafficking corridor in close proximity to the UCC were HIV testing took place. Even though the socioeconomic status of each patient in the sample was not established, most did not have health insurance, many were laborers, and a substantial proportion lived in areas of poverty. According to Fauci (2010), environmental conditions affect the use of substances.

**Criminal Behavior (Incarceration)**

There was a statistically significant positive correlation in criminal behavior with HIV infection \( p= <.001 \) in the study sample. HIV infection found in patients with a history of criminal behavior (incarceration) suggests that there are high rates of HIV infection in jails and prisons secondary to high-risk drug and sexual behaviors (Jafa et al., 2009). Upon release from jails or prisons, prior inmates were screened for various infectious diseases, including HIV infection, in the UCC, especially prior to acceptance to halfway houses or drug rehabilitation facilities.
Depression

The literature search revealed the prevalence of depression among HIV positive patients was 5% - 60%, compared to the general population prevalence of 15%-30% (NIMH, 2002; Phillips et al., 2001; Penzak et al., 2000). Phillips (2008) suggested that the majority of people with HIV infection and current depressive disorders had a history of depression that preceded HIV infection. Statistically significant differences in depression between the HIV positive and negative groups in the study sample were not found ($p=1.00$). Penzak (2000) suggested that there was rarely a cause-and-effect relationship between depression and HIV infection. The low prevalence of depression found in the UCC study sample suggests that patients did not mention a history of depression while they were in the UCC, or that depression was discovered only when overt symptoms were present.

Gaps in the Literature

In comparison to earlier research, this study was unique because it not only described the characteristics of psychosocial disorders found in UCC patients, it also suggested that psychosocial disorders may have contributed to the high prevalence of HIV infection discovered in the study sample. This may be the first study to show a positive association between substance abuse, criminal behavior, and physical abuse with HIV infection diagnosed in an UCC setting. Studies that have described HIV infection correlated with psychosocial disorders were in the context of psychiatric outpatient clinics, state mental institutions, homeless shelters, and prisons, not urgent care settings. Six psychosocial disorders were characterized in the study sample, of which three were positively correlated with HIV infection: substance abuse, criminal behavior, and physical abuse. Depression, emotional abuse, and sexual abuse were discussed in the literature as positively associated
with HIV infection; however, positive correlations between the disorders and HIV infection were not found in the UCC sample. There are gaps in the literature that must be bridged before a true description of psychosocial disorders and the effect they have on HIV infection can be established.

**Limitations**

There are several limitations of this study. First, the sample size was relatively small for generalizability of the research findings to the UCC population as a whole, or to other populations and health care settings. Second, information abstracted from the medical records of patients included in the study was for clinical purposes; therefore, data from the retrospective convenience sample may not accurately reflect the study variables. Third, clinical information was recorded by various health care providers with different levels of expertise, experience, and education. Consequently, psychosocial disorders, STIs, and signs and symptoms of HIV infection may have been missed, patients not queried about the conditions, or incidents may have been under-reported during the UCC visits. Even though not all medical records had information concerning psychosocial disorders, STIs, or signs and symptoms of HIV infection, this does not suggest that patients without documentation did not have psychosocial disorders, STIs, or signs and symptoms of HIV infection. Finally, data relevant to the research were missing from several medical records, which in turn, required exclusion of those patients from the study (Hess, 2004).

**Future Research**

HIV testing rates are higher among individuals who engage in high-risk sexual encounters, or exhibit signs and symptoms typically seen in HIV positive individuals because health care providers continue to target these behaviors for testing. It may be that providers
are reluctant to accept the fact that individuals with psychosocial disorders have higher rates of HIV infection than the general population; therefore, patients with psychosocial disorders are not targeted for HIV testing. Researchers have not described psychosocial disorders as a cause of HIV infection, even though behaviors related to psychosocial disorders were highly accepted as positively associated with HIV infection. For example, the psychosocial disorder substance abuse, as described in the literature, is a high-risk behavior that most likely influences the prevalence of HIV infection. The actual psychosocial disorder, or the cause of the behavior, such as addiction, contextual factors, and the individual’s motivation for engaging in the behavior, is not thoroughly examined.

While it is essential to target individuals for HIV testing who engage in high-risk behaviors, targeting patients with diagnosed psychosocial disorders, or psychosocial disorders discovered at the time of an UCC visit, may be equally important for the detection of HIV infection. Although the CDC recommends HIV testing of everyone, aged 13 years to 64 years, at all points of entry into health care, this is not being done because policies and other structural supports are not in position to encourage routine testing at all health care sites (CDC, 2006).

Prospective studies specifically designed to evaluate the characteristics and prevalence of psychosocial disorders found in UCC patients is necessary to show a true relationship between psychosocial disorders and HIV infection. An UCC that offers routine HIV testing to all patients would be ideal for a comparison study of psychosocial disorders in HIV positive and negative patients. Inclusion criteria for the prospective study would include a review of psychosocial disorders, previously or currently diagnosed, on the general intake form. The proportion of psychosocial disorders in the HIV positive group would be
compared to the negative group and analyzed for statistically significant correlations with HIV infection.

Conclusions

This may be the first study to show that psychosocial disorders are positively correlated with HIV infection in an UCC sample. Findings from this study suggest that: 1) HIV infection in a sample of UCC patients tested for HIV was positively associated with psychosocial disorders, 2) high risk behaviors may signify underlying psychosocial disorders, and 3) there may be a need to ensure that patients with known or suspected psychosocial disorders receive HIV testing. Psychosocial disorders found in the study sample that positively correlated with HIV infection provide a wealth of information suggesting that prospective studies are necessary to conclude whether testing individuals with psychosocial disorders for HIV infection is a viable approach to identify HIV infection. In general, outcomes of this study may be useful in decision making for allocation of funds, policy changes, improved health care services, and research to support evidence-based care for individuals with psychosocial disorders at risk of HIV infection.
Appendix A

Definitions - Psychosocial Disorders and STIs

Psychosocial Disorders

Psychosocial disorders result from negative life events, environmental difficulties, interpersonal stressors, inadequate social support, lack of personal resources, or other problems related to the context in which an individual's difficulties have developed.

A psychosocial disorder is a mental illness caused or influenced by life experiences, as well as maladjusted cognitive and behavioral processes.

Physical abuse is contact intended to cause pain, injury, or other physical suffering or bodily harm.

Sexual abuse (sexual assault) is forceful sex or to knowingly cause another person to engage in an unwanted sexual act by force or threat.

Emotional abuse is aggressive demands, unrealistic expectations, threats, manipulation, degradation, and punishment that results in feelings of intimidation, worthlessness, and powerlessness.

Substance abuse is excessive use of or addiction to drugs (all types) including alcohol. Substance abuse can be defined as the repeated use of a substance even with the knowledge of its negative health consequences.

Criminal behavior is any behavior that has criminal intent, or results in punishment by law enforcement of some type. There is a positive statistical significance between criminal and antisocial behavior. Often an antisocial personality seen in children and adolescents indicate high risks for criminality.

Depression is a mood disorder in which feelings of sadness, loss, anger, or frustration interfere with everyday life for at least two weeks. Depression is more prevalent in females than males (2:1).
Sexually Transmitted Infections

**Chancroid** is a bacterial infection caused by the bacterium *Hamophilus ducreyi*. Chancroid is transmitted by way of direct contact with open ulcers. Skin lesions, usually of the genitalia, and lymphadenopathy in the groin area are signs and symptoms of Chancroid.

**Chlamydia** is a common STI caused by the bacterium *Chlamydia trachomatis*, which is transmitted during intercourse. The majority of people infected with chlamydia have no symptoms; however, laboratory tests can be performed on urine, or other specimens collected from the penis or cervix that can diagnose chlamydial infections.

**Genital Human Papilloma Virus (HPV)** usually appears as a wart or groups of warts in the genital area that do not cause cancer, as opposed to HPV found on a cervical smear. HPV is passed on through genital contact, most often during intercourse. Most people with HPV do not develop symptoms or health problems. There are effective vaccines on the market that prevent HPV.

**Gonorrhea** is an STI caused by the bacterium *Neisseria gonorrhoeae*, which is transmitted by contact with semen or vaginal fluids during unprotected sexual activity with an infected partner. Gonorrhea is usually diagnosed by testing a urine sample or by identification of the bacteria in cervical and urethral exudate under a microscope.

**Herpes Simplex Type 2** is an STI caused by herpes simplex virus type 2 (HSV2) which appears as blisters on or around female/male genitalia that leave tender ulcers. Outbreaks of the virus become less severe and decrease over time; however, the infection stays in the body indefinitely.

**Syphilis** is an STI caused by the bacterium *Treponema pallidum*. Direct contact with a syphilis sore is the route of transmission from one person to another. Syphilis is a progressive infection that can be diagnosed with laboratory tests and clinical symptoms specific to the primary, secondary, and latent stages of the infection.

**Trichomoniasis** is a sexually transmitted infection caused by the parasite *Trichomonas vaginalis*, which is most often diagnosed by a microscopic examination (wet prep) of a vaginal discharge. Usually, men do not have symptoms and the infection goes away without treatment in a few weeks.

Centers for Disease Control and Prevention (CDC). (2010).
Appendix B

IRB Approval and HIPAA Waiver of Research Consent

OFFICE OF HUMAN RESEARCH ETHICS
Medical School Building 52, Mason Farm Road
CB #7097
(919)966-3113
Web site: ohre.unc.edu
https://my.research.unc.edu for IRB status
Federalwide Assurance (FWA) #4801

TO: Sandra Kay Santucci
School of Nursing CB: 7460

Authorized Signature

FROM: Public Health-Nursing IRB

APPROVAL DATE: 7/19/2007

EXPIRATION DATE OF APPROVAL: 7/17/2008

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.1 10)

SUBMISSION TYPE: Initial

EXPEDITED CATEGORY: 5. Existing or non-research data STUDY #: 07-1141

STUDY TITLE: HTV-Tested Patients in an Urgent Care Setting: Psychosocial and Clinical Characteristics
This submission has been approved by the above IRB for the period indicated. It has been determined that the risk involved in this research is no more than minimal.

**Study Description:** Purpose: to determine commonalities among patients who were HTV tested in the Urgent Care Center (UNC Emergency Department) from 1996 to 2006. Primarily, chief complaints, psychosocial issues, limited demographic information and HTV test results will be collected. Participants: Medical records of patients who were ordered HTV testing during evaluations from 1996 to 2006 in the UNC UCC. Procedures: Retrospective chart review. This study is a retrospective chart review of people who were HIV-tested in the UNC Urgent Care Center. Data will be collected by the Student PL. Interactions with subjects will not take place.

**Study Specific Details:**

This research meets criteria for waiver of research consent [45 CFR 46.1 16(d)] and waiver of HIPAA authorization [45 CFR 164.512(i)(2)(ii)].

**Investigator’ Responsibilities**

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator’s responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.

When applicable, enclosed are stamped copies of approved consent documents and other recruitment materials. You must copy the stamped consent forms for use with subjects unless you have approval to do otherwise.

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented (use the modification form at ohre.unc.edu/forms). Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB using the adverse event form at the same web site.

**CC:** Peter Leone, Medicine, CB: 7030, Faculty Advisor
Appendix C

Request for IRB Renewal of Approval

OFFICE OF HUMAN RESEARCH ETHICS
Institutional Review Board
REQUEST FOR RENEWAL OF IRB APPROVAL OR STUDY CLOSURE
Version August 26, 2009

If the research is continuing:
• Check the relevant items.
• Include two collated sets of copies (sorted in the order listed) of checked items.
→ Submissions will be returned if these instructions are not followed.

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<td>Any items specifically requested in questions # 4 through 9 (in that order).</td>
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<td>3.</td>
<td>The most recent application submitted for IRB approval. This application should be updated to include any modifications since the study was initially approved or last renewed. If there are any new modifications included with this renewal, highlight the proposed modifications by underlining.</td>
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<td>4.</td>
<td>Clean copies of all consent document(s) to be used in the upcoming approval period, for stamping.</td>
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<td>5.</td>
<td>Only for those study personnel not in the online UNC-CH ethics training database (<a href="http://cfx3.research.unc.edu/training_comp/">http://cfx3.research.unc.edu/training_comp/</a>): Documentation of required training in human research ethics.</td>
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IRB study #: #07-1141                                      Date: April 21, 2011

Title of Study: HIV Tested Patients in an Urgent Care Setting: Psychosocial and Clinical Characteristics

Principal Investigator: Sandra Santucci, RN, PhD-C

Faculty advisor: Dr. Diane Kjervik, RN, JD
For industry sponsored research (if applicable):
Sponsor’s master protocol version #:   Version date:
Investigator Brochure version #:   Version date:
Any other details you need documented on IRB approval:

1. In a few sentences, describe the past year’s work, and describe what you plan for the upcoming year, including data analysis, if relevant.

Data analyses has taken place over the past year. During the upcoming year, continued data analysis and dissertation defense will take place.

2. Number of subjects involved through direct contact or use of their data (for multi-site studies, include only subjects covered by this IRB) (b+d should not be larger than a)
   a. Total projected number as approved by IRB: 1,000
   b. Total number of subjects involved to date (for clinical trials include “screen failures”): 414
   c. Number of subjects added since last renewal: 0
   d. Number to be included in upcoming year: 0

Answer the following questions based on information since initial approval or last renewal. Only include subjects covered by this IRB.

3. Have there been any modifications approved since the last review? If your IRB application has not already been updated to reflect these changes, do so now and attach any revised documents, including application and/or consent documents. __ yes √ no

4. Have any subjects withdrawn voluntarily or been withdrawn from the study? If yes, explain; give number and reasons for withdrawals. __ yes √ no

5. Have there been any complaints about the research from subjects or theirs? If yes, explain __ yes √ no

6. Have there been any findings (e.g., publications, new information) that alter the risk/benefit ratio or otherwise impact the study? If yes, explain, including whether these new findings are relevant to participants’ willingness to continue. __ yes √ no

7. Have there been any relevant multi-center reports? If yes, provide a copy of the report. __ yes √ no

8. Does this study have a Data and Safety Monitoring Committee (DSMC or DSMB)? If yes, provide a report from the DSMC. __ yes √ no

9. Have there been unanticipated problems or serious adverse events since the last renewal? If yes, include all copies of local Adverse Event reports with this submission. __ yes √ no
10. Has this study been audited by external sponsor or monitor since approved or last renewed? If yes, include a copy of the audit report. __ yes √ no

11. Are you requesting any changes to the study or consent documents? If yes, include the form requesting Modification of Approved Human Subjects Research and underline the proposed change in the updated application and/or consent documents. __ yes √ no

12. Will you be enrolling, consenting or re-consenting subjects in the upcoming approval period? If yes, include clean copies of consents/assents/fact sheets to be used to receive a new stamp. Include any new recruitment materials to be used with subjects. __ yes √ no

Action requested by Principal Investigator (choose only one):

Renew approval:
√ Study has always involved only analysis of existing data or specimens. Continue as approved.

Study involves(ed) direct interaction/intervention or contact with subjects:
___ Continue as approved: Enrollment of new subjects continues.
___ Enrollment of new subjects closed; interaction/intervention with previously enrolled subjects continues.
___ Direct interaction with subjects completed but subsequent monitoring or follow up continues.
___ Subjects’ involvement completed but renewal is requested for data analysis.

Closure of Study:
___ Research completed: Identifiable data or human biological specimens are stored according to plan already approved by the IRB.
___ Research completed: All data or human biological specimens are de-identified.
___ Lack of funding or other (specify):

Signature of Principal Investigator Date

Signature of Faculty Advisor (if applicable) Date
IRB Renewal Approval

To: Sandra Kay Santucci  
School Of Nursing  
CB: 7460

From: Public Health-Nursing IRB

Approval Date: 4/25/2011  
Expiration Date of Approval: 4/23/2012

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)  
Submission Type: Renewal  
Expedited Category: 5. Existing or non-research data  
Study #: 07-1141  
zzStudy Title: HIV-Tested Patients in an Urgent Care Setting: Psychosocial and Clinical Characteristics

This submission has been approved by the above IRB for the period indicated.

Study Description:

Purpose: to determine commonalities among patients who were HIV tested in the Urgent Care Center (UNC Emergency Department) from 1996 to 2006. Primarily, chief complaints, psychosocial issues, limited demographic information and HIV test results will be collected. Participants: Medical records of patients who were ordered HIV testing during evaluations from 1996 to 2006 in the UNC UCC. Procedures: Retrospective chart review. This study is a retrospective chart review of people who were HIV-tested in the UNC Urgent Care Center. Data will be collected by the Student PI. Interactions with subjects will not take place.

Regulatory and other findings:  
This research meets criteria for waiver of research consent [45 CFR 46.116(d)] and waiver of HIPAA authorization [45 CFR 164.512(i)(2)(ii)].
Investigator’s Responsibilities:

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator’s responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.

Enclosed are stamped copies of approved consent documents and other recruitment materials (when applicable). You must copy the stamped consent forms for use with subjects unless you have approval to do otherwise.

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented (use the modification form at ohre.unc.edu/forms). Any unanticipated problem involving risks to subjects or others (including adverse events reportable under UNC-Chapel Hill policy) should be reported to the IRB using the web portal at https://irbis.unc.edu/irb.

This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), 45 CFR 164 (HIPAA), 21 CFR 50 & 56 (FDA), and 40CFR 26 (EPA), where applicable.
Appendix D

Code Book

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*Note.* In logistic regression analysis, Hispanic, Asian, and Native American race/ethnicity are designated as ‘other’. Psychosocial disorders not analyzed for correlation with HIV infection: anxiety, bipolar disorder, OCD, panic attacks, schizophrenia, and social phobias.
Appendix E

Data Collection Process

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REFERENCES


Nowak, M. (2010). UN: Prisons are breeding grounds for AIDS. *XVIII International AIDS Conference, Vienna, Austria.*


