HEALTH RELATED BEHAVIORS AND SPECIFIC BIOPSYCHOSOCIAL

FACTORS IN WOMEN WITH HIV/AIDS

A DISSERTATION

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE

DEGREE OF DOCTORATE OF PHILOSOPHY

IN THE GRADUATE SCHOOL OF THE

TEXAS WOMAN'S UNIVERSITY

COLLEGE OF ARTS AND SCIENCE

BY

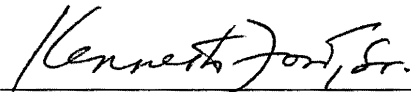CAROLINE M. JOHANSON, B.S., M.S., M.A.

DENTON, TEXAS

DECEMBER 2010

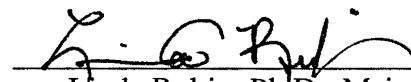TEXAS WOMAN'S UNIVERSITY
DENTON, TEXAS

August 10th, 2010

To the Dean of the Graduate School:

I am submitting herewith a dissertation written by Caroline M. Johanson entitled "Health Related Behaviors and Specific Biopsychosocial Factors in Women with HIV/AIDS." I have examined this Dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctorate of Philosophy with a major in Counseling Psychology.

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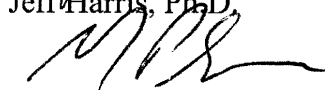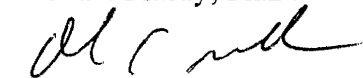Linda Rubin, Ph.D., Major Professor

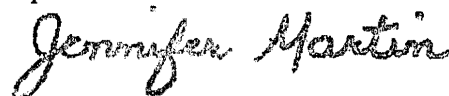We have read this dissertation and recommend its acceptance:

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ACKNOWLEDGMENTS

I would like to thank and acknowledge the important individuals who aided, supported, and contributed to the completion of my dissertation. First, I would like to express my gratitude to my co-chairs, Drs. Kenny Foster and Linda Rubin. I will always remember and appreciate the insight, expertise, and empathy they provided to me throughout my journey of completing my doctorate. I would like to thank Dr. Jeff Harris for his role as a committee member, sharing his insightful feedback, and always providing me with positive encouragement. I would also like to thank Dr. Mike Plasay for joining my committee later in the game and assisting me with my statistical analyses. Without his aid, it would not have been possible for me to complete this project as quickly and efficiently while away on internship.

I would also like to recognize and thank my family and friends who have supported me throughout the years. The countless long distance phone calls and evenings out to decompress helped me stay sane and focused on my goals. I especially would like to thank my parents for their never-ending support. Last, but not least, I would like to acknowledge that without my closest friend, Ron Paul, I would not have survived my journey through graduate school.

ABSTRACT

CAROLINE M. JOHANSON

HEALTH RELATED BEHAVIORS AND SPECIFIC BIOPSYCHOSOCIAL
FACTORS IN WOMEN WITH HIV/AIDS

DECEMBER 2010

Human Immunodeficiency Virus (HIV), which progresses into Acquired

Immunodeficiency Syndrome (AIDS), is a disease, the prevalence of which continues to

grow. As the population of women with HIV/AIDS continues to grow, research

continues to lag behind in studies addressing factors that impact quality of life. Health

related behaviors, such as medication compliance, substance use and abuse, and

participation in mental health treatment, impact the quality of life for women with

HIV/AIDS. Utilizing the biopsychosocial model (Engel, 1977), six variables, including

severity of disease, self-esteem, feminist identity, depression, anxiety, and social support

of women with HIV/AIDS, were studied in regard to the three health related behaviors

listed above. In the current study, women with HIV/AIDS were recruited through

snowball sampling on the Internet. Participants completed seven questionnaires and

scales, including a demographic questionnaire, the HIV symptoms scale, Patient health

questionnaire-2, Patient health questionnaire-anxiety, Rosenberg self-esteem scale,

Feminist identity development scale, and the Multidimensional scale of perceived social

support. The six biopsychosocial variables were statistically analyzed using cluster

analysis to examine possible groupings of participants. Three clusters were identified.

One cluster included participants who did not endorse having depression or anxiety and reported higher levels of social support and self-esteem when compared to the other clusters. Another cluster included participants who endorsed having depression and lower rates of self-esteem and social support than the first cluster. The third cluster reported the highest rates of anxiety and the lowest rates of social support and self-esteem. The clusters of participants were then analyzed with a MANOVA and Pearson chi-square tests to identify the possible impact they had on health related behaviors. Medication compliance and alcohol abuse were identified as significantly related to the participants' identified cluster. As rates of mental illness increased and rates of self-esteem and social support decreased, it was found that rates of medication noncompliance and alcohol abuse also increased.

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CHAPTER I

INTRODUCTION

Human Immunodeficiency Virus (HIV), which progresses into Acquired

Immunodeficiency Syndrome (AIDS), is a disease that affects individuals differently

depending on multiple factors. In turn, factors that influence and affect the progression

of HIV/AIDS are also influenced by other variables, including biological, psychological,

and social factors.

HIV/AIDS

AIDS is caused by HIV and has been considered a major epidemic across the

globe for over 20 years (Centers for Disease Control and Prevention [CDC], 2008;

Murphy, Greenwell, Mouttapa, Brecht, & Schuster, 2006). Researchers across various

disciplines continue to examine ways of preventing and treating HIV/AIDS. In the area

of treatment, both the conceptualization of individuals with HIV and treatment outcomes

are needed to assess appropriate and effective ways to provide care to this population.

One goal of care providers for people living with HIV/AIDS is to assist them in having

the highest level of quality of life possible (Vidrine, Amick, Gritz, & Arduino, 2005).

Quality of Life

Quality of life has been defined as the reported levels of satisfaction in different

domains of life, such as physical ability, comfort, and mental health (Feinstein, 1997;

Vidrine, et al., 2005). For individuals with HIV/AIDS, quality of life can be researched

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and defined in multiple ways due to the severity and complexity of the progression of the illness, symptoms of the illness, other medical issues that are caused by HIV/AIDS, social stigma of the disease, emotional distress, and grief that is caused by being diagnosed with a fatal illness (Benson, Kaplan, Masur, Pau, Holmes, & 2004; Charurat et al., 2004; Haug et al., 2005; Rao et al., 2008; van Servellen, Aguirre, Sarna, & Brecht, 2002; Vidrine et al., 2005). Quality of life is overall satisfaction in life domains, including physical and mental health.

Health related behaviors that affect the quality of life within the HIV/AIDS population. Quality of life is influenced by multiple factors in the lives of individuals with HIV/AIDS (van Servellen et al., 2002; Vidrine, et al., 2005; Williams & Larkin, 2007). According to the model developed by Vidrine and colleagues, behavioral factors, such as smoking, influence physical and mental health and contribute to overall quality of life. Behavioral factors or health related behaviors are actions of individuals that influence other areas of life; for example, smoking cigarettes affects general health, which can influence overall quality of life.

Three particularity prominent health related behaviors impacting individuals with HIV/AIDS are medication compliance (Boarts, Bogart, Tabak, Armelie, & Delahanty, 2008; Gonzales et al., 2008; Waldrop-Valverde et al., 2009), substance use and abuse (Cook et al., 2001; Durvasula, Myers, Mason, & Hinkin, 2006; Haug et al., 2005), and participation in mental health treatment (Funck-Brentano et al., 2005; Jones et al., 2007;

Rao et al., 2009; Weaver et al., 2008). First, medication compliance has been directly

connected to the progress and maintenance of HIV/AIDS, especially in more recent

years, with advancements in medical treatments, such as antiretroviral therapy (ART) and

highly active antiretroviral therapy (HAART; Pence et al., 2008; Safren, Radomsky, Otto,

& Salomon, 2002). Second, substance use and abuse have been found to be highly

prevalent in the HIV/AIDS population (Galvan et al., 2002; Korthusis et al., 2008; Zaller,

Gillani, & Rich, 2007). Individuals with HIV/AIDS who have reported substance abuse

have also reported difficulties in other areas that directly impact their physical and mental

health (Applebaum, Richardson, Brady, Brief, & Keane, 2009; Cook et al.; Weaver et

al.). Third, participation in mental health treatment has been found not only to increase

psychological well-being (Rao et al.), but also to influence physical health and other

health related behaviors, such as medication compliance (Jones et al.; Kang, Goldstein, &

Deren, 2008; Rao et al.).

Biopsychosocial Variables

Within the HIV/AIDS population, health related behaviors can be influenced by

the various biological, psychological, and social (i.e., biopsychosocial) variables that

have been connected with overall quality of life (Gonzales et al., 2008; Safren et al.,

2002; Williams & Larkin, 2007). The biopsychosocial model has been used in research

to conceptualize individuals with HIV/AIDS in a holistic manner (Alonso, 2004;

Cresswell, 2008; Engel, 1977; Olley, 2003). The biopsychosocial model was created by

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Engel in 1977 in response to the biomedical model, which proposed that medical illness should be researched and conceptualized primarily, if not solely, through biological or physical variables. The biopsychosocial model appears to be a useful model for conceptualizing the HIV population, because it takes into account multiple variables described below that influence quality of life.

Biological Variables

Individuals with HIV/AIDS are significantly affected by the natural progression of the virus (Murphy et al., 2006). Therefore, it is imperative that the progression of the disease is evaluated when examining HIV/AIDS variables in a holistic manner. The severity of HIV/AIDS can be defined and examined by standard methods of assessing participants' Cytotoxic T-cells (CD4 or T cell) counts, as well as the number and perceived severity of symptoms (Benson et al., 2004; Cederfjäll, Langius-Eklöf, Lidman, & Wredling, 2001).

Psychological Variables

Chronic illnesses can directly affect individual psychological well-being (Fremont et al., 2007). For the HIV positive population, for example, various psychological variables, such as self-esteem, have been examined in connection with health related behaviors and overall well-being in individuals with HIV/AIDS (Barclay et al., 2007; Funck-Brentano et al., 2005; Fremont et al.; Gore-Felton et al., 2006; Greeson et al., 2008; Safren et al., 2002; Wright, 2008).

Another variable that has been studied and found directly to affect health related behaviors of individuals with HIV/AIDS is a previous or current diagnosis as mentally ill (Fremont et al., 2007; Tegger et al., 2008). The prevalence rates for mental illness, such as depression and anxiety, in the HIV/AIDS population is higher than the general population, with prevalence rates as high as 63% (Gaynes, Pence, Eron, & Miller, 2008; Haug et al., 2005; Tegger et al.; Valverde et al., 2007; Whetten, Reif, Whetten, & Murphy-McMillan, 2008; Zaller et al., 2007).

Feminist identity. Through an extensive literature review, it was determined that there were no findings in existing research that examined feminist identity within the HIV/AIDS population or as a psychological predictor variable for health related behaviors in HIV-positive women. Feminist identity can be defined as women's attitudes, acceptance, and pride in their female gender (Downing & Roush, 1985). Feminist identity has been researched as a psychological variable predictive of positive well-being in women (Downing Hansen, 2002; Montagnino, 2007). Researchers have found conflicting beliefs around what can be defined as a specific domain or subsection of the psychological variable self-esteem and whether or not feminist identity can be defined as a psychological variable that is positively correlated with self-esteem in women or as a specific domain or subsection of self-esteem (Montagnino; Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). Researchers have found evidence that has supported specific self-esteem domains, such as racial or ethnic identity, as better

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predictors of behavior than global self-esteem (Rosenberg et al.). These specific self-esteem domains have been used in previous research to predict health related behaviors, such as substance abuse and mental health treatment retention (Alleyne, 2004; Croasdale & Mate-Kole, 2006; Foster, 2009). Feminist identity may also function as do other specific self-esteem domains and be a predictor of health related behaviors (e.g., racial identity can be a predictor of various health related behaviors; Alleyne; Croasdale & Mate-Kole).

Social Variables

Due to social stigma and forms of discrimination, social support has been found to be limited, and at times to be identified as a stressor, for individuals with HIV/AIDS (Cederfjäll et al., 2001; Lichtenstein, Laska, & Clair, 2002; van Servellen et al., 2002). Social support can be defined as the perceived amount or satisfaction of relational contact that is available at a given time (Zimet, Powell, Farley, & Werkman, 1988). High levels of social support have been linked to better mental and physical health (Biswas, 2007; Kang et al., 2008; Goldstein, & Deren, 2008; Sunil & McGehee, 2007). Therefore, social support is an important variable that may influence health related behaviors in individuals with HIV/AIDS.

Diversity Variables

Differences in biopsychosocial variables and health related behaviors have been found when comparing demographics, such as gender, race, age, socioeconomic status

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(SES), and education level (Benson et al., 2004; Cunngingham et al., 2005; Gaynes et al., 2008; Pence et al., 2008; Rajabiun et al., 2007; Whetten et al., 2008). The population of women living with HIV/AIDS continues to grow; however, in the past, research focused primarily on men (CDC, 2006; Gwadz et al., 2006). In the limited research on gender differences within the HIV community, women have been identified as reporting lower levels of quality of life (Haug et al., 2005; van Servellen et al., 2002), more physical symptoms (Kang et al., 2008; van Servellen et al.), higher levels of mental illness, such as depression (Valverde et al., 2007), fewer social supports, and more social isolation than men (Kang et al.; Lichtenstein et al., 2002).

Race has been found to be a predictive variable for issues pertaining to medication compliance (Pence et al., 2008; Sunil & McGehee, 2007) and social support (Biswas, 2007; Sunil & McGehee). Pence and collegues (2008) reported that minority participants were more likely to discontinue medication regimens than non-minority participants. Sunil and McGhee (2007) found that social support influenced medication compliance more for minority participants than non-minority participants. Younger age has been found to be predictive of medication noncompliance and substance use and abuse in the HIV/AIDS population (Barclay et al., 2007; Levine et al., 2005). Research on socioeconomic status (SES) in the HIV/AIDS population found poorer health and greater difficulties with medication compliance for individuals with lower SES (Aidala, Lee, Abramson, Messeri, & Siegler, 2007; Nosyk, Li, Sun, & Anis, 2007). Additionally,

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higher levels of completed education for individuals with HIV/AIDS appeared to be predictive of better treatment, medication compliance, and survival rates (Burr et al., 2007; Cunngingham et al., 2005; Sunil & McGehee).

Purpose of Current Study

The purpose of the current study was to build on the previous research that had identified separately various biological, psychological, and social variables as playing a role in health related behaviors that impact the quality of life for women with HIV/AIDS (Benson et al., 2004; Fremont et al., 2007; Kang et al., 2008). Biopsychosocial variables, including severity of disease, self-esteem, feminist identity, depression, anxiety, and social support of women with HIV/AIDS, were measured in relation to their impact on specific health related behaviors, including medication noncompliance, substance abuse, and participation in mental health treatment. The current study was the first to examine feminist identity as a psychological variable that could have been predictive of certain health related behaviors in women with HIV/AIDS. By taking a biopsychosocial approach, a holistic view of strengths in and obstacles for women with HIV/AIDS was identified. By improving health related behaviors in women with HIV/AIDS, health care and mental health care providers may be better able to offer treatment recommendations and interventions to help these women improve their quality of life.

CHAPTER II

LITERATURE REVIEW

HIV/AIDS

Human immunodeficiency virus (HIV) is the virus that causes Acquired

Immunodeficiency Syndrome (AIDS). HIV/AIDS affects the human immune system,

reducing the number of a specific type of white blood cells called Cytotoxic T-cells (CD4

or T cells). CD4 cells are the part of the human immune system responsible for fighting

off illnesses caused by bacteria, viruses, and disease (Centers for Disease Control and

Prevention [CDC], 2008). HIV is diagnosed through blood tests that search for HIV

antibodies in the bloodstream.

According to the CDC (2008), people are not diagnosed with AIDS until their T

cell (CD4 cells) count drops to an extremely low level (i.e., below 200 per cubic

millimeter) and they have experienced specific infections or cancers related to AIDS.

When individuals' T cell counts have dropped below 200 per cubic millimeters, their

immune systems typically have become too weak to fight most infections, which may

increase their vulnerability to infections and other diseases.

Currently, there is no cure for HIV/AIDS, though medication regimens are

available that have been known to slow the progression of the disease for some people

(Daar, 2006). Due to the advancements of HIV/AIDS medication, the disease which was

once conceptualized as a terminal illness is now being considered a chronic illness (O'Cleirigh & Safren, 2006). The progression of HIV to AIDS varies greatly in each individual case and also appears to be influenced by a large range of biological, psychological, and social variables.

Transmission of HIV/AIDS

HIV/AIDS is transmitted through four bodily fluids of humans: blood, semen, vaginal secretions, and breast milk (CDC, 2008; Daar, 2006). The most common forms of contracting the HIV virus are through unprotected sex, including oral, anal, or vaginal sex, and sharing needles, for example sharing needles for intravenous drug use (CDC, 2006). Currently, individuals can be tested in a two week to six month window after engaging in any risky behavior that could have exposed them to the HIV virus. Today, blood or saliva can be utilized to assess for HIV antibodies (Daar).

Recent HIV/AIDS Statistics in the United States

HIV/AIDS has been considered an epidemic in the United States of America since 1981 (CDC, 2006). For more than 25 years, the number of individuals with HIV/AIDS has continued to grow. Within this growing HIV/AIDS population, various demographic groups have been found to increase the prevalence at different rates. In the CDC's 2006 statistical report, it was estimated that approximately 491,727 people in the United States were living with HIV/AIDS. The CDC also reported that the number of newly infected cases had increased for White Americans and Asian/Pacific Islander Americans.

However, Black and Hispanic Americans continue to represent a significantly higher proportion of newly infected cases per year (CDC; Durr, 2005). Furthermore, the 2006 CDC reported that women account for 26 percent of all HIV/AIDS cases in the United States, which is higher than in past reports.

Physical Progression of HIV/AIDS

The progression of HIV/AIDS is different for many if not most individuals who are diagnosed with this chronic and potentially fatal disease. However, there are many similar or common symptoms and markers of the virus for those infected. In order for people's status to shift to the diagnosis of AIDS from HIV, their CD4 count must have dropped below 200 per cubic millimeter and they must be diagnosed as having an AIDS defining illnesses or related condition, such as certain cancers or Opportunistic Infections (Benson et al., 2004). Opportunistic Infections are illnesses, both bacterial and viral, that typically would not affect individuals unless their immune system had been weakened drastically to the point of not being able to fight off small and typically insignificant infections. Since HIV/AIDS specifically weakens the immune system, Opportunistic Infections are able to attack the individuals' body (Benson et al.). Individuals with AIDS can also develop other physical problems, such as wasting syndrome, recurrent bacterial pneumonia, tuberculosis, and neurological diseases (Charurat et al., 2004; Faílde-Garrido, Rodríguez Alvarez, & Simón-López, 2008).

Changes and advancements in the treatment of HIV/AIDS have played a primary role in extending the life expectancy of this population (O'Cleirigh & Safren, 2006). Medications, such as antiretroviral therapy (ART) or highly active antiretroviral therapy (HAART), have been found to slow the physical progression of HIV/AIDS (Levine et al., 2005; Pence et al., 2008; Safren et al., 2002). Due to the increase in life expectancy for people living with HIV/AIDS, the focus of medical health care providers has changed and shifted from addressing end of life to physical, spiritual, and mental issues and leads to new areas of need, such as long term mental health (O'Cleirigh & Safren).

Other Important Issues Concerning HIV/AIDS

HIV/AIDS has been studied and researched for over 25 years. During the history of the virus, many important social and medical issues have been raised, which identify this disease as unique and in need of further investigation. Some important issues that need to be studied and understood include disability implications, specific gender and other diversity concerns, social stigma, and the comorbid emotional and physical illnesses that are often seen with HIV/AIDS.

HIV/AIDS as a disability. HIV/AIDS is a documented and legally protected disability, according to the Americans with Disability Act (ADA, 1990). The ADA's purpose is to protect individuals with disabilities from discrimination. The ADA protects individuals' rights in regard to discrimination in areas, such as employment or housing. In the ADA, it is written that discrimination based on the knowledge that someone has

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HIV/AIDS is illegal; for example, people cannot be turned down for jobs or fired, based on the fact that they have the virus. HIV/AIDS has been added to the ADA's list of disabilities, due to the physically debilitating symptoms the virus causes and the social stigma that is often attached to the virus.

Social stigma associated with HIV/AIDS. Stigma is a socially constructed form of discrimination that can deeply affect people's quality of life in multiple areas, such as their mental state, perceived feelings of safety, employment, and housing (Rao, Pryor, Gaddist, & Mayer, 2008; Rintamaki et al., 2006). In today's society, HIV/AIDS has been identified as one of the most stigmatizing conditions when compared to other physical and mental illnesses (Rao et al.). Stigma can be conceptualized as the experience, both through individuals' feelings and reported situations, of being discriminated against or not being socially accepted due to some personal characteristic (Rao et al.). People can be stigmatized due to any number of factors, including but not limited to areas such as race, gender, sexual orientation, physical abilities, employment status, and religious affiliation. Research across the globe has found high rates of social stigma toward individuals with HIV/AIDS, as well as high rates of internalized stigma within sampled groups of the HIV/AIDS community (Kalichman et al., 2009; Rao et al.; Rintamaki et al.; Rutledge, Abell, Padmore, & McCann, 2009).

Stigma related to HIV/AIDS can impact important issues for individuals with the virus (Rintamaki et al., 2006). For example, Rintamaki et al. found that individuals with

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HIV/AIDS, who reported high levels of concerns surrounding being stigmatized, were less likely to follow their medication regimens or understand important medical reports, such as their CD4 counts. Stigma due to HIV/AIDS status has also been connected to high rates of depression and social isolation (Lichtenstein et al., 2002).

Quality of life in the HIV/AIDS population. Quality of life is a subjective term with a definition that often has shifted. Quality of life has often been referred to as the degree of satisfaction that is reported in either a specific domain of people's lives, for example, their health, employment, social life, or family, or as a broad, global construct (Feinstien, 1997; Ferrans, 1990, 1996; Ferrans & Powers, 1992; O'Cleirigh & Safren, 2006). Defining quality of life as a global construct has allowed researchers to examine multiple facets of individuals' lives, such as their health, employment, social life, and family and has allowed research to focus on areas of importance for the population. Examining quality of life as a global construct also has allowed researchers to examine participants in a holistic fashion.

Current research (e.g., O'Cleirigh & Safren, 2006; Vidrine et al., 2005) often focused on two areas in regard to quality of life: defining what facets should be included in describing quality of life as a construct, and identifying what factors affect or influence quality of life. Previous research has typically defined quality of life for the HIV/AIDS population as either satisfaction with their physical health and/or their overall psychological well-being (O'Cleirigh & Safren). Within these two areas of quality of life,

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specific domains have been hypothesized and examined (O'Cleirigh & Safren). Domains that have been identified as important when examining the quality of life for individuals with HIV/AIDS include environment, personal growth, achievement, and social functioning (Eng, Coles, Heimberg, & Safren, 2005; O'Cleirigh & Safren).

Ferran and Power's (1985, 1992) Quality of Life Index (QLI) took a global and specific approach to assessing quality of life as a global construct that can be divided into four subcategories, including health and functioning, psychological and spiritual well-being, social and economic factors, and family functioning. The QLI is a scale that assessed the quality of life for people with chronic illnesses, which has been used to study the HIV/AIDS community.

Influences on quality of life. Current researchers (e.g., Vidrine et al., 2005) have examined various variables to hypothesize what influences the quality of life for the HIV/AIDS community. Vidrine et al. hypothesized a model to explain the phenomenon of global quality of life for individuals with HIV/AIDS. The major domains of the Vidrine et al. model include disease status, symptoms, and role-specific functional status, i.e., the ability to perform tasks associated with leisure and household chores. The major domains of the model were all thought to be influenced by socioeconomic status as well as behavioral factors or health related behaviors (Vidrine et al.). Behavioral factors or health related behaviors are chosen actions that influence physical or mental well-being. The behavioral factors that were studied and utilized for Vidrine et al.'s model consisted

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of alcohol consumption, illicit drug consumption, and cigarette smoking. Substance use and its effect on the HIV/AIDS population will be covered later in this chapter.

Summary for HIV/AIDS

HIV/AIDS is a chronic disease with many debilitating symptoms that eventually progress toward death (CDC, 2008; O'Cleirigh & Safren, 2006). HIV/AIDS is a socially stigmatized, legally protected disability that affects all who are diagnosed (ADA, 1990; Rao et al., 2008). Research in the area of HIV/AIDS has recently shifted to examining what constitutes quality of life in the HIV/AIDS population and which factors influence quality of life in the community (O'Cleirigh & Safren; Vidrine et al., 2005). Health related behaviors are one set of factors that have been identified as influencing the quality of life for people with HIV/AIDS (Vidrine et al.).

Health Related Behaviors

Health related behaviors can be defined as actions that directly impact individuals' mental or physical well-being and influence their overall quality of life (Vidrine et al., 2005; Waldrop-Valverde, Jones, Jayaweera, Gonzalez, Romero & Ownby, 2009). Health related behaviors are connected to the overall progression of the HIV virus and contribute to the quality of life in women with the virus in both their health and general satisfaction with life (Vidrine et al.). Researchers have found that medication compliance, substance use and abuse, and engaging in mental health treatment, such as individual psychotherapy, group therapy, or peer-led support groups, can positively and

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negatively affect the quality of life and the overall progression of the HIV virus (Bass, Linsk, & Mitchell, 2007; Kennedy, 2007; Waldrop-Valverde et al.).

Medication Compliance with Individuals with HIV/AIDS

Medication compliance can be defined as the health related behavior of taking prescribed medication as directed with regard to frequency, dosage, and timing (Cramer et al., 2008; Osterberg & Blaschke, 2005). It has been found that the less compliant or accurate people were with their medication regimen, the less the potential effectiveness of their medication (Carlson, 2004; Osterberg & Blaschke). If medication is not taken as prescribed, a number of negative outcomes may occur. For example, if medication was not taken as often as needed, the amount of the medicine in the blood stream will not remain at a therapeutic level (Carlson). When the amount of a medication falls below the therapeutic level, the medication loses the required potency in the bloodstream. Relatedly, another potential problem with medication noncompliance is that if medication fluctuates between therapeutic and non-therapeutic levels, the bacteria or virus that the medication was intended to fight or treat, has the ability to become immune to the medication (Osterberg & Blaschke).

Currently, strict medication regimen adherence is highly stressed for successful results in treating the HIV virus (Boarts et al., 2008; Levine et al., 2005; Osterberg & Blaschke, 2005; Waldrop-Valverde et al., 2009). Medication compliance is especially important with the newer forms of medication, such as highly active antiretroviral

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therapy (HAART) for the maintenance and treatment of the HIV virus (Levine et al.; Pence et al., 2008; Safren et al., 2002). At this time, health care providers are emphasizing the pertinence of medication compliance to their patients on ART and HAART. However, regardless of the existing information on the importance of medication compliance, research indicates relatively high rates of noncompliance within the HIV/AIDS population, with little understanding of the barriers to compliance for these patients (Barclay et al., 2007; Hinkin et al., 2004; Levine et al.).

Medication compliance has also been connected with higher reported rates of quality of life among clinical participants when compared to noncompliant patients (Sullivan, Wells, & Leake, 1992). Medication compliance has also been found to be positively correlated with increased periods of improved health and a slowed progression of the virus, which has increased participants' longevity and reported levels of quality of life (Applebaum et al., 2009; Gonzales et al., 2008). Due to HIV/AIDS being caused by a virus (CDC, 2008) and the overwhelming research that has shown the direct positive effect of medication compliance on the progression of HIV/AIDS (Gonzales et al., 2008; Pence et al., 2008; Safren et al., 2002), medication compliance is one of the most important health related behaviors to investigate when researching the quality of live for people living with HIV/AIDS.

Substance Use and Abuse with the HIV/AIDS Population

Substance use and abuse can be defined as the act of using drugs that are not

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prescribed, or not being used as prescribed. Substance use and abuse are health related behaviors that can affect individuals' physical and mental health (Durvasula et al., 2006; RachBeisel & McDuff, 1995). Substance abuse and dependence has also been defined as a mental illness (American Psychiatric Association, [APA], 2000), and criteria guidelines are specified in the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV-TR*; APA).

Individuals with HIV/AIDS appear to be at a higher risk than the general population for substance abuse or chronic substance use (Chuang, Liebschutz, Cheng, Raj, & Samet, 2007, Cook et al., 2001; Galvan et al., 2002; Zaller et al., 2007). The amount and frequency of substance use greatly influences whether or not people will have any adverse effects from their use. A recent study by Durvasula and colleagues (2006) found that relatively higher reported rates of alcohol use appeared to be correlated with faster progression of cognitive and neuropsychological performance problems. Researchers have also found that up to 71% of individuals with HIV/AIDS reported using substances to some degree (Korthuis et al., 2008) and that up to 45% of this population may have had a diagnosable substance abuse or dependence disorder (Tegger et al., 2008). However, only half of the participants in a recent study of a HIV/AIDS sample reported that they discussed with their health care providers how their substance use could be affecting their prognosis (Korthuis et al.). Individuals with HIV/AIDS have also indicated that their substance use or abuse has contributed to difficulties in maintaining

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contact with their health providers and staying compliant with their treatment regimens (Aidala et al., 2007).

Mental Health Treatment Within the HIV/AIDS Population

Mental health treatment has been defined as contact between distressed persons and mental health professionals in the forms of individual therapy, group therapy led by a mental health professional, or a peer-run support group (Hardiman, 2002; Spruill & Fong, 1990). Research has shown significant improvement of psychological and physical symptoms in individuals with HIV/AIDS who have participated in some form of mental health treatment (Funck-Brentano et al., 2005; Jones et al., 2007; Rao et al., 2009). Individuals who reported participating in mental health treatment compared to those who are not participating, have also been found to report higher levels of satisfaction in regard to quality of life (Funck-Brentano et al.; Jones et al.; Rao et al.).

Within the HIV/AIDS community, over a quarter of the population does not engage in mental health treatment (Weaver et al., 2008). When accessing treatment use among the subpopulation of the HIV/AIDS community who identify having substance abuse problems, only one-third were receiving treatment for both general mental health and substance abuse (Weaver et al.). Racial differences have also been found in regard to what forms of psychological treatment are accessible and utilized. For example, individual therapy versus peer-run support groups, due to geographic location or medical

insurance (Weaver et al.). Due to differences in treatment choice among individuals with HIV/AIDS, future research will need to access multiple forms of mental health treatment.

Overlap of Health Related Behaviors

Researchers have found that some health related behaviors for individuals with HIV/AIDS significantly relate to each other. For example, researchers have found that individuals who reported high rates of using or abusing substances also reported high rates of medication noncompliance (Applebaum et al., 2009; Cook et al., 2001; Haug et al., 2005; Hinkin et al., 2004; Hinkin et al., 2007; Levine et al., 2005). Researchers have also found that substance use may reduce the amount of participation in mental health services (Weaver et al., 2008). However, it also has been documented that individuals with HIV/AIDS, who reported abusing substances, had a relatively high rate of attending substance abuse related self-help groups (Weaver et al.). Another correlation found between health related behaviors was that participants who were registered for and had attended social support groups were likely to have higher rates of medication compliance than participants who were not registered or had not attended support groups (Jones et al., 2007; Kang et al., 2008).

Summary for Health Related Behaviors

Health related behaviors are actions that influence people's physical and mental health (Bass et al., 2007; Kennedy, 2007; Vidrine et al., 2005). Medication compliance is a health related behavior that has been linked to influencing the progress of HIV and

quality of life for individuals with HIV/AIDS (Boarts et al., 2008; Livine et al., 2005; Sullivan et al., 1992). Substance use and abuse has been found to affect people's physical health and can be viewed as a mental illness (APA, 2000; Durvasula et al., 2006; RachBeisel & McDuff, 1995). Last, participation in mental health treatment has been positively linked to people's physical and mental health as well as reported quality of life (Funck-Brentano et al., 2005; Jones et al., 2007; Rao et al., 2009). Many health related behaviors appear to correlate both positively and negatively with each other and may be influenced by similar factors.

Biopsychosocial Model

The biopsychosocial model provides a theoretical framework that can be used to conceptualize human experiences, such as physical or mental health (Cresswell, 2008; Engel, 1977; Fava & Sonino, 2007; Mahalik, 2008). In 1977, Engel proposed the biopsychosocial model to conceptualize medical patients and their illnesses. Engel theorized that physical illnesses needed to be addressed in a holistic manner, emphasizing multiple biological, psychological, and social factors, as opposed to the traditional reductionist, or biomedical model, which focused strictly on how biological factors, such as medication, affect biological illnesses. Since 1977, the use of a biopsychosocial model to conceptualize, study, and treat physical and mental illnesses has become more widely accepted, which is seen by the numerous publications that utilize it.

Client and treatment conceptualizations, in both the medical and psychological

fields, have started to shift toward an understanding that human experiences are

influenced by multiple aspects of individuals' lives and need to be studied and treated in

a holistic manner (Alonso, 2004). By utilizing the biopsychosocial model, researchers

have been able to obtain a more complete picture of individuals' strengths, struggles, and

needs (Alonso). By understanding more than the physical symptoms with which

individuals' struggle, health care providers can make more accurate and useful mental

and physical treatment recommendations, thus providing improved, comprehensive care

(Alonso).

When utilizing a biopsychosocial model, researchers can analyze relationship

associations in human experiences in more depth; first, by expanding the range of

variables that researchers study, and second, by studying the interactions between the

various variables assessed (Alonso, 2004). Biopsychosocial research aids treatment

recommendations that may allow individuals with HIV/AIDS and psychologists or other

health and mental health professionals to be aware of how related aspects of individuals'

lives may affect a particular issue; for example, how weight, a biological factor, can

influence depression, a psychological factor (Alonso).

Recently, researchers (Cresswell, 2008; Olley, 2003; Taylor, 2008; Vance,

Struzick, & Russell, 2007) across the globe have started to stress the need for HIV/AIDS

and other autoimmune diseases to be conceptualized and treated using the

biopsychosocial model as a guide. Research that focuses on chronic pain diseases has theorized this class of diseases with a biopsychosocial model (Marcus, Kerns, Rosenfeld, & Breitbart, 2000; Nielson & Weir, 2001; Taylor). Marcus et al. conceptualized HIV/AIDS as a chronic pain disease based on a biopsychosocial model. In addition the biopsychosocial model has been found to be useful in predicting the quality of life in individuals with HIV and other autoimmune diseases (Jeifez-Zagagi, 2005; Marcus et al.; Nielson & Weir, 2001; Nott & Vedhara, 2000; Taylor).

Biological Factors

As an autoimmune disease, HIV/AIDS affects the human body in debilitating ways through the disease's progression (Murphy et al., 2006). Indicators of the degree to which the virus has spread (i.e., participants' reported CD4 counts) and the number of different physical symptoms, such as fatigue and weight loss, reported are ways researchers can evaluate the severity of HIV/AIDS (Cederfjäll et al., 2001). Another way to categorize HIV/AIDS severity is by identifying stages of the disease. Universal and standardized stages of disease involve identifying participants as asymptomatic HIV, having HIV with symptoms, or being diagnosed with full blown AIDS (CDC, 2008; Cederfjäll et al.). The number of symptoms individuals have is typically measured on a continuum, for example using the HIV Symptom Scale (HIVSS; Cederfjäll et al.). The second indicator of HIV/AIDS is participants' CD4 or T cell count. This biological marker has been crucial in identifying the degree to which the HIV/AIDS virus weakens

individuals' immune systems (Benson et al., 2004; CDC, 2008). The third indicator of the HIV/AIDS virus is the reported severity of specific known symptoms (Cederfjäll et al., 2001; Cunningham, Shapiro & Hays, 1998). Cederfjäll et al. developed an HIV symptom scale based on empirical findings that reported the most prevalent symptoms associated with HIV/AIDS. The nine most prevalent symptoms cited were fatigue, weight loss, change in appetite, nausea, diarrhea, night sweats, and skin, mouth, and nail symptoms.

The severity of HIV/AIDS has been a critical variable to assess in research on HIV/AIDS, due to the viral cause of the disease. The severity of HIV/AIDS has also been found to have a direct negative correlation with quality of life (Chandra, Satyanarayana, Satishchandra, Satish, & Kumar, 2009). Therefore, when researching health related behaviors through a biopsychosocial lens, severity of HIV/AIDS is assessed in such a way as to provide a multidimensional and multifaceted perspective by giving the physical perspective of the disease in participants.

Psychological Factors

Reserachers (Gore-Felton et al., 2006; Greeson et al., 2008; Safren et al., 2002; Wright, 2008) have recently found that psychological variables, such as depression, anxiety, and level of self-esteem, can impact health related behaviors and the quality of life in individuals living with HIV/AIDS. Current literature, however, does not address

feminist identity among women with HIV/AIDS or how feminist identity might correlate with health related behaviors.

Depression and anxiety within the HIV/AIDS population. Mental illness implied that individuals possess or display a set of emotional, physical, and behavioral symptoms that have been characterized as a mental disease or disorder (APA, 2000; Nolen-Hoeksema, 2004). Mental illnesses or disorders have often been related to the emotional, physical, and behavioral symptoms. Symptoms related to mental illness often cause discomfort, have been seen as maladaptive, and were not normative to the time or culture (Nolen-Hoeksema). Being diagnosed with a mental illness alluded to the fact that individuals have discomfort from psychological causes.

Mental illnesses have been found to be more prevalent in the HIV/AIDS population when compared to the general population (Gaynes et al., 2008; Haug et al., 2005; Tegger et al., 2008; Valverde et al., 2007; Whetten et al., 2008; Zaller et al., 2007). Rates of mental illness are reporetedly as high as 63% for individuals living with the virus (Tegger et al.). Two common categories of mental disorders that are considered prevalent in the HIV/AIDS community are depression and anxiety (Gore-Felton et al., 2006; Tegger et al.). Depression was found in one-third of a recent study's sample of individuals with HIV/AIDS (Valverde et al.). According to Gaynes and colleagues, 21% of people living with HIV/AIDS report having anxiety.

Substance abuse issues that qualify as mental disorders have also been found in the HIV/AIDS population at prevalence rates as high as 45% (Tegger et al., 2008). Researchers (Gaynes et al., 2008; Tegger et al.) have also found that 38% of individuals with HIV/AIDS had comorbid diagnoses of mental disorders, which often included anxiety, mood, and substance abuse related disorders. Other mental illnesses that have been found to be comorbid with HIV/AIDS included bipolar disorder, schizophrenia, and specific subcortical forms of dementia (Angelino & Treisman, 2008). It should be noted that dementia is a common illness among people in later stages of AIDS (Angelino & Treisman).

Gore-Felton et al. (2006) reported that, when compared to other psychological and behavioral variables, quality of life was one of the most important predictors of depression for individuals with HIV/AIDS. Researchers (Bottonari, Roberts, Ciesla, & Hewitt, 2005; Gaynes et al., 2008; Rajabiun et al., 2007; Whetten et al., 2008) have connected high reported levels of stress or being diagnosed with a mental illness as negatively correlated to medication adherence. Mental illness has also been connected to negative clinical outcomes (Gaynes et al.; Rajabiun et al.; Whetten et al.), poor physical health (Fremont et al., 2007), and difficulties obtaining community and health resources (Fremont et al.; Tegger et al., 2008).

Researchers (Himelhoch et al., 2007; Tegger et al., 2008) have connected a diagnosed mental illness to lower rates of entering into advanced medication regimens for

HIV, such as HAART than individuals without a diagnosed mental illness. Individuals in the HIV/AIDS population, who were diagnosed with mental illnesses, have also been found to have lower efficacy rates of HAART, including overall virologic failure, than individuals without a diagnosed mental illness (Hartzell, Spooner, Howard, Wegner, & Wortmann, 2007; Pence, Miller, Gaynes, & Eron, 2007). Tegger and colleagues found that individuals with untreated mental illnesses were often admitted into HAART treatment with lower CD4 counts than participants without a diagnosed mental illness. However, it was also found that individuals, who were being chemically treated for depression or anxiety, were entering treatment at the same rate as individuals without mental illness with HAART (Tegger et al.). Therefore, untreated mental illness, as opposed to a diagnosis of mental illness, is a risk factor for late entry into medication treatments programs. Individuals diagnosed with both the virus and a mental illness were also found to have utilized inpatient medical treatment more frequently than individuals without a mental illness (Himelhoch et al.), but have been found to engage in outpatient treatment less (Basta, Shacham, & Reece, 2008).

Self-esteem and HIV/AIDS. Self-esteem can be defined as the positive or negative attitude or value people place on their evaluation of themselves from either a general or specific perspective (Gentile et al., 2009; Rosenberg et al., 1995). Global self-esteem, according to Rosenberg and colleagues, was the broad, overall attitude people have about themselves. Specific self-esteem pertains to the attitude toward a specific

characteristic, for example, physical appearance or racial identity (Gentile et al.; Rosenberg et al.). Rosenberg and colleagues also found that global self-esteem can be a predictor of behavior (Rosenberg et al.), and it continues to be a standard psychological variable assessed in research. Specific self-esteem, however, has been found to be a better predictor for behavior than global self-esteem due to the narrowed focus of the variable (i.e., the specific attitude assessed). The positive and negative attitudes that encompassed individuals' self-esteem can be both cognitive and emotional (Rosenberg et al.).

Self-esteem is an important psychological variable to assess when examining behavior (Barclay et al., 2007; Funck-Brentano et al., 2005). Self-esteem has been considered to act as a buffer to negative psychological symptoms, such as anxiety, distress, and fear (Pyszczynsi, Greenberg, Solomon, Arndt, & Schimel, 2004; Simoni, Huang, Goodry, & Montoya, 2005). It has also been reported that for people living with HIV/AIDS, as self-esteem decreased, compliance with medication regimens also decreased (Barclay et al.; Bottonari et al., 2005; Liu et al., 2006). Multiple researchers (Bontempi, Burleson, & Lopez, 2004; Simoni et al.) have proposed that building self-esteem in clients could improve compliance among individuals with poor medication adherence. Another study reported that as self-esteem decreased, rates of substance use and abuse increased (Liu et al.; Shen & Cai, 2007; Stein, Dixon, & Nyamathi, 2008; Visintini, Bagnato, Campanini, & Fontana, 1995). Low self-esteem has been found to be

a mediating factor in the HIV population for utilizing social supports less than individuals

with high self-esteem (Simoni et al.).

Feminist identity and HIV/AIDS. Feminist identity can be defined as women's

overall attitude, acceptance, and pride in their female gender (Downing & Roush, 1985).

Feminist identity has been considered a predictor of self-esteem (Montagnino, 2007);

however, according to Rosenberg et al. (1995), specific domains of self-esteem can be

better predictors of behavior than global self-esteem. Currently, research has connected

low self-esteem to unhealthy behaviors, such as substance use (Liu et al., 2007; Shen &

Cai, 2007; Stein et al., 2008; Visintini et al., 1995), low levels of social support (Simoni

et al., 2005), and medication noncompliance (Barclay et al.; Bottonari et al., 2005; Liu et

al.), making specific domains of self-esteem essential to continued investigation of health

related behaviors. Feminist identity can also be conceptualized as a specific domain of

self-esteem to study in regard to health related behaviors.

A model of feminist identity development was conceptualized by Downing and

Roush in 1985. The Downing and Roush model resembled the Cross (1971) model of

Black identity development insofar as the model has five stages, including passive

acceptance, revelation, embeddedness-emanation, synthesis, and active commitment,

each of which theorized a set of behaviors that represented the development,

understanding, and acceptance of individuals' feminist identity. Passive acceptance is

identified as individuals being in denial of the discrimination that occurs to women in

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both institutional and cultural areas. In the second stage, revelation, the individuals are experiencing guilt and anger toward their own part of institutional sexism. During embeddedness-emanation, individuals are described as immersing themselves in the general culture and community of women. The fourth stage, synthesis, individuals are thought to have a positive attitude and self-concept about female characteristics. The last stage, active commitment, individuals are described as social advocate for change against sexism (Downing & Roush).

Since the development of this feminist identity development model, researchers have examined feminist identity in comparison to other psychological domains in women, such as self-esteem (Carpenter & Johnson, 2001; Montagnino, 2007; Yakushko, 2007), body image (Peterson, Tantleff-Dunn, & Bedwell, 2006), and mental illness (Johnston-Jones, 2003). Other psychological domains that were comparable to feminist identity, such as ethnic identity, have been examined in connection with HIV/AIDS (Chae &Yoshikawa, 2008; Warren et al., 2008). Through an extensive literature review, no research on feminist identity in women with HIV/AIDS was found.

Social Factors

Social support has been defined as the perceived amount of support that people have available to them at a given time in their lives (Zimet et al., 1988). Social support, like self-esteem, has been examined as a global construct and, in smaller, specific domains, such as family support or peer support (Darbes & Lewis, 2005; Sheets & Mohr,

2009; Zimet et al.). Research has found a positive correlation between reported global

social support and reported emotional and physical health (Cohen, Underwood, &

Gottlieb, 2000; Simoni et al., 2005).

Social support and health related behavior. Researchers that have found

positive correlations between high levels of social support and medication compliance

(e.g., Koenig et al., 2008; Rajabiun et al., 2007; Sunil & McGehee, 2007; Ubbiali et al.,

2008), strengthened the case for further studies on relationships between social support

and other health related behaviors. Kang et al. (2008) also found a positive correlation

between marriage and reported compliance with a medication regimen, placing

importance on support systems, such as significant partners for individuals with

HIV/AIDS. Additionally, reported levels of social support have been found to be

negatively correlated with substance use and abuse (Staton-Tindall, Royse, & Leukfeld,

2007). In a recent study (Laudent, Cleland, Magura, Vogel, & Knight, 2004) examining

long term effects of social support, higher reported levels of social support were found to

have correlated positively with longer periods of sobriety and involvement in mental

health treatment.

Summary for Biopsychosocial Factors

Researchers (e.g., Marcus et al., 2008; Nott & Vedhara, 2000; Vidrine, Amick , et

al., 2005) have recently examined HIV/AIDS with the biopsychosocial model.

Biopsychosocial variables may correlate with various health related behaviors, such as

medication compliance, substance use and abuse, and engagement in psychological treatment in women with HIV/AIDS (Greeson et al., 2008; Waldrop-Valverde et al., 2009). Psychological distress, including symptoms of anxiety and depression, has been linked to faster progression of biological symptoms of HIV/AIDS (Greeson et al.). Within the HIV/AIDS population, it was found that as social support increased, levels of other psychological variables, such as self-esteem, also increased (Simoni et al., 2005). Though findings between biopsychosocial factors have been similar, it is also important for researchers to consider how they are impacted by diversity variables, such as race or socioeconomic status, among the HIV/AIDS population.

HIV/AIDS and Diversity

Within the HIV/AIDS community, there is diversity with regard to individual differences, including race, gender, sexual orientation, age, socioeconomic status, and educational status (CDC, 2006; Cunningham et al., 2005; Haug et al., 2005). When studying population differences in various areas, such as beliefs or behaviors, it has been found that individual differences within demographic groups were often larger than the differences between groups (Zuckerman, 1990). Patterns and generalizations can be identified within groups to increase awareness of potential special issues or needs for that group.

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Gender and Other Diversity Concerns with HIV/AIDS

Although men still outnumber women in cases of HIV/AIDS, the percentage of women being diagnosed with the virus continues to increase (CDC, 2006). Research on gender differences in the HIV/AIDs community has become important in identifying information which can enhance understanding, conceptualizing, and treating this population. Several gender differences have been found that have had conceptualization and treatment implications (Kang et al., 2008).

Research has found that women with HIV/AIDS tended to report having lower levels of quality of life than men (Chandra et al., 2009; Haug et al., 2005; van Servellen et al., 2002). Chandra et al. found that when controlling for CD4 counts, therefore in theory, controlling for the severity of the disease, men reported an overall higher quality of life than women. These investigators went on to separate out the various domains examined in terms of quality of life and found that men scored higher on domains that were external, such as environmental quality of life, whereas women had higher scores on internal domains, such as spirituality and personal beliefs (Chandra et al.). Studies have found that women score lower on physical and emotional function than men (Haug et al.; van Servellen et al.). In a recent experiment with women who had HIV/AIDS, it was found that women who engaged in group therapy geared toward peer support reported higher levels of quality of life than the control group (Jones et al., 2007).

Gender differences in health related behaviors. Research has also found that women were not as compliant with medication regimens as men (Andersen et al., 2007; Waldrop-Valverde et al., 2009). Waldrop-Valverde et al. found that women appeared to have a more difficult time explaining medication regimens in mock settings. Research has also found that, the more reported side effects women had, the more likely they were to be noncompliant with their medication regimen (Applebaum et al., 2009). Due to the known importance of medication compliance, future research should investigate links to women's obstacles toward compliance.

Gender differences in physical symptoms. Current research examining physical symptoms associated with HIV/AIDS often studied both symptoms that result from having the disease and the side effects from HIV medication. Findings indicated that women tended to report more physical symptoms than men as well as more side effects from their medication (Haug et al., 2005; van Servellen et al., 2002). A research study that examined minority drug users who were HIV positive found that men had a higher rate of other blood diseases, such as Hepatitis B and C, but women reported more HIV related symptoms, such as asthma and allergies (Kang, Goldstein, & Deren, 2008).

Researchers have found gender differences in the neuropsychological impairment that can occur as a result of HIV/AIDS (Faílde-Garrido et al., 2008). Women with the virus appeared to have more impairment in their overall psychomotor speed, ability to perform verbal memory tasks, and cognitive functioning than men (Faílde-Garrido et al.;

van Servellen et al., 2002). However, men with HIV/AIDS appeared to have more impairment in different neuropsychological areas, such as visual memory and abstract reasoning, than women (Faílde-Garrido et al.). Such differences in health related problems strengthen the argument for future studies to critically investigate gender differences in HIV/AIDS.

Gender differences in psychological variables. Research has also found gender differences between men and women in their psychological health or well-being. Though the HIV/AIDS population as a whole has a higher rate of mental illness than the general public (Tegger et al., 2008), women appeared to have significantly higher rates of certain mental illnesses than men. For example, women with HIV/AIDS were found to have a higher rate of depression than men, with 30% more women labeled depressed than men (Lichtenstein et al., 2002; Valverde et al., 2007). Within the HIV/AIDS community, African American women showed significantly higher rates of depression when compared to White women and men of all racial and ethnic backgrounds (Lichtenstein et al.). Women with HIV/AIDS also reported lower levels of psychological well-being than men with HIV/AIDS (Cederfjäll et al., 2001). Additionally, women have been found to have lower rates of global and specific self-esteem than men (Gentile et al., 2009).

Men and women with HIV/AIDS appeared to utilize self-care methods differently. In a study on the use of prayer, Coleman and colleagues (2006), determined that prayer was utilized by Black women and men, but for different reasons. Black

women in the study appeared to utilize prayer more often than men for fatigue, whereas men appeared to utilized prayer more often for symptoms of nausea and depression. Other researchers' (e.g., Tarakeshwar, Hansen, Kochman, & Sikkema, 2005) findings supported the findings that women utilized spiritual forms of self-care, such as prayer, connection with family, and renewed engagement with their higher power.

Gender differences in support systems. An important gender difference found in the HIV/AIDS community is reported levels of social support and isolation. Social support has also been linked to women's reported quality of life and overall psychological well-being (Simoni et al., 2005). One study found that women tended to enter into social support groups later than men and on average attended fewer support groups than men (Kang et al., 2008). Women, compared to gay men, reported higher levels of social isolation due to their HIV/AIDS status (Lichtenstein et al., 2002). Researchers have also found that women with HIV/AIDS reported having less social support than men (Cederfjäll et al., 2001; van Servellen et al., 2002).

In a recent quasi-experiential study of women with HIV/AIDS, it was found that when social support was increased, treatment (i.e., medication) compliance also increased (Andersen et al., 2007). It should be noted that, Ubbiali et al. (2008) found that, while social support and a relational orientation were positively correlated with medication compliance, social support was more predictive of medication compliance for men than women. Comparative research has also found that when looking at multiple psychosocial

variables, religious and social support were more influential for medication compliance in the African American and Hispanic American communities than for European American community members (Simoni et al., 2005; Sunil & McGehee, 2007). These research findings strengthen the need to investigate specific domains of social support in women living with HIV/AIDS in future studies.

Special concerns for women with HIV/AIDS. Due to societal biases, stigma, and discrimination against women, it is important for researchers to examine how women may experience certain phenomena and illnesses differently than men. Research has found the following: women with HIV/AIDS reported being discriminated against more often than men with the virus (Thorpe, Grierson, & Pitts, 2008); women reported incidences of loss of confidentiality from health care providers more often than men (Thorpe et al.); and women with HIV/AIDS tended to report higher levels of being victims of physical or sexual abuse than the general population (Chuang et al., 2007). Even research on participation in AIDS related clinical studies found that women reported being more apprehensive than men about participating in research focusing on medication treatment (Gwadz et al., 2006).

Summary of gender differences. It has been found that the population of women with HIV/AIDS continues to grow (CDC, 2006). Research on gender in the HIV/AIDS community has identified many differences, including that women reported a lower quality of life (Chandra et al., 2009; Haug et al., 2005), more physical symptoms

and side effects from the disease (Haug et al.; van Servellen et al., 2002), higher levels of mental illness, such as depression (Valverde et al., 2007), lower levels of self-esteem (Coleman et al., 2006), and higher levels of social isolation (Lichtenstein et al., 2002) than men with the virus. Though the population of women with HIV/AIDS continues to grow (CDC, 2006), women have been apprehensive about participating in HIV/AIDS related research (Gwadz et al., 2006), making this subpopulation of the HIV/AIDS community in need of further research.

Racial and Ethnic Differences within the HIV/AIDS Community

Statistically, HIV/AIDS affects racial and ethnic minorities at greater rates than Caucasians (CDC, 2006). Therefore, it is imperative that researchers continue to examine differences between racial and ethnic groups for possible special needs or struggles. In comparison studies, racial and ethnic differences have been found in multiple areas in regard to HIV/AIDS.

Race has been found to be a predictor of medication noncompliance (Pence et al., 2008) and non-entry into psychological treatment (Weaver at al., 2008). While non-White participants were less likely to engage in formal mental health treatment, clients of color who had participated in formalized psychological treatment were more likely to have participated in peer-run support groups than in individual or group therapy (Weaver et al.). Race has also been found to be positively correlated with psychosocial variables, such as experiencing multiple stigma, discrimination, lower reported levels of social

support, and lower socioeconomic status (SES) when compared to Caucasians (Elliott-Scanlon, 2006; Pence et al.; Sunil & McGehee, 2007). Research examining ART suggested that non-White participants were more likely to drop out of treatment sooner than their White counterparts (Pence et al.). Other findings pointed toward higher rates of virologic failure (i.e., failure of medication) for Black than White participants in clinical trials (Hartzell et al., 2007; Pence et al.; Schackman et al., 2007).

Biological differences of HIV/AIDS due to race. Research has found that, from a biological standpoint, HIV/AIDS does affect individuals of different racial or ethnic backgrounds differently (Pence et al., 2008). Current medication, such as ART and HAART, have been found to be less effective within the Black population when compared to non-Black populations in clinical studies (Hartzell et al., 2007; Pence et al.; Schackman et al.). Neurologically, samples of Hispanic participants with HIV/AIDS have shown poorer rates of neuropsychological performance than White participants even when participants were matched on CD4 counts and education level (Baird, 2008; Mindt et al., 2008). Specifically, HIV/AIDS appeared to affect individuals who identify as Hispanic more than non-Hispanic participants in the area of abstraction or executive functioning (Mindt et al).

Racial differences in regard to reported social support. High rates of social support have been positively correlated not only to quality of life but also to the prognosis of the disease, and have been negatively correlated with the progression of the

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disease (Biswas, 2007; Sunil & McGehee, 2007). For Blacks and Hispanics, social and religious supports have been found to be more influential in medication compliance when compared to Whites (Sunil & McGehee). However, research has found that, compared to individuals identifying with other racial or ethnic backgrounds, Hispanics tended to delay entry into treatment after discovering their HIV/AIDS status longer than non-Hispanics (Kang et al., 2008). Racial discrimination has also been found to have a higher negative impact on medication compliance than discrimination based on sexual orientation or HIV status itself (Boarts et al., 2008).

Other Diversity Variables

The age of a person with HIV/AIDS has been found to affect negatively various health related behaviors, such as medication compliance and substance use and abuse (Barclay et al., 2007; Hinkin et al., 2004; Levine et al., 2005). In a recent cross sectional study, younger age and low self-esteem were also associated with poor HIV medication compliance in participants when compared to older participants (Barclay et al.).

Low SES is a risk factor for poorer health, increased need for hospitalizations, and other emergency health related problems (Cunningham et al., 2005; Nosyk et al., 2007; Wood, Sallar, Schechter, & Hogg, 1999). There was a disproportional percentage of individuals living with HIV/AIDS who are identified as being in the lower socioeconomic brackets around the world (Cunningham et al.; Nosyk et al., 2007; Rapiti, Porta, Forastiere, Fusco, & Perucci, 2000). SES has been found to affect individuals'

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health by reducing their ability to obtain medical care, due to reduced availability of health care, medication insurance, medication, resources, and social support (Nosyk et al., 2007). Recent studies (Cunngingham et al.; Rapiti et al.) have found connections between low SES and lack of resources to obtain medications, such as HAART, which have been found to prolong life in individuals with HIV/AIDS.

For individuals living with HIV/AIDS, continual medical care is essential to prolonging life and effectively treating Opportunistic Infections as they occur (Benson et al., 2004; Boarts et al., 2008; Waldrop-Valverde et al., 2009). Research has found that, when comparing socioeconomic status of individuals with HIV/AIDS, individuals in lower SES brackets appeared to receive fewer public services than individuals who identified as being in higher SES brackets (Cunningham et al., 2005). When participants reported a low SES and were persons of color or women, they were found to be less likely to be have access to new forms of medication, such as HAART, than people who were not people of color, or men (Cunningham et al.; Rapiti et al., 2000). Cunningham et al. found socioeconomic status to be a risk factor in poor survival of HIV/AIDS, which resulted in faster death.

A recent study compared homelessness and socioeconomic status of individuals with HIV/AIDS and their hospital stays, costs of hospital treatments, and emergency admissions to the hospitals (Nosyk et al., 2007). The study found that the individuals who identified as homeless or were in a low SES bracket had longer stays in the hospital,

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larger bills, and more emergency admissions to hospitals due to their disease than non-homeless or individuals in higher SES brackets (Nosyk et al.). Individuals who have housing problems have been shown to have greater difficulties following medical regimens and completing follow up care for illnesses (Aidala et al., 2007). Overall, housing issues have been found to correlate with treatment difficulties (Aidala et al.).

Education also plays an important role in issues regarding HIV/AIDS, such as knowledge related to transmission, prevention, treatment, and medication compliance (Burr et al., 2007; Jodati, Nourabadi, Hassanzadeh, Dastgiri, & Sedaghat, 2007; Sunil & McGehee, 2007). In a comparison study examining risk factors that contribute to poor survival rates of HIV/AIDS individuals in Iran, having less than a high school education dramatically increased chances for poor survival by 53%, when other demographic variables were controlled (Cunngingham et al., 2005). When assessing predictive variables that may contribute to entering treatment after diagnosis, higher levels of education resulted in a shorter time lapse before entering treatment (Jones, 2006). In a study comparing psychosocial variables to medication compliance, it was found that, for White participants, there was a positive correlation between education and medication compliance (Sunil & McGehee).

Summary of Diversity Variables

Within the HIV/AIDS community, various diversity issues have been found due to individual differences. Racial differences have been found within the HIV/AIDS

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community in regard to physical reactions to advanced HIV medications (Pence et al., 2008; Schackman et al., 2007), progression of the disease (Baird, 2008; Mindt et al., 2008), and use of treatment and social support (Biswas, 2007; Sunil & McGehee, 2007). Differences in areas, such as survival rate (Cunningham et al., 2005), substance use and abuse (Hinkin et al., 2004; Levine et al., 2005), and medication compliance (Barclay et al., 2007; Hinkin et al.; Sunil & McGehee), have been found when examining factors, such as age, SES, and education level.

Summary of Literature Review

HIV/AIDS is a disease wherein the progression is different for everyone infected. Though the percentage of women with the disease continues to rise (CDC, 2006), the amount of women's participation in research focused on HIV/AIDS continues to be relatively low (Gwadz et al., 2006). However, through general and gender specific research, topics in need of continued examination for the HIV/AIDS population have been identified. Health related behaviors, such as medication compliance and substance use or abuse, can affect the pace and severity, both positively and/or negatively, of the progression of this disease (Gonzales et al., 2008; Kennedy, 2007). Health related behaviors are not only directly relevant to the overall progression of HIV/AIDS but can also contribute to the overall quality of life in women with HIV/AIDS (Vidrine et al., 2005). Previous research has examined different factors that can impact health related behaviors (Greeson et al., 2008; Waldrop-Valverde et al., 2009). However, limited

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research has followed recommendations to examine HIV/AIDS through a biopsychosocial model (Cresswell, 2008; Olley, 2003; Taylor, 2008; Vance et al., 2007). Continued research on factors that contribute to health related behaviors can provide insight on how to aid women with HIV/AIDS to improve their quality of life.

Purpose of Current Study

The purpose of the current study was to build on the previous research that had separately identified various biological, psychological, and social variables as playing a role in health related behaviors that impacted the quality of life for women with HIV/AIDS (Benson et al., 2004; Fremont et al., 2007; Kang et al., 2008). Biopsychosocial variables, including severity of disease, self-esteem, feminist identity, depression, anxiety, and social support of women with HIV/AIDS, were measured in relation to their impact on specific health related behaviors, which impact quality of life. The current study was the first to examine feminist identity as a psychological variable that may have been predictive of certain health related behaviors in women with HIV/AIDS. By taking a biopsychosocial approach, a holistic view of strengths among and obstacles for women with HIV/AIDS was identified. The current study utilized cluster analysis to identify profile patterns in women with HIV/AIDS in regard to their biopsychosocial factors. The profile patterns of the participants were then examined for their impact on health related behaviors. By aiding women with HIV/AIDS to improve their health related behaviors, health care and mental health care providers may be better

able to offer treatment recommendations and interventions to help these women improve their quality of life.

Research Questions and Hypotheses

Research Question 1. Do the following six biopsychogocial variables; severity of the HIV virus, endorsement of symptoms related to depression and anxiety, feminist identity, self-esteem, social support relate to one another?

Hypothesis 1A. There will be a statistically significant positive correlation between severity of HIV illness, endorsement of symptoms related to depression, and endorsement of symptoms related to anxiety.

Hypothesis 1B. There will be a statistically significant positive correlation between feminist identity, self-esteem, and social support.

Hypothesis 1C. There will be a statistically significant negative correlation between variables in hypothesis 1A and 1B.

Research Question 2. How do participants cluster with regard to their biopsychosocial variable (i.e., severity of the HIV virus, endorsement of symptoms related to depression and anxiety, feminist identity, self-esteem, social support) scores?

Hypothesis 2A. Two distinct clusters will be found within the participant pool.

Hypothesis 2B. One cluster will include participants who have low levels of severity of illness, did not endorse symptoms related to depression and anxiety with high levels of feminist identity, self-esteem, and social support.

Hypothesis 2C. A second cluster will include participants who have high levels of severity of HIV illness, endorsed symptoms related to depression and anxiety with low levels of feminist identity, self-esteem, and social support.

Research Question 3. How do the resulting clusters influence health related behaviors (i.e., medication noncompliance, substance abuse, participation in mental health treatment)?

Hypothesis 3A. Participants' health related behaviors will vary within resulting clusters.

Hypothesis 3B. Participants from the first cluster will have high rates of participation in mental health treatment, and low rates of substance abuse and medication noncompliance.

Hypothesis 3C. Participants from the second cluster will have high rates of substance use and medication noncompliance and low rates of participation in mental health treatment.

CHAPTER III

METHOD

Participants

Participants were women over the age of 18, who were living with Human Immunodeficiency Virus (HIV) or Acquired Immunodeficiency Syndrome (AIDS). There were no other qualifiers for the current study. The pool of participants was collected electronically through the Internet. HIV support websites, chat forums, and listservs were sent the Texas Woman's University Institutional Review Board (IRB) approved recruitment message with a link to the online study. Participants were only permitted to participate in the study once. The purpose of using a sample drawn from the Internet was to potentially increase the representativeness of the study sample by not limiting data collection to a single geographic location.

Seventy-four people started the Internet study. Three people were disqualified for not identifying as women. Eleven participants were not used in the statistical analyses due to dropping out of the study before completing the scales. All participants who completing the study and identified as adult women were examined for the statistical analyses (n = 59). The mean age of the participant pool was 39 years old ($m = 38.92$), with a range between 20 and 62.

The participant pool was not evenly distributed among race when compared to the Centers for Disease Control and Prevention (CDC) 2006 census of individuals with HIV/AIDS. The current study had 66% of the participants identifying as White, 27% of the participants identified as Black, 3.4% identified as Hispanic, and 3.4% identified as other. Of the four participants who identified their race as other, one participant identified as being from England, one participant identified as being from Albania, and two participants identified as being from South Africa. None of the four participants from outside of the United States were found in the statistical analyses to be outliers.

Instruments

Demographics Questionnaire

The demographics questionnaire (see Appendix A) that was created for this study included questions to assess age, race, education, most recent Cytotoxic T-cells (CD4 or T cell) count, socioeconomic status, and sexual orientation. The demographic form also requested information on health related behaviors, including medication compliance and substance use. Questions regarding health related behaviors were adapted from current literature and studies that examined medication compliance and substance use (Boarts et al., 2008; Martin & Milot, 2007; Osterberg & Blaschke, 2005). Martin and Milot's suggested questions for assessing substance use were derived from material collected from the Center for Disease Control and Prevention (CDC). According to Osterberg and

Blaschke, use of patient self report of medication compliance has been found to be simple

and easy for participants to complete.

HIV Symptom Scale (HIVSS)

The HIVSS (Cederfjäll et al., 2001; see Appendix B) assesses nine known

symptoms associated with the HIV virus, including fatigue, weight loss, change in

appetite, nausea, diarrhea, night sweats, and symptoms of the skin, mouth, and nails. The

nine symptoms are self-rated from 1 (never) to 4 (always). Participants' total scores were

calculated by adding up the numbered scores from all nine questions, which can range

from 9 to 36. The higher the tallied score, the more perceived symptoms participants are

experiencing. The Cronbach's alpha (*a*) coefficient was 0.74 in one study, indicating the

scale had acceptable internal consistency reliability (Cederfjäll et al.). The current study

reported the Chronbach's alpha (*a*) coefficient as 0.66, which indicated acceptable

internal consistency reliability.

Patient Health Questionnaire-2 (PHQ-2)

The primary care evaluation of mental disorders (PRIME MD; Spitzer et al.,

1994; see Appendix C) is a screening tool used by health care professionals to identify

mental disorders. The more recent, shorter versions (PHQs; Kroenke, Spitzer, &

Williams, 2003; Kunik, 2007) are separated into individual assessments for depression or

anxiety. The PHQ-2 has been used for research purposes on populations with chronic

health problems, including HIV/AIDS (Kunik; Monahan et al., 2009), making the PHQ-2

appropriate for assessing depression with individuals with HIV/AIDS. The PHQ-2 consists of two questions: "In the past month, have you been bothered a lot by: (A) Little interest or pleasure in doing things?" and "(B) Feeling down, depressed, or hopeless" to assess depression (Kroenke et al.; Kunik; Spitzer et al.). A response of yes to either question scores participants as depressed.

Comparisons between the PHQ-2 and other diagnostic tools, such as the Beck Depression Inventory (BDI), Prime MD depression, Hospital Anxiety and Depression Scale (HADS), and the WHO Well-Being Index 5 (WBI-5) have found the PHQ-2 to be efficient, effective, and reliable in screening for depression (Li, Friedman, Conwell, & Fiscella, 2007; Löwe et al., 2004; Whooley, Avins, Miranda, & Brownder, 1997). The concurrent validity rate of the PHQ-2 to the BDI has been found to be $r = .67$ ($p < .001$; Adewuya, Ola, & Afolabi, 2006). Compared to the Structural Clinical Interview (SCID) for the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV-TR*; APA), the PHQ-2 showed a sensitivity rate for predicting major depression of 78% and 86% for all depressive disorders (Löwe, Kroenke, & Gräfe, 2005). The PHQ-2, when compared to the BDI, has also been found to be 96% to 100% sensitive in predicting whether or not participants were depressed to the degree that is consistent with a mental disorder (Kunik; Li et al.; Whooley et al.). The Cronbach's alpha (*a*) coefficient was 0.85 in a recent study, indicating the scale had good internal reliability (Adewuya et al.). However, the current study reported the Chronbach's alpha (*a*) coefficient as 0.46, which indicated

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weak internal consistency reliability. Moderate to high levels of test-retest reliability have been found for the PHQ-2 in screening for depression with an $r = 0.894, p < 0.001$ (Adewuya et al.; Shah et al., 2009).

Patient Health Questionnaire- Anxiety (PHQ-A)

The PHQ-A (Kroenke et al., 2003; Kunik, 2007; see Appendix D) was used to assess endorsement of symptoms related to anxiety. The PHQ-A consists of three questions: "In the past month, have you been bothered a lot by: (A) Nerves, or feeling anxious or on edge? (B) Worrying about a lot of different things?" and (C) "During the last month: Have you had an anxiety attack (suddenly feeling fear or panic)?" Participants were asked to respond to the three questions indicating "yes" or "no," to having specific symptoms in the last month. Endorsement of any symptoms results in being identified as having symptoms related to anxiety.

The PHQ-A was found to be valid and 90% sensitive and accurate for identifying participants with Generalized Anxiety Disorder (GAD) when administered to participants who were already diagnosed with GAD (Mata, González, Lavie, & Resler, 2008). The PHQ-A, when compared to the Beck Anxiety Inventory, had a sensitivity rate of 93.7% for diagnosing anxiety in participants in a large study ($n = 686$; Kunik, 2007). The Cronbach's alpha (a) coefficient was 0.80 in a recent study, indicating the scale had good internal consistency reliability (Lee, Schulberg, Raue, & Kroenke, 2007). However, the current study reported the Chronbach's alpha (a) coefficient as 0.67, which indicated

acceptable internal consistency reliability. The test-retest reliability for the PHQ-A has been reported for GAD at a moderate level of $\kappa = .59$ (Bakker, Terluin, van Marwijk, van Mechelen, & Stalman, 2009).

Rosenberg Self-Esteem Scale (RSES)

The RSES (Rosenberg, 1965; see Appendix E) is a widely used tool for assessing global self-esteem in adults and adolescents (Cooper-Evans, Alderman, Knight, & Oddy, 2008; Rosenberg et al., 1995; Veselsky et al., 2009). The RSES consists of 10 items, using a Likert scale ranging from strongly agree (3) to strongly disagree (0). The higher the final score, the higher the rating of self-esteem is for participants. Some of the questions are: "I take a positive attitude toward myself"; "at times, I think I am no good at all" (Rosenberg, 1965). Internal consistency was found to be strong, with α ranging between 0.52- 0.98, and test-retest reliability was found to be as high as 0.92 (Vispoel, Boo, & Bleiler, 2001). The current study reported the Chronbach's alpha (a) coefficient as 0.54, which indicated weak internal consistency reliability.

Feminist Identity Development Scale (FIDS)

The FIDS (Bargad & Hyde, 1991; see Appendix F) is a 39-item scale based on the Downing and Roush (1985) model of feminist identity development. The model posited a series of stages, including: (1) passive acceptance, (2) revelation, (3) embeddedness-emanation, (4) synthesis, and (5) active commitment, through which a feminist identity is thought to develop over time. The scale contains five subscales that measure the five

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stages. Since the publication of the FIDS in 1991, similar scales have been created and compared to the FIDS (Downing, 2002; Fischer et al., 2000; Moradi & Mezydlo Subich, 2002; Shibley Hyde, 2002). The FIDS uses a five point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The five subscales are scored separately, giving participants a mean score for each of the five subscales or stages. Participants are then given labels indicating the stage (1-5) that they have the highest mean score. For example, if a participant's highest mean is in subscale one, the participant is considered to be in the passive acceptance stage of feminist identity development and will be assigned a score of 1.

Despite controversy and uncertainty in the literature attached to all the scales attempting to assess feminist identity development, the FIDS continued to be viewed as the standard scale for use in assessing feminist identity. Compared to two other current scales of feminist identity development, including the Feminist Identity Composite (FIC) and the Feminist Identity Scale (FIS), the FIDS was found to have the best content validity of the three scales (Moradi & Mezydlo, 2002). The FIDS and the FIC were also found to have superior structural validity when compared to the FIS (Moradi & Mezydlo). The five subscales have been found to have high internal consistence reliability, with Cronbach alpha's (α) ranging from 0.70 – 0.84 (Levant, Richmond, Cook, House, & Aupont, 2007). However, the current study reported the Chronbach's alpha (a) coefficient ranging from 0.32 - 0.78 among the five stages.

Multidimensional Scale of Perceived Social Support (MSPSS)

The MSPSS (Zimet et al., 1988; see Appendix G) assessed the degree to which individuals identify having support in three domains: family, friends, and a significant other. The MSPSS is shorter than other perceived social support scales, making it a more efficient choice. The scale consists of 12 items, using a 7-point Likert scale, ranging from 1 (very strongly disagree) to 7 (very strongly agree). The total score is tallied by adding the participants' scores on all 12 items. The higher the scores, the higher the perceived social support. Two examples of the question from the MSPSS include, "I get the emotional help and support I need from my family" and "I can talk about my problems with my friends" (Zimet et al.). Since its inception, researchers have tested and consistently found the MSPSS to be a psychometrically sound instrument, with strong reliability, such as total scale internal reliability at $\alpha = 0.91$ (Canty-Mitchell & Zimet, 2000; Dahlem, Zimet, & Walker, 1991; Prezza & Pacilli, 2002; Zimet et al.; Zimet, Powell, Farley, & Werkman, 1990). The current study reported the Chronbach's alpha (*a*) coefficient as 0.95, which indicated strong internal consistency reliability.

Procedure

The method of recruitment utilized in the current study was snowball sampling through the Internet. Internet recruitment started with statements being posted and emailed to Internet-based HIV/AIDS organizations and support websites (e.g., http://www.straightsupport.net, yahoo groups dedicated to HIV support, and

http://www.aidschat.org/). In the recruitment statements, information that would have been found on an informed consent form (see Appendix H) was posted along with a link to the PsychData© website. To create the snowball sampling effect, a final statement of encouragement to pass along the recruitment email to possible interested parties was included at the end of the email message. Once potential participants logged onto the site and access the survey packet, the first page included the informed consent form, which had all of the required information that an in-person study participant would have received. The informed consent form included the researchers' contact information for participants who wish to obtain the final results of the study. The informed consent form also stated that participants could only participate in the study once. After reading the consent form, potential participants were able to electronically acknowledge that they had agreed to participate. After consenting to participate, participants were able to access the study's questionnaires (i.e., demographics questionnaire, HIVSS, PHQ-2, PHQ-A, FID, RSES, MSPSS), which were originally counterbalanced to protect against participation fatigue. However, after a pattern of participant drop-out due to the longest scale (i.e., FIDS) being toward the end, counterbalancing ceased and the participant drop-out rate also declined. It was expected that participation of this study would take 30-45 minutes. There was not a personal incentive to participate in this study, outside of knowing that others may ultimately benefit from the knowledge gained from this research.

Statistical Analysis

Research Question 1 Do the following six biopsychogocial variables; severity of the HIV virus, endorsement of symptoms related to depression and anxiety, feminist identity, self-esteem, social support relate to one another?

Hypothesis 1A. There will be a statistically significant positive correlation between severity of HIV illness, endorsement of symptoms related to depression, and endorsement of symptoms related to anxiety.

Hypothesis 1B. There will be a statistically significant positive correlation between feminist identity, self-esteem, and social support.

Hypothesis 1C. There will be a statistically significant negative correlation between variables in hypothesis 1A and 1B.

To test research question 1 and hypotheses 1A-C, data were analyzed through a series of Pearson Correlation Coefficients between the six biopsychosocial variables, including severity of the HIV virus, endorsement of symptoms related to depression and anxiety, feminist identity, self-esteem, and social support. Variables were examined for the purpose of identifying highly correlated variables. Variables would have been dropped after the analyses if they were found to be too highly correlated (e.g., $r > 0.80$).

Research Question 2 How do participants cluster with regard to their biopsychosocial variable (i.e., severity of the HIV virus, endorsement of symptoms related to depression and anxiety, feminist identity, self-esteem, social support) scores?

Hypothesis 2A. Two distinct clusters will be found within the participant pool.

Hypothesis 2B. One cluster will include participants who have low levels of severity of illness, depression, and anxiety with high levels of feminist identity, self-esteem, and social support.

Hypothesis 2C. A second cluster will include participants who have high levels of severity of illness, endorsed symptom related to depression, and endorsed symptoms related to anxiety with low levels of feminist identity, self-esteem, and social support.

To test research question 2 and hypotheses 2A-C, data were analyzed through Ward's (1963) method of cluster analysis and a multivariate analysis of variance (MANOVA). Ward's cluster analysis is a common hierarchical clustering method for research in psychology, and using SPSS computer software (Borgen & Barnett, 1987; Taylor, 2008). The purpose of cluster analysis is to allow data to be analyzed in a way different from regression, which focuses on finding similarities among participants based on their scores on various variables (Borgen & Barnett; Taylor). The goal of cluster analysis was to identify relationships among multiple factors to create clusters, which can then be examined alongside of other variables (Ward). The expected outcome of cluster analysis was the creation of groups of participants, labeled clusters, with similar profiles in regard to their responses on multiple factors (Borgen & Barnett; Romesburg, 2004).

Cluster analysis was performed using SPSS, by pairing participants that are most similar in their responses (Borgen & Barnett, 1987). Similar pairs are then combined into

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clusters. The purpose of creating clusters through the process of starting with small participant numbers to larger groups is to minimize within-cluster variability and maximize between-cluster variability throughout the process (Borgen & Barnett; Romesburg, 2004; Taylor, 2008). Clusters were then depicted in SPSS through a dendrogram, which depicted the number of clusters that resulted from the analysis and displays the mean of each variable within each cluster (Taylor). The cluster analysis for the proposed study produced results that indicated how participants could be grouped together based on their biopsychosocial factors scores (i.e., severity of the HIV virus, endorsement of symptoms related to depression and anxiety, feminist identity, self-esteem, and social support).

Some assumptions of cluster analysis include: independence; normality of the range in participants; randomization; that all variables are comparable to the degree of their impact on participants; and that participants will only fit into the category of one cluster (Fraley & Raftery, 1998; Garson, 2009). To meet the assumption of independence, the informed consent stated that participants should only complete the study once. The demographic questionnaire also asked participants if they had participated in the study before. To test the assumptions of normality in participants, the demographics of participants was analyzed to determine the range of diversity in the study's sample. Attempts to have a geographically diverse sample were made by utilizing an Internet based sample which can be accessed across the country. A

MANOVA was performed for the biopsychosocial variables to test the assumption of comparability of impact of variables. Ward's (1963) method of cluster analysis was utilized to examine how participants fall into different clusters.

A MANOVA was utilized to analyze how the participant clusters varied based on the six biopsychosocial variables, including, severity of the HIV virus, endorsement of symptoms related to depression and anxiety, feminist identity, self-esteem, and social support. The dependent variables were the participant clusters identified through the cluster analysis. The independent variables were six biopsychosocial variables.

Research Question 3 How do the resulting clusters influence health related behaviors (i.e., medication noncompliance, substance abuse, participation in mental health treatment)?

Hypothesis 3A. Participants' health related behaviors will vary within the resulting clusters.

Hypothesis 3B. Participants from the first cluster will have high rates of participation in mental health treatment, and low rates of substance abuse and medication noncompliance.

Hypothesis 3C. Participants from the second cluster will have high rates of substance abuse and medication noncompliance and low rates of participation in mental health treatment.

To answer research question 3 and hypotheses 3A-C, the data were analyzed using Pearson chi-square tests. The purpose of using Pearson chi-square tests was to assess if the clusters varied based on the health related behaviors. The dependent variables were the participant clusters identified through the cluster analysis. The categorical independent variables were the three health related behaviors, including medication noncompliance, substance abuse, and participation in mental health treatment.

CHAPTER IV

RESULTS

Chapter Four covers the results found from the analyses regarding the participant pool, research questions, and hypotheses. The main purpose of the current study was to explore how women with HIV/AIDS would cluster through a biopsychosocial approach. The expectation in the study was that the clusters would differ in relationship to the reported endorsement of health related behaviors.

Demographics and Missing Data

Fifty-nine of 74 participants completed the study, for a response rate of 80%. Fifteen participants were not included in the final data analyses because they did not complete two or more variables, or they identified themselves as male or transgendered. None of the 59 participants examined were missing data for any of the ten variables examined. Figure 1 displays the breakdown of participants based on reported racial identity. Figure 2 displays the breakdown of the participants based on reported completed education level.

Research Question 1

The purpose of Research Question 1 was to identify whether any of the six biopsychosocial variables were over correlated, or accounted for the same variance, defined as $p < .8$ (Reidenbach & Goeke, 2006). Research Question 1 was examined by

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conducting a series of Pearson's Product Movement Correlations (shown in Table 2). The descriptive statistics of the biopsychosocial variables are displayed in Table 1. None of the variables were found to be over correlated.

Hypotheses 1A, 1B, and 1C

Hypothesis 1A predicted that severity of the HIV illness, symptoms related to depression, and symptoms related to anxiety were positively correlated. Hypothesis 1B predicted that feminist identity, self-esteem, and social support were positively correlated. Hypothesis 1C predicted that there would be a significant negative correlation between the three variables; severity of the HIV illness, depression, and anxiety, and feminist identity, social support, and self-esteem. Hypotheses 1A, 1B, and 1C were tested by running a series of Pearson's Product Movement Correlations. Hypotheses 1A-C were partially supported by the data and results are shown on Table 2. Positive significant relationships were identified, including depression and anxiety, anxiety and self-esteem, social support and self-esteem, depression and self-esteem, and anxiety and social support. Positive significant relationships that were not predicted included anxiety and self-esteem, depression and self-esteem, and anxiety and social support. Feminist Identity and severity of the HIV illness did not have any significant relationships with any of the other variables. There were no significant negative relationships identified.
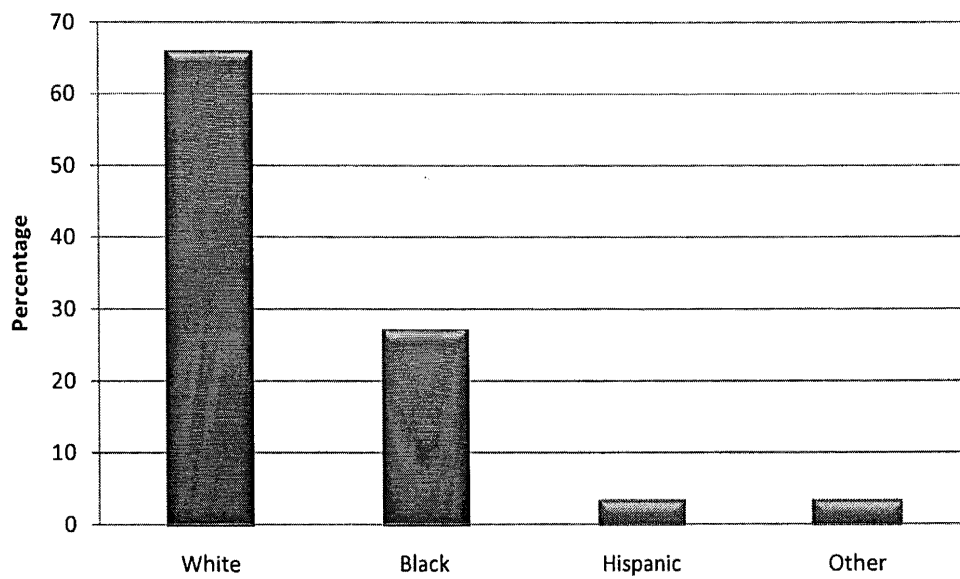
Figure 1. *Participants' identified race*
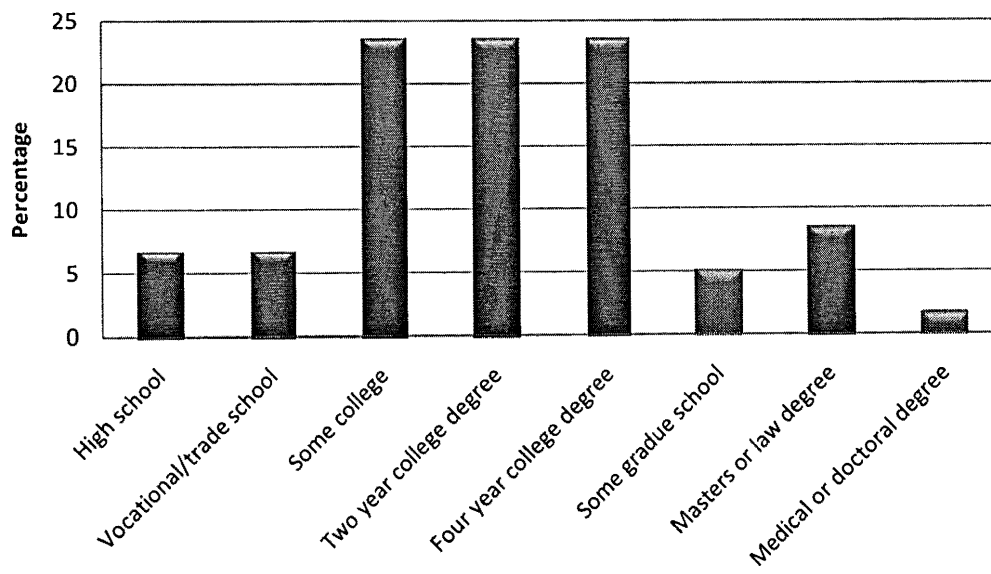
Figure 2. *Completed education*

Table 1
Biopsychosocial variables

	N	Mean	Median	SD	Minimum	Maximum
HIVSS	59	24.88	24	3.97	15	35
PHQ-2	59	1.47	1	0.50	1	2
PHQ-A	59	1.37	1	0.49	1	2
FIDS	59	3.97	4	0.85	2	5
MSPSS	59	65.5	68	14.65	12	84
RSES	59	27.71	28	3.22	20	34

Note. HIVSS = *HIV Symptoms Scale*, PHQ-2 = *Patient Health Questionnaire-2*
PHQ-A = *Patient Health Questionnaire- Anxiety*, FIDS = *Feminist Identity Development Scale*
MSPSS = *Multidimensional Scale of Perceived Social Support*, RSES = *Rosenberg Self-Esteem Scale*

Table 2
Biopsychosocial Variable Correlations

	1.	2.	3.	4.	5.	6.
1. Depression	--	--	--	--	--	--
2. Anxiety	.67**	--	--	--	--	--
3. FIDS stage	.08	.07	--	--	--	--
4. HIVSS sum	.20	.20	-.07	--	--	--
5. MSPSS sum	.09	.28*	.09	-.01	--	--
6. RSES sum	.32*	.50**	.08	-.10	.35**	--

Note. FIDS = *Feminist Identity Scale*, HIVSS = *HIV Symptom Scale*,
MSPSS = *Multidimensional Scale of Perceived Social Support*, RSES = *Rosenberg Self-Esteem Scale*, All significant scores are 2-tailed,
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Research Question 2

The purpose of Research Question 2 was to identify whether the participant pool would group into meaningful clusters. To examine Research Question 2, the hierarchical clustering method, Ward's cluster analysis (1963), was performed utilizing the six biopsychosocial variables. The analyzed SPSS output for the Ward's cluster analysis included a cluster membership chart, agglomeration schedule, and a dendrogram. The cluster membership chart labeled the participants in clusters, pending on the number of clusters chosen. An agglomeration schedule charted the squared coefficients changes each time participants were added to a cluster (Taylor, 2006). The dendrogram showed the clusters graphically in a tree style chart. The dendrogram exhibited the connection between participations with branches to represent clusters and the distance between the groups (Taylor).

Hypothesis 2A

Hypothesis 2A predicted that the participant pool would naturally group into two clusters (see Hypothesis 2B and 2C). To examine Hypothesis 2A, Ward's cluster analysis (1963) was performed using the six biopsychosocial variables. Hypothesis 2A was not supported by the data. Three clusters were identified.

A MANOVA was performed to examine cluster differences. The Wilks' Lambda multivariate test for overall differences among clusters was statistically significant ($p = .000$). The effect size was also found to be strong ($\eta^2 = .997$). Severity of HIV illness

and feminist identity development were not found to play a significant role in the development of the clusters. Figure 3 visually displays the clusters based on their Z score means of the variables.

Multiple significant differences ($p < .05$) were identified between the clusters based on the four significant biopsychosocial variables, including symptoms related to depression, symptoms related to anxiety, self-esteem, and social support. Clusters 1 and 2 significantly differed for the following variables: symptoms related to depression, symptoms related to anxiety and self-esteem. Clusters 2 and 3 had significant differences for symptoms related to depression, and social support. Cluster 1 and 3 significantly differed on all four variables. Figure 3 visually displays cluster differences and their Z score variable means.

Hypothesis 2B

Hypothesis 2B predicted that one cluster would emerge with participants who did not endorse symptoms related to depression or anxiety, reported low levels of severity of HIV illness, and identified as having high levels of feminist identity, self-esteem, and a social support system. A MANOVA was performed to examine cluster differences. Figure 3 visually displays the clusters based on their Z score variable means. Hypothesis 2B was partially supported by the data. The Cluster 1 profile identified individuals who did not endorse symptoms related to depression or anxiety and reported high self-esteem

and social support. Severity of HIV illness and feminist identity development were not found to play a significant role in the development of the clusters.

Hypothesis 2C

Hypothesis 2C predicted that a cluster would emerge with participants who endorsed symptoms related to anxiety and depression, reported high levels of severity in their HIV illness, and reported low levels of feminist identity, self-esteem, and social support. A MANOVA was calculated to examine the differences between the clusters based on the standardized Z score means of the variables. Hypothesis 2C was partially supported by the results. Figure 3 displays the clusters based on their variable Z score means. Two clusters emerged that partially supported Hypothesis 2C. In Cluster 2, all of the participants endorsed symptoms related to depression; the majority endorsed symptoms related to anxiety; and the cluster had a relatively low reported mean self-esteem and perceived social support. Cluster 3 participants were significantly less likely to endorse symptoms related to depression than Cluster 2, which had the highest endorsed rate of symptoms related to anxiety, and had the lowest mean scores for social support and self-esteem when compared to both Clusters 1 and 2.
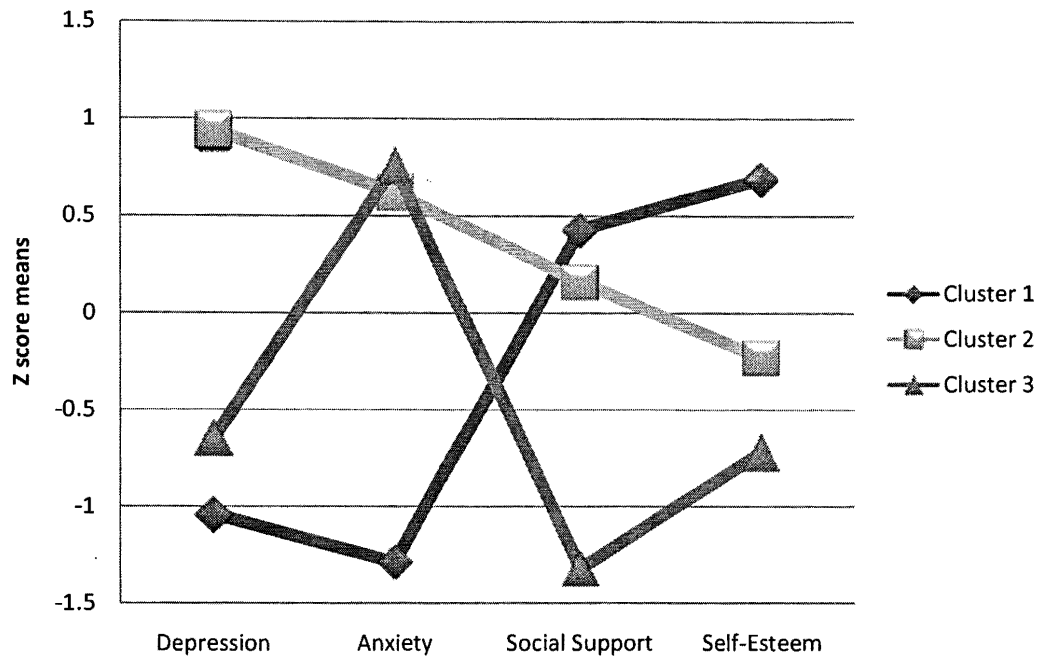
Figure 3. Comparison of clusters based on variables mean Z scores.
Note. Higher Z score means indicate higher endorsement of variables. Cluster 1 = No depression, no anxiety, high self-esteem, and high social support. Cluster 2 = High depression, low anxiety, low social support, and low self-esteem. Cluster 3 = Low depression, high anxiety, low social support, and low self-esteem.

Research Question 3

Research Question 3 explored how the participant clusters reported rates of health related behaviors. Pearson chi-square tests were performed to examine group differences between the health related behaviors. Alcohol abuse was found to be significant (χ^2 = 9.562, df = 2, p = 0.008). Medication compliance was also found to be significant (χ^2 = 21.355, df = 4, p = 0.000). Participation in mental health treatment and drug abuse were not found to be significantly related to the identified clusters. Figure 4 displays the

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percentage of participants in each cluster who reported alcohol abuse and medication noncompliance.

Hypothesis 3A

Hypothesis 3A predicted that the identified clusters would vary based on their reported health related behaviors. Pearson chi-square tests were performed to examine the group differences of the health related behaviors. Hypothesis 3A was partially supported by the results, as shown in Figure 4. Neither participation in mental health treatment nor drug abuse was found to have any significant relationship to the clusters. Cluster 1 was found to not report alcohol abuse or medication noncompliance. Clusters 2 and 3 had ranging average scores for both alcohol abuse and medication noncompliance.

Hypothesis 3B

Hypothesis 3B predicted that participants who endorsed high self-esteem, social support, and feminist identity, alongside low reported levels of severity of the HIV illness, symptoms related to depression, and anxiety, would endorse participation in mental health treatment, and not report medication noncompliance and substance or alcohol abuse. The percentage of participants who reported alcohol abuse and medication compliance was calculated for each cluster. Hypothesis 3B was partially supported by the findings. None of the participants in Cluster 1 reported medication noncompliance or alcohol abuse. Neither participation in mental health treatment nor drug abuse was found to have any significant relationship to the clusters.

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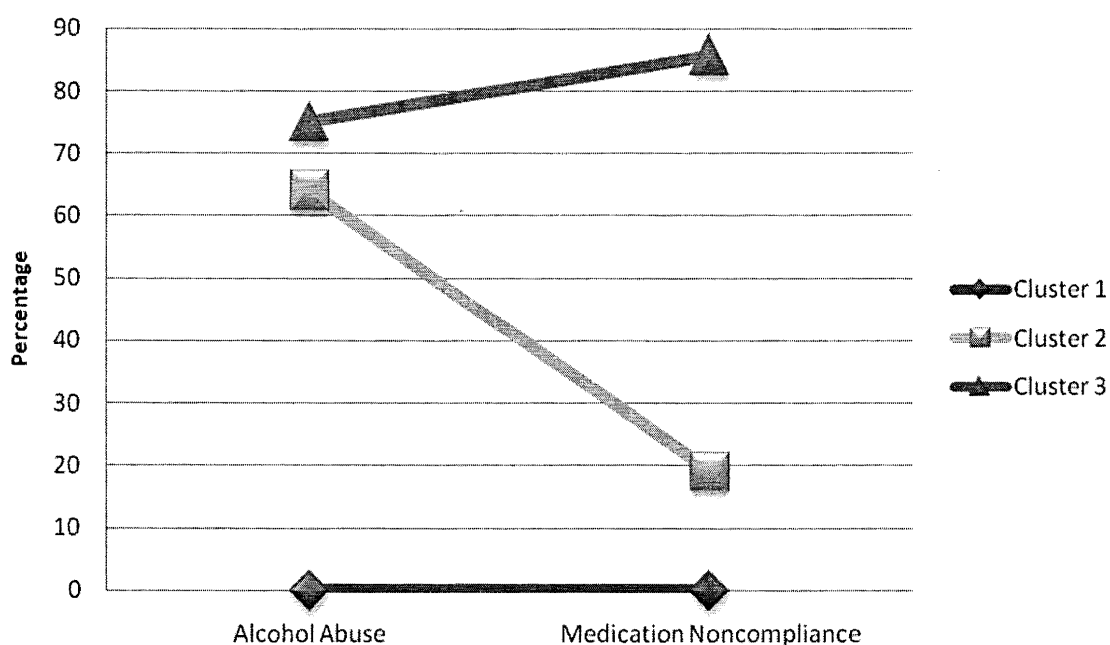
Figure 4. Reported health related behaviors between clusters
Note. Cluster 1 = No depression, no anxiety, high self-esteem, and high social support.
Cluster 2 = High depression, low anxiety, low social support, and low self-esteem.
Cluster 3 = Low depression, high anxiety, low social support, and low self-esteem.

Hypothesis 3C

Hypothesis 3C predicted that a cluster would emerge with participants who

endorsed low levels self-esteem, social support, and feminist identity, alongside high

reported levels of severity of the HIV illness, depression, and anxiety, would report high

rates of medication noncompliance and participation in mental health treatment, and high

rates of substance abuse. Pearson chi-square tests were performed to examine the group

differences between the health related behaviors. Both Clusters 2 and 3 were identified

as having low levels of self-esteem and social support and endorsing symptoms related to

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depression and anxiety (see Figure 3). Hypothesis 3C was partially supported by the

findings, as shown in Figure 4. Within Cluster 2, 64% of the participants reported

alcohol abuse and 19% reported medication noncompliance. Participants in Cluster 3 had

the highest rates of alcohol abuse (75%) and medication noncompliance (85.7%).

CHAPTER V

DISCUSSION

The purpose of the current study was twofold. First, the study was designed to

explore how women with Human Immunodeficiency Virus (HIV) and Acquired

Immunodeficiency Syndrome (AIDS) grouped or clustered based on six biopsychosocial

variables. The second purpose was to examine how the identified clusters differed based

on health related behaviors, such as substance abuse, alcohol abuse, medication

compliance, and participation in mental health treatment. Therefore, this study had three

main questions. First, how did the chosen biopsychosocial variables correlate. Second,

how did the six biopsychsocial variables group within the participant pool to create

clusters. Third, how did the clusters correlate with the focal health related behaviors. By

utilizing the biopsychosocial model (Engel, 1977), women with HIV/AIDS were

examined through a different lens than in previous research, with the intent and hope of

opening the door to future research.

Research Question 1

The first research question asked whether the following six biopsychosocial

variables, severity of HIV illness, self-esteem, feminist identity, depression, anxiety, and

social support, were significantly inter-correlated. A goal was to identify and eliminate

possible variables that were significantly over correlated, or measuring for the same

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variance. There were significant relationships identified between the six biopsychosocial variables. However, there were no variables found to be over correlated (Reidenbach & Goeke, 2006).

Hypothesis 1A

Hypothesis 1A predicted that there would be statistically significant positive correlations between severity of the HIV illness, depression, and anxiety. One aspect of Hypothesis 1A was found to be supported by the statistical analyses. Study results indicated that depression and anxiety had the strongest significant positive relationship among any of the variables throughout the entire study. The current study's results were supported by recent studies that identified a moderate to high comorbidity rate for anxiety and depression (Carter & Wu, 2010; Field et al., 2010; Newman, Przeworski, Fisher, & Borkovec, 2010). Study results did not find a correlation between severity of the HIV illness and depression or anxiety. The current findings indicated that severity of the HIV illness did not relate to the rates of mental illness within the HIV/AIDS population. Therefore, other factors, such as social stigma, discrimination, or existential crises, which were not examined in the current study, may have influenced the higher rates of mental illness within the HIV/AIDS population when compared to the general population.

Hypothesis 1B

Hypothesis 1B predicted that there would be statistically significant positive correlations between feminist identity, self-esteem, and social support. One aspect of

Hypothesis 1B was found to be partially supported by the statistical analyses. Self-esteem and social support were found to have a moderately significant positive relationship. Study results were similar to and strengthened the recent literature, which reported that self-esteem and social support have a significant positive relationship (Ruegerm, Nakecju, & Demaray, 2010; Schutt, & Rogers, 2009; Spencer & Patrick, 2009). For example, Simoni and colleagues (2005) found low self-esteem to be a mediating factor for individuals within the HIV population who utilized social supports at lower rates than individuals with high self-esteem. Such findings are important for the conceptualization and treatment of HIV positive clients, because past research on the HIV population has shown that as self-esteem and social support decrease, behaviors, such as substance abuse and medication noncompliance, increase (Barclay et al., 2007; Bontempi, Burleson, & Lopez, 2004; Bottonari et al., 2005; Liu et al., 2006; Simoni et al.). Feminist identity was not found to have a significant relationship with either self-esteem or social support.

Hypothesis 1C

Hypothesis 1C predicted there would be statistically significant negative correlations between the set of variables, severity of the HIV illness, depression, and anxiety and the set of variables, including feminist identity, self-esteem, and social support. Hypothesis 1C was not supported. Several statistically significant positive correlations, however, were identified. Symptoms related to anxiety and self-esteem were found to have a moderately significant positive correlation. Research on the

relationship between anxiety and self-esteem has yielded mixed results. Some studies utilizing the general population have indicated a negative correlation between anxiety and self-esteem (e.g., Cai, Wu, & Brown, 2009; Ruegerm, Nakecju, & Demaray, 2010). Other studies have reported no relationship between self-esteem and anxiety (e.g., Bos et al., 2010). Social support and anxiety were also found to have a weak but significant positive relationship in the current study. These results conflicted with existing research, which has identified a negative relationship between social support and anxiety (Karevold, Røysamb, Ystrom, & Mathiesen, 2009; Ruegerm, Nakecju, & Demaray, 2010). Prior research on the relationship between social support and anxiety was examined with the general population and not an exclusive HIV positive population, which may account for this difference in results.

One possible explanation for the positive relationships found between anxiety and both self-esteem and social support is the unique characteristics of the HIV population, such as the higher prevalence rate of anxiety when compared to the general population (Gaynes et al., 2008). No literature was found that compared self-esteem levels between an exclusive HIV/AIDS population and the general population. Study results also could have been influenced by the screening tool for anxiety. In the current study, the existence of anxiety was assessed but not its severity. One way to further investigate anxiety in the HIV/AIDS population would be to utilize an assessment tool that examines the severity of anxiety, such as the Beck Anxiety Index (BAI; Beck & Steer, 1993).

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Study results indicated that depression and self-esteem had a weak significant positive relationship. These results were not supported by recent literature, which reported a negative correlation between depression and self-esteem (Cai, Wu, & Brown, 2009; Risch et al., 2009). The positive relationship between self-esteem and depression could have been influenced by the unique characteristics of the HIV population, such as their higher prevalence rates of depression when compared to the general population (Tegger et al., 2008). For example, Tegger and colleagues (2008) reported depression rates to be as high as 63% among individuals with HIV/AIDS. Study results could have been influenced by the screening tool for depression. In the current study, the existence of depression was assessed, but not its severity. One way to further investigate depression in the HIV/AIDS population would be to utilize an assessment tool that examines severity of depression, such as the Beck Depression Inventory 2 (Beck, Steer, & Brown, 1996).

Research Question 2

In Research Question 2, participants were found to be grouped into distinct clusters. Study results indicated that three distinct clusters were identified based on four of the six biopsychosocial variables, including depression, anxiety, self-esteem, and social support. Cluster differences are discussed below in Hypotheses 2B and 2C.

Hypothesis 2A

Hypothesis 2A predicted that two distinct clusters would emerge from the six biopsychosocial variables. The expectation of two distinct clusters was based on the past literature, which identified significant relationships between depression, anxiety, social support, and self-esteem. The expectation was that the participant pool would split dichotomously, into polar opposite groups. It was expected that one participant group would contain subjectively positive variable scores, such as a lack of mental illness, low reported severity of HIV illness, and high levels of social support, self-esteem, and feminist identity. The other group was expected to contain the subjectively negative variable values, such as endorsement of depression, anxiety, high severity of the HIV illness, and low levels of self-esteem, feminist identity, and social support.

Relationships from the literature that influenced the expectation of two distinct clusters included significant positive relationships between depression and anxiety (Carter & Wu, 2010; Field et al., 2010; Newman, Przeworski, Fisher, & Borkovec, 2010) and social support and self-esteem (Ruegerm, Nakecju, & Demaray, 2010; Schutt, & Rogers, 2009; Spencer & Patrick, 2009), as well as the negative relationships between depression and self-esteem (Cai, Wu, & Brown, 2009; Risch et al., 2009), anxiety and self-esteem (Cai, Wu, & Brown; Ruegerm, Nakecju, & Demaray), and anxiety and social support (Karevold, Røysamb, Ystrom, & Mathiesen, 2009; Ruegerm, Nakecju, & Demaray). Instead, three distinct clusters emerged. Cluster 1 included participants who

reported high levels of self-esteem and social support, and did not report anxiety and depression. Cluster 1 could be identified as the "Healthy" cluster of participants. Clusters 2 and 3 included participants who reported low levels of self-esteem and social support, and did have a mental illness. Clusters 2 and 3 varied based on reported levels of social support and endorsed mental illness. Further analysis indicated that between the clusters, four of the six variables (i.e., depression, anxiety, self-esteem, and social support) were significantly different. Cluster 2 could be identified as the "Mixed Mental Illness" cluster of participants. Cluster 3 could be identified as the "Anxious" cluster of participants. The two variables that did not play a significant role in the cluster creation were severity of the HIV illness and feminist identity. For the remainder of the paper, the three clusters will be referred to as Cluster 1, 2, and 3.

Past research identified that, as the severity of the HIV illness increases, the overall quality of life decreases in people with HIV (Chandra et al., 2009). There was an expectation that the severity of the HIV illness would be positively related to depression and anxiety, which would also be negatively related to quality of life. Therefore, it was anticipated that severity of the HIV illness would cluster with depression and anxiety, even though there were no previous or significant relationships found between depression and anxiety and severity of the HIV illness. However, severity of the HIV illness did not play a significant role in cluster creation.

Feminist identity did not play a significant role in cluster creation. Feminist identity has previously been described as a specific domain of self-esteem (Rosenburg, 1995). Therefore, the expectation was that feminist identity would correlate with biopsychosocial variables, as did self-esteem. Feminist identity had yet to be assessed among women with HIV/AIDS prior to the current study. Therefore, further research is indicated to identify how feminist identity may be conceptualized within the HIV positive population.

Hypothesis 2B

Hypothesis 2B predicted that one cluster would emerge from the participants with high reported scores on self-esteem, feminist identity, and social support, and low scores on depression, anxiety, and severity of the HIV illness. Hypothesis 2B was partially supported by the data. Cluster 1 contained participants who reported high levels of self-esteem and social support as well as no reported anxiety and depression. Results indicated that within the study sample, there was a subgroup of individuals that can be profiled as having high self-esteem and high social support that do not endorse having a mental illness. Cluster 1 supported past literature that identified a positive relationship between self-esteem and social support (Ruegerm, Nakecju, & Demaray, 2010; Schutt, & Rogers, 2009; Spencer & Patrick, 2009) and negative relationships between mental illness and both self-esteem and social support (Cai, Wu, & Brown, 2009; Karevold et al., 2009; Risch et al., 2009; Ruegerm, Nakecju, & Demaray). The current findings

suggested that, similar to the general population, within the HIV/AIDS population, as self-esteem and social support decrease, mental illness increases.

Hypothesis 2C

Hypothesis 2C predicted that a second cluster would emerge with participants who reported higher levels of severity of the HIV illness, depression, and anxiety, and lower scores on self-esteem, feminist identity, and social support, when compared to the first hypothesized cluster (i.e., low levels of severity of the HIV illness, depression, and anxiety and high scores on self-esteem, feminist identity, and social support). Study results partially supported Hypothesis 2C. That is, Clusters 2 (i.e., high depression, low anxiety, low self-esteem, and low social support) and 3 (i.e., low depression, high anxiety, low self-esteem, and low social support) partially fit the criteria for Hypothesis 2C. All of the participants in Cluster 2 reported depression, where less than half of the participants in Cluster 3 endorsed depression. All of Cluster 3 endorsed having symptoms related to anxiety, but approximately half of Cluster 2 endorsed symptoms related to anxiety. Cluster 2 was found to have low levels of self-esteem and social support. Cluster 3 was also found to have the lowest scores for self-esteem and social support of all three clusters.

The prediction of a cluster with high levels of severity of the HIV illness, depression, and anxiety, and with low levels of self-esteem, social support, and feminist identity was supported by past research, which identified negative correlations between

mental illness and self-esteem and between mental illness and social support (Cai, Wu, &

Brown, 2009; Karevold, Røysamb, Ystrom, & Mathiesen, 2009; Risch et al., 2009;

Ruegerm, Nakecju, & Demaray, 2010). Clusters 2 and 3 demonstrated that with the

endorsement of a mental illness, participants also reported lower self-esteem and lower

social support than participants who did not endorse a mental illness. Cluster 3, which

had the highest endorsement rate of anxiety when compared to Cluster 2, also had the

lowest reported rates of social support and self-esteem when compared to both Clusters 1

and 2. Study findings indicated that, within the HIV/AIDS population, anxiety has

stronger negative relationships to social support and self-esteem than to depression.

Within the HIV/AIDS population, anxiety may pose more additional difficulties than

other mental illnesses.

Research Question 3

In Research Question 3, participant clusters were found to vary with regard to

their reported health related behaviors, such as substance and alcohol abuse, medication

compliance, and participation in mental health treatment. Study results indicated that

alcohol abuse and medication compliance were significantly related to the three clusters.

Study results also indicated that there were significant differences between the three

clusters with regard to alcohol abuse and medication compliance. Health related

behavior differences between the clusters are described below in Hypotheses 3B and 3C.

Hypothesis 3A

Hypothesis 3A predicted that the three clusters would differ significantly with respect to three health related behaviors (i.e., medication compliance, substance abuse, and participation in mental treatment). Hypothesis 3A was based on previous research that identified significant relationships between the biopsychosocial variables utilized to create the clusters, and several of the examined health related behaviors (Barclay et al., 2007; Bottonari et al., 2005; Gaynes et al., 2008; Koenig et al., 2008; Liu et al., 2006; Stein, Dixon, & Nyamathi, 2008; Tegger et al., 2008; Ubbiali et al., 2008). Therefore, since the clusters differed on their responses to the variables, it was expected that their reported health related behaviors would also vary. Hypothesis 3A was supported by the data.

All three clusters were found to vary on their endorsement of alcohol abuse and medication compliance. Study results were supported by research that identified significant positive relationships between alcohol abuse and mental illness (Gaynes et al., 2008; Tegger et al.), medication compliance and self-esteem (Barclay et al., 2007; Bottonari et al., 2005; Liu et al., 2006), and medication compliance and social support (Koenig et al., 2008; Rajabiun et al., 2007; Sunil & McGehee, 2007; Ubbiali et al., 2008). A number of past studies also identified significant negative relationships between medication compliance and mental illness (Bottonari et al., 2008; Gaynes et al.; Rajabiun et al.; Whetten et al., 2008) alcohol abuse and self-esteem (Liu et al., 2006; Shen & Cai,

2007; Stein, Dixon, & Nyamathi, 2008; Visintini et al., 1995), and alcohol abuse and

social support (Staton-Tindall, Royse, & Leukfeld, 2007). Health related behavior

differences between the clusters are described below in Hypotheses 3B and 3C.

Hypothesis 3B

Hypothesis 3B predicted that the cluster of participants who reported low levels of

severity of the HIV illness, depression, and anxiety and high levels of feminist identity,

self-esteem, and social support (i.e., Cluster 1) would report medication compliance,

participate in mental health treatment, and not endorse alcohol or drug abuse. Hypothesis

3B was partially supported by the data.

None of the participants in Cluster 1 reported alcohol abuse. Study results were

supported by past research, which identified that as self-esteem and social support

increased, alcohol abuse decreased (Liu et al., 2006; Shen & Cai, 2007; Staton-Tindall,

Royse, & Leukfeld, 2007; Stein, Dixon, & Nyamathi, 2008) and as mental illness

decreased, alcohol abuse also decreased (Gaynes et al., 2008; Tegger et al., 2008).

Cluster 1 had the highest rate of medication compliance when compared to the two other

clusters. These results supported other recent studies, which showed that, as social

support and self-esteem increased, medication compliance increased (Barclay et al.,

2007; Bottonari et al., 2005; Liu et al., 2006; Koenig et al., 2008), and that as mental

illness increased, medication compliance decreased (Bottonari et al.; Gaynes et al., 2008;

Rajabiun et al., 2007; Whetten et al., 2008). Hypothesis 3B bridged past research, which

identified variables that related to medication compliance and alcohol abuse separately, creating an integrated picture of the sample population on this particular set of variables. The current findings highlighted a set of variables (i.e., no mental illness and high self-esteem and social support) within the HIV/AIDS population, which could be considered protective variables against medication noncompliance and substance abuse.

Hypothesis 3C

Hypothesis 3C predicted that participants, who reported high levels of severity of HIV illness, depression and anxiety, and reported low levels of feminist identity, self-esteem, and social support (i.e., Clusters 2 and 3), would report lower rates of medication compliance, lower rates of participation in mental health treatment, and higher rates of substance abuse than Cluster 1. Hypothesis 3C was partially supported by the statistical analyses.

Clusters 2 and 3 had higher rates of alcohol abuse and lower rates of medication compliance, when compared to Cluster 1. Study results indicated that when examining the clusters, as self-esteem and social support decreased, alcohol abuse increased. These results had findings similar to other recent studies that identified significant negative relationships between both self-esteem and alcohol abuse (Liu et al., 2006; Shen & Cai, 2007; Stein, Dixon, & Nyamathi, 2008) and social support and alcohol abuse (Staton-Tindall, Royse, & Leukfeld, 2007). The higher rates of alcohol abuse within Clusters 2 and 3, when compared to Cluster 1, supported recent research, which identified

comorbidity between substance abuse and mental illness as well as high rates of substance abuse in the HIV/AIDS community (Falk, Yi, & Hilton, 2008; Tegger et al., 2008).

Cluster 3 had the highest rate of alcohol abuse and the lowest rate of medication compliance, when compared to Clusters 1 and 2. Cluster 3 also contained the highest number of participants who endorsed symptoms related to anxiety and had the lowest mean scores for self-esteem and social support when compared to the other clusters. Therefore, Cluster 3 appeared to be the sub-group of the sample population, who were at the highest risk for medication noncompliance and alcohol abuse when compared to the other identified sub-groups. Study results are noteworthy due to the fact that medication compliance had been identified as a barrier for the HIV/AIDS population, with little understanding of the factors in noncompliance (Barclay et al., 2007; Hinkin et al., 2004; Levine et al., 2005). The current findings highlight a set of variables (i.e., mental illness with low self-esteem and social support) within the HIV/AIDS population, which could be considered risk factors for medication noncompliance and substance abuse.

Implications for Future Research

The current study was the first to examine clusters with the chosen biopsychosocial variables within the HIV/AIDS population. The use of the biopsychosocial model (Engel, 1977) provided a contextual and integrated approach to the conceptualization and study of women with HIV/AIDS. Replication of the current

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study could provide further insight on the reported results and assumptions made in the current study.

In the current study, the participant pool was examined at a single point in time. Had the study been longitudinal, more implications for therapy and treatment may have been drawn. All of the variables in the current study (i.e., illness severity, endorsement of mental illness, feminist identity development, self-esteem, social support, substance abuse, medication compliance, and participation of mental health treatment) have the potential to change in individuals throughout time. Following participants for a period of time would have made it possible to examine whether participants' clusters influenced health related behaviors over time.

The current study found three clusters of participants in regard to mental illness (i.e., depression and anxiety). One possible cause of the range in mental illness could be the duration in time that the participants were aware of their HIV positive status. For example, one hypothesis for the range in mental illness could be that, at the initial diagnosis of HIV, individuals are more anxious, and as time continues, depression may become more prevalent. Future studies could also assess changes within the population over time by identifying the date participants were informed of their HIV positive status.

The current study screened participants for depression and anxiety. The screen tools used had very few questions. By screening participants, minimal information was collected regarding the severity of mental illness within the participant pool. Further

research could examine individuals with prior mental illness diagnoses, such as clients at mental health clinics or inpatient facilities. Findings regarding substance abuse and dependence could also be expanded in future studies by examining not only present use, but past use as well. By increasing the amount of information on the participants' degrees of substance abuse, a fuller picture of the profile clusters could be drawn and discussed.

The HIV Symptoms Scale (HIVSS; Cederfjäll et al., 2001) was utilized to assess the severity of HIV/AIDS illness in the sampled population. Severity of the HIV/AIDS illness was determined by the number and reported severity of their current physical symptoms (Cederfjäll et al.). The HIVSS did not indicate whether the HIV illness had progressed into AIDS. Other forms of assessing the severity of HIV/AIDS would include the collection of actual blood test results or medical consultation to diagnose the severity of participants' HIV illness. Due to Internet data collection, and the desire to have participants engage in the study as anonymously as possible, neither of these options were selected.

Medication compliance for the current study was measured through self-report. Self-report by participants for medication compliance leaves open the possibility of participants not reporting accurately and attempting to be seen in a positive light. An alternative to medication compliance self-report would be to utilize a sample from a residential facility where medication is given out and compliance is recorded. By

studying participants who have an outside recording keeping source of their medication compliance, there would be a lower rate of participant bias in the reporting of medication compliance. Continued cluster-oriented research, identifying the impact of the four biopsychosocial variables (i.e., depression, anxiety, self-esteem, and social support), could provide insight on possible risk factors for medication noncompliant patients.

The current study examined feminist identity development stages in women with HIV/AIDS. This study is the first to examine feminist identity in the HIV/AIDS population. Future studies could expand the knowledge of how feminist identity impacts women with HIV/AIDS. Due to the controversy and uncertainty of the Feminist Identity Development Scale (FIDS; Bargad & Hyde, 1991), further research comparing the results of the FIDS with other assessment scales, such as the Feminist Identity Composite (Fischer et al., 2000) and the Feminist Identity Scale (Juntuen et al., 1994), would be beneficial in creating assessment group norms for the various feminist identity scales for the HIV/AIDS population (Moradi & Mezydlo, 2002).

Future studies could replicate the current study to examine how sets of relevant variables cluster for men with HIV/AIDS. Women were examined exclusively in the current study due to the interest in feminist identity development as a psychological factor. Future studies with men might utilize masculinity identity development scales.

Future studies could also replicate the current study to examine how unique the current findings were to the overall HIV/AIDS population. The current study only

examined women with HIV/AIDS. Future studies comparing a sample of individuals with HIV/AIDS with another sample of individuals without HIV/AIDS could possibly identify unique characteristics of the population.

Implications for Theory and Research in Counseling Psychology

As early as 1987, researchers have advocated the use of cluster analysis in Counseling Psychology research (Borgen & Barnett, 1987). The current study confirmed past statements that cluster analysis can allow Counseling Psychologists to perform exploratory research (Borgen & Barnett; Worthingtom & Roynolds, 2009). Cluster analysis allows Counseling Psychologists to group participants based on multiple variables at the same time. Study results confirmed that cluster analysis effectively grouped participants in a meaningful way, by generating predictions and implications based on variable sets. The current study supported and strengthened the justification for the use of cluster analysis over more simplistic forms of analyses.

Conceptualization of people through an integrated lens is a continued focal point in Counseling Psychology research (Egeli & MacMillan, 2008; Farrugia & Fetter, 2009; Taylor, 2008). The biopsychosocial model makes the assumption that individuals' thoughts, behaviors, and emotions are not influenced by only one variable (Egeli & MacMillan, 2008; Engel, 1977; Farrugia & Fetter, 2009; Taylor, 2008). By utilizing the biopsychosocial model, the current study's participants were examined in a multidimensional light. Study results supported and strengthened the argument for use of

the biopsychosocial model, rather than relying solely on a unitary or more traditional

approach, such as the medical model, for understanding psychologically complex health

related issues.

One core value in Counseling Psychology is increasing the field's understanding

of diversity and multicultural competence. Counseling Psychologists strive to be

multiculturally competent by increasing the knowledge of underrepresented, minority, or

disadvantaged populations (American Psychological Association, 2008). Adhering to

this core value of Counseling Psychology, women with HIV/AIDS, an under researched

population (Gwadz et al., 2006), were examined for the current study. Study results

increased the general knowledge about the female HIV/AIDS population by identifying a

new way to understand salient variables, such as mental illness, low self-esteem, social

support, feminist identity, medication noncompliance, and substance abuse. The findings

of the current study can also be built upon by other Counseling Psychologists to continue

expanding the knowledge of this underrepresented population. The low participant

number in the current study suggested the need for Counseling Psychologists to enhance

their efforts in recruitment of underrepresented populations.

Another value of Counseling Psychologists is the expansion of research,

knowledge, and practice of preventive care (Sage, 2000). For example, increasing the

quality of life within the HIV/AIDS population is a goal for care providers (Vidrine et al.,

2005). The current study expanded the body of knowledge that focuses on preventive

care by identifying that mental illness, particularly anxiety, in combination with low self-esteem and low social support, is a risk factor for medication noncompliance and substance abuse within the HIV/AIDS population. Study findings could be conceptualized as factors that influence the quality of life in individuals with HIV/AIDS.

Implications for Practice

Study results indicated that clusters with variables, such as endorsement of symptoms related to anxiety and depression alongside low reported rates of self-esteem and social support, were related to the negative health behavior of alcohol abuse. Mental health professionals may be able to utilize the findings from the current study to screen for these cluster profiles. For example, participants in Clusters 2 and 3 were found to have higher rates of alcohol abuse and medication noncompliance. By screening clients for clusters of variables, such as Clusters 2 and 3 (i.e., high endorsement of a mental illness, low self-esteem, and poor social support), practitioners may more readily identify clients who are at a higher risk for alcohol abuse than clients who do not endorse the significant variables in Clusters 2 and 3. Screening clients can aid in early identification of individuals who are at a relatively high risk for alcohol abuse. Early interventions, such as psychoeducation or referrals for more specific treatment for alcohol and drug treatment, may be useful.

Medication compliance has been linked to a relatively better quality of life in individuals with HIV/AIDS (Sullivan, Wells, & Leake, 1992). The current study

identified that, as mental illness increased, and self-esteem and social support decreased, medication noncompliance increased. Study results also implied that screening for biopsychosocial clusters with variables, such as depression, anxiety, low self-esteem, and poor social support, may aid in identifying women at a high risk for medication noncompliance. Practitioners could screen for this cluster of symptoms to identify clients who may have difficulty with medication compliance. Early detection of possible problems can lead to early interventions and preventative care (Sage, 2000).

Limitations

The current study contained several limitations, including sample size, recruitment, missing data, limited diversity among of the sample, and the assessment tools used. The limitations, with recommendations for future studies, are discussed below.

Sample Size and Recruitment

One limitation of the current study was the relatively small number of participants. Though the study yielded significant findings, a larger participant pool may have been able to give a richer picture of the cluster profiles. This limitation could be addressed in future research by utilizing other forms of recruitment. This study utilized Internet snowball sampling, which allowed recruitment across the globe. However, by solely recruiting on the Internet, the study was limited to those who had access to the Internet, located the website, and chose to respond. Solely utilizing the Internet may

have also lowered the numbers of individuals from low socioeconomic backgrounds and individuals with low computer access or literacy. In future studies, recruitment within the community, including AIDS clinics or support groups, may increase the number of participants. By utilizing paper and pencil surveys in future studies, individuals without computer access or knowledge would be able to participate. Another way to address the low participation rate would be to offer a small incentive, such as raffles or gift cards.

Missing Data

One limitation of the current study was missing data. The length of the Feminist Identity Development Scale (FIDS) appeared to have contributed to some participants not completing the study. This assumption was made based on the observation that, when the FIDS was the 6th out of 7 measures to be completed, participants were more likely to drop out of the study in the middle of the FIDS. When the pattern of participants who dropped out was identified, counterbalancing of the assessment measures was discontinued, and the FIDS was placed at the end of the study, which resulted in no further participant dropouts. Attrition can be addressed in future studies by vigilant observation of patterns of dropout.

Limited Diversity among Sample

Another limitation from the current study was the limited diversity of the participants. The current study had a disproportionate number of White participants. Study results lacked findings regarding whether race was influential to the clusters or

health related behaviors. Due to the snowball sampling method of recruitment, there was not a clear answer as to why uneven racial groups occurred in the current sample. A way for future researchers to address disproportional racial populations within a sample size would be to recruit through agencies that boast of serving a high percentage of minority clientele. Another way to address this limitation would be to recruit in areas with larger minority populations.

Assessment Tools

Some limitations of the current study were due to some of the scales utilized. Assessment of substance and alcohol abuse and symptoms related to depression and anxiety was achieved through very brief screening tools. These measures did not assess the severity of diagnoses, such as substance dependence, depression, or anxiety. By not examining the severity of mental illnesses, the depth of information to interpret was limited. Future studies could utilize more detailed diagnostic scales, such as the Beck Depression Inventory (Beck, Steer, & Brown, 1996) for depression, the Beck Anxiety Inventory (Beck & Steer, 1993) for anxiety, or the Substance Dependence Severity Scale (Miele et al., 2000) for substance abuse disorders. These assessment measures would allow researchers to determine how the severity of different mental illnesses related to other investigated variables.

The Feminist Identity Development Scale (FIDS; Bargad & Hyde, 1991) may have also been a limitation to the current study. Past research has identified that women

of color may not complete or interpret the items on the scale similarly to White women (Moradi & Mezydlo, 2002). This study may have benefitted by utilizing another gender identity scale that has been found to be more consistent among racially diverse populations.

Conclusion

HIV/AIDS is a disease with a growing prevalence among women. As the life expectancy rate continues to increase for the HIV/AIDS population, the focus of care providers has shifted from solely medical issues to increasing the overall quality of life for their clients. The current study expanded the knowledge of biopsychosocial variables and health related issues known to impact the quality of life in women with HIV/AIDS. Using clusters of these biopsychosical variables may help with early detection of risk and allow care providers the opportunity to implement preventive interventions that have the potential to increase the overall quality of life for women with HIV/AIDS.

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APPENDIX A

Demographics Questionnaire

Demographics Questionnaire

Please complete the following questions to the best of your ability.

1. Age: _____

2. Sex: _____(1) Female_____(2) Male_____(3) Intersex

3. Gender: _____(1) Woman_____(2) Man_____(3) Transgender

4. What is your occupation?_____

5. What is your annual income?_____

6. How many people are financially dependent upon you? (Excluding yourself): _____

Where do you currently live?

7. City/Town_____

8. State/Country_____

9. Are you Partnered/Married (1)? __Divorced (2)? ___Widowed (3)? ___Single (4)?___

10. Do you have children?_____(1) yes_____(2) no   11. How many?_____

12. Are you _____(1) lesbian _____(2) gay _____(3) bisexual _____(4) heterosexual

13. What is the highest level of education you have completed?

(1) elementary school   (7) community college (AA degree)

(2) middle/junior high school   (8) college/university (BA or BS degree)

(3) some high school   (9) some graduate school

(4) high school (diploma)   (10) master's or law school (MA, MS, or JD)

(5) vocation/trade school   (11) advanced graduate degree (PhD, MD, DDS)

(6) Some college

14. What is your race/ethnicity? (Please circle the one that best describes you):

    (1) Black/African American   (4) Hispanic/Latina(o)

    (2) White/European American   (5) Native American/Alaskan Native

    (3) Asian/Asian American   (6) Other:_____

15. Last CD 4 (T cell) count _____   16. When _____month _____YEAR

17. When were you diagnosed with HIV?   _____month _____ YEAR

18. Do you currently have a form of medical insurance?   YES (1)   NO (2)

19. During the past 30 days, have you had
at least one drink of any alcoholic
beverage, such as beer, wine, or liquor?   YES (1)   NO (2)

    20. If yes to question 19, in the past 30 days, how many days did you have at least

    one drink of any alcoholic beverage? ____ Days

21. During the past 30 days, on how many days did you have five or more drinks of alcohol in a row, that is, within a couple of hours?

A. 0 days
B. 1 day
C. 2 days
D. 3 to 5 days
E. 6 to 9 days
F. 10 to 19 days
G. 20 or more days

22. During the past 30 days, how many times (if any) have you used marijuana?

____ Times

23. During the past 30 days, how many times (if any) have you used other illicit drugs, like cocaine or crack or heroin, or any other substance not prescribed by a doctor, in order to get high or to achieve an altered state? Do not include marijuana or alcohol.

_____ Times

24. During your life, how many times have you sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high?

_____ Times

25. Are you currently taking daily HIV medication?   YES (1)   NO (2)

26. If Yes to question 25, how many doses a day do you take of medication?   _____

27. In the last week, how many doses of your medication have you missed?   _____

28. In the last two weeks, how many doses of your medication have you missed? _____

29. Are you currently taking any medication for depression, anxiety, or any other mental

illness? YES (1)   NO (2)

30. Do you talk to your doctor about your substance use   YES (1)   NO (2)

In the last month, how many mental health meetings or sessions have you participated in or been present in any of the following:

31. Individual counseling   _____

32. Group therapy (session or group run by a professional)   _____

33. Support group sessions related to substance abuse
    (session or group run by peers)   _____

34. Support group sessions NOT related to substance abuse
    (session or group run by peers)   _____

35. Have you participated in this study before?   YES (1)   NO (2)

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APPENDIX B

HIV Symptom Scale (HIVSS)

HIV Symptom Scale (HIVSS)

Circle the number that best described how often you experience the following symptoms.

	Never 1	Rarely 2	Sometimes 3	Always 4
1. Fatigue	1	2	3	4
2. Nausea	1	2	3	4
3. Changes in appetite	1	2	3	4
4. Diarrhea	1	2	3	4
5. Weight loss	1	2	3	4
6. night sweating	1	2	3	4
7. Skin symptoms	1	2	3	4
8. Mouth symptoms	1	2	3	4
9. Nail symptoms	1	2	3	4

Appendix C

Patient Health Questionnaire- 2 (PHQ-2)

Patient Health Questionnaire (PHQ-2)

Please complete the following questions to the best of your ability.

In the past month, have you been bothered a lot by:

     1. Little interest or pleasure in doing things?   YES (1)   NO (2)

     2. Feeling down, depressed, or hopeless?   YES (1)   NO (2)

APPENDIX D

Patient Health Questionnaire- Anxiety (PHQ-A)

Patient Health Questionnaire- Anxiety (PHQ-A)

Please complete the following questions to the best of your ability.

In the past month, have you been bothered a lot by:

    1. Nerves, or feeling anxious or on edge?   YES (1)   NO (2)

    2. Worrying about a lot of different things?   YES (1)   NO (2)

During the last month:

    3. Have you had an anxiety attack
       (suddenly feeling fear or panic)?   YES (1)   NO (2)

APPENDIX E

Rosenberg Self-Esteem Scale (RSES)

Rosenberg Self-Esteem Scale (RSES)

Instructions: Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle **SA**. If you agree with the statement, circle **A**. If you disagree, circle **D**. If you strongly disagree, circle **SD**.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

1.	On the whole, I am satisfied with myself.	1	2	3	4
2.	At times, I think I am no good at all.	1	2	3	4
3.	I feel that I have a number of good qualities.	1	2	3	4
4.	I am able to do things as well as most other people.	1	2	3	4
5.	I feel I do not have much to be proud of.	1	2	3	4
6.	I certainly feel useless at times.	1	2	3	4
7.	I feel that I'm a person of worth, at least on an equal plane with others.	1	2	3	4
8.	I wish I could have more respect for myself.	1	2	3	4
9.	All in all, I am inclined to feel that I am a failure.	1	2	3	4
10.	I take a positive attitude toward myself.	1	2	3	4

APPENDIX F

Feminist Identity Development Scale

Feminist Identity Development Scale

Instructions: On the following pages you will find a series of statements which people might use to describe themselves. Read each statement carefully and decide to what degree you think it presently describes you. Then select <u>one</u> of the five answers that best describes your present agreement or disagreement with the statement.

For example, if you <u>strongly agree</u> with the statement, "I like to return to the same vacation spot year after year," you would rate the statement with the number <u>5</u> in the space provided as shown below:

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

    5   I like to return to the same vacation spot year after year.

Remember to read each statement carefully and decide to what degree you think it describes you at the present time.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

_____ 1. I don't think there is any need for an Equal Rights Amendment; women are doing well. (1)

_____ 2. Being a part of a women's community is important to me. (3)

_____ 3. I want to work to improve women's status. (5)

_____ 4. I feel that some men are sensitive to women's issues. (4)

_____ 5. I used to think there wasn't a lot of sex discrimination, but now I know how much there really is. (2)

_____ 6. Although many men are sexist, I have found that some men are very supportive of women and feminism. (4)

_____ 7. Especially now, I feel that the other women around me give me strength. (3)

_____ 8. I am very committed to a cause that I believe contributes to a more fair and more just world for all people. (5)

_____ 9. While I am concerned that women be treated fairly in life, I do not see men as the enemy. (4)

_____ 10. I share most of my social time with a few close women friends who share my feminist values. (3)

_____ 11. I don't see much point in questioning the general expectation that men should be masculine and women should be feminine. (1)

_____ 12. I am willing to make certain sacrifices in order to work toward making this society a non-sexist, peaceful place where all people have equal opportunities. (5)

_____ 13. I would describe my interactions with men as cautious. (NS)

_____ 14. One thing I especially like about being a woman is that men will offer me their seat on a crowded bus or open doors for me because I am a woman. (1)

_____ 15. When I think about sexism, my first reaction is always anger. (NS)

_____ 16. My social life is mainly with women these days, but there are a few men I wouldn't mind having a non-sexual friendship with. (3)

_____ 17. I've never really worried or thought about what it means to be a woman in this society. (1)

_____ 18. I evaluate men as individuals, not as members of a group of oppressors. (4)

_____ 19. I just feel like I need to be around women who share my point of view right now. (3)

_____ 20. I care very deeply about men and women having equal opportunities in all respects. (5)

_____ 21. It makes me really upset to think about how women have been treated so unfairly in this society for so long. (2)

_____ 22. I do not want to have equal status with men. (1)

_____ 23. It is very satisfying to me to be able to use my talents and skills for my work in the women's movement. (5)

_____ 24. If I were married and my husband was offered a job in another state, it would be my obligation as his spouse to move in support of his career. (1)

_____ 25. I don't think there is one "right" way to be a feminist. (NS)

_____ 26. I tend to be careful when I interact with men. (NS)

_____ 27. I believe that when people choose a career, they should not let sex role stereotypes influence their choice. (NS)

_____ 28. I think that most women will feel most fulfilled by being a wife and mother. (1)

_____ 29. When you think about most of the problems in the world—pollution, discrimination, the threat of nuclear war—it seems to me that most of them are caused by men. (2)

_____ 30. I am angry that I've let men take advantage of me. (2)

_____ 31. Being a feminist is one of a number of things that make up my identity. (NS)

_____ 32. It only recently occurred to me that I think that it's unfair that men have the privileges they have in this society simply because they are men. (2)

_____ 33. I feel that I am a very powerful and effective spokesperson for the women's issues I am concerned with right now. (5)

_____ 34. I feel angry about the way women have been left out of history text books. (NS)

_____ 35. If I were to paint a picture or write a poem, it would probably be about women or women's issues. (3)

_____ 36. I think that men and women had it better in the 1950s when married women were housewives and their husbands supported them. (1)

_____ 37. Some of the men I know seem more feminist than some of the women. (4)

_____ 38. When I see the way most men treat women, it makes me so angry. (2)

_____ 39. I can finally feel very comfortable identifying myself as a feminist. (NS)

_____ 40. Generally, I think that men are more interesting than women. (1)

_____ 41. Men and women are equal but different. (NS)

_____ 42. Recently I read something or had a specific experience that sparked my greater understanding of sexism. (2)

_____ 43. I think that rape is sometimes the woman's fault. (1)

_____ 44. On some level, my motivation for almost every activity I engage in is my desire for an egalitarian world. (5)

_____ 45. I am not sure what is meant by the phrase "women are oppressed under patriarchy." (1)

_____ 46. I think it's lucky that women aren't expected to do some of the more dangerous jobs that men are expected to do, like construction work or race car driving. (1)

_____ 47. I have a lifelong commitment to working for social, economic, and political equality for women. (5)

_____ 48. Particularly now, I feel most comfortable with women who share my feminist point of view. (3)

APPENDIX G

Multidimensional Scale of Perceived Social Support

Multidimensional Scale of Perceived Social Support

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you Very Strongly Disagree
Circle the "2" if you Strongly Disagree
Circle the "3" if you Mildly Disagree
Circle the "4" if you are Neutral
Circle the "5" if you Mildly Agree
Circle the "6" if you Strongly Agree
Circle the "7" if you Very Strongly Agree

1.	There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2.	There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3.	My family really tries to help me.	1	2	3	4	5	6	7
4.	I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
5.	I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6.	My friends really try to help me.	1	2	3	4	5	6	7
7.	I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8.	I can talk about my problems with my family.	1	2	3	4	5	6	7
9.	I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7

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10. There is a special person in my life who cares about my feelings.   1   2   3   4   5   6   7

11. My family is willing to help me make decisions.   1   2   3   4   5   6   7

12. I can talk about my problems with my friends.   1   2   3   4   5   6   7

APPENDIX H

Informed Consent Form

<center>Informed Consent Form</center>

Title: HEALTH RELATED BEHAVIORS AND SPECIFIC BIOPSYCHOSOCIAL
FACTORS IN WOMEN WITH HIV/AIDS

Investigator: Caroline Johanson, M.S., M.A. .... (940) 898-2212
Advisors: Kenneth Foster, Ph.D. .... (940) 898-2303
            Linda Rubin, Ph.D. .... (940) 898-2303

Explanation and Purpose of Study

You are being asked to participate in a research study for Ms. Johanson's dissertation at Texas Woman's University. The purpose of this research is to examine the possible impact of different health related behaviors on the quality of life for women who have HIV or AIDS. The study will also examine the possible connection between various factors and health related behaviors. You are only permitted to participate in this study once.

Research Procedures

For this study, you will be asked to complete, online, a packet of questionnaires about your beliefs and attitudes in regard to yourself and your life as well as your health related behaviors. You will not be asked at any time for identifying information, such as your name, address, or contact information. Your maximum total time commitment in the study is approximately 30 minutes.

Potential Risks

Potential risks in participating in this study include physical and emotional discomfort during and after filling out the online questionnaire. To avoid emotional discomfort or fatigue, you may take a break at anytime while you fill out the survey and are allowed to stop at any time.

Another potential risk is the loss of confidentiality. Confidentiality will be protected to the extent that is allowed by law. No online tracking devices will be used in this study, for example, your computer's IP address will not be saved or collected. It is anticipated that the results from this study will be published; however, no identifying material will be published at any time. The researchers will try to prevent any problem that could happen because of this research. You should let the researchers know at once if there is a problem and they will help you. However, Texas Woman's University does not provide medical services or financial assistance for injuries that might happen because you are taking part in this research.

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Participation and Benefits

Your participation in this project is voluntary. Even after you agree to participate in the research or sign the informed consent document, you may decide to stop participating in the study at any time without penalty or loss of benefits to which you may otherwise have been entitled. You may stop at any time and are not required to complete any portion of the research you do not wish to for any reason. Although there is no direct benefit to you participating in this study, others may ultimately benefit from the knowledge gained from this research. If you wish to obtain results to this study, please feel free to contact any of the above investigators.

Questions regarding this study

If you have any questions about the research study, you may ask the researchers; their phone numbers are at the top of this form. If you have questions about your rights as a participant in this research or the way this study has been conducted, you may contact the Texas Woman's University Office of Research and Sponsored Programs at 940-898-3378 or via e-mail at IRB@twu.edu.

"I have read, or been informed of, the information about this study. I hereby consent to participate in the study."

By clicking the option "I agree", you will be consenting to participate in the study.

APENDIX I

IRB Approval Letter

October 29, 2009

Ms. Caroline M. Johanson
2350 Phillips Rd., Apt. #6105
Tallahassee, FL 32308

Dear Ms. Johanson:

Re: Health Related Behaviors and Specific Biopsychosocial Factors in Women With HIV/AIDS

The above referenced study has been reviewed by the TWU Institutional Review Board (IRB) and appears to meet our requirements for the protection of individuals' rights.

If applicable, agency approval letters must be submitted to the IRB upon receipt PRIOR to any data collection at that agency. A copy of the annual/final report is enclosed. A final report must be filed with the Institutional Review Board at the completion of the study. Because you do not utilize a signed consent form for your study, the filing of signatures of subjects with the IRB is not required.

This approval is valid one year from October 29, 2009. According to regulations from the Department of Health and Human Services, another review by the IRB is required if your project changes in any way, and the IRB must be notified immediately regarding any adverse events. If you have any questions, feel free to call the TWU Institutional Review Board.

Sincerely,

Dr. Kathy DeOrnellas, Chair
Institutional Review Board - Denton

enc.

cc: Dr. Dan Miller, Department of Psychology & Philosophy
     Dr. Kenneth Foster, Department of Psychology & Philosophy
     Graduate School

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