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Gender Differences in Depression In HIV-Infected Patients

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Gender Differences in Depression

In HIV-Infected Patients

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Senior Honors Project

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Abstract

Gender differences in an HIV-infected population living in downstate Illinois are examined. Depression is measured using the CES-D screening tool. Statistical tests are run on both quantitative and qualitative data in order to determine if a gender difference exists. The difference in CES-D scores was not found to be statistically significant. Possible explanations for this finding are suggested. These explanations include: population demographics, small sample size, and effects of medication.

Introduction

Depression has become a mental health epidemic. Approximately 6 million

American men and 12 million American women suffer from clinical depression (Bhatia

& Bhatia, 1999; Rabat, 2001). Multiple studies have firmly established the existence of

higher rates of depression in women (Schrieber, 2001; Bhatia & Bhatia, 1999). Women

experience depression twice as much as men (Bhatia & Bhatia, 1999). Depression is

known to decrease an individual's quality of life. In addition, it is a significant risk factor

for suicidal behavior (Bhatia & Bhatia, 1999). Fortunately, both psychosocial and

pharmacologic treatments are available to treat and/or manage depression. Thus, once the

disease is identified it can be effectively treated in most cases.

Depression has also been linked with multiple chronic illnesses (Hough &

Brumitt, 1999; Richardson et al., 1999; Pillay, 2001). Studies looking at depression and

HIV specifically have resulted in conflicting data in part due to methodology. However,

some consensus exists that the prevalence of depression is more common in HIV-infected

individuals. Fishman and Lyketsos (1996), Derogatis et al. (1983), and Richardson et al.

(1999) all conducted studies that found an increased prevalence of depression in HIV-

infected subjects.

Evidence exists that depression is more common in women, more common in

subjects with chronic illness, and more common in subjects with HIV. Yet little research

has been done on the gender differences in depression in HIV-infected patients. The

increased prevalence of depression in females has not been found in all subpopulations of

women. Thus, the looming question is whether the increased rates of depression found in

women in general can be applied to the HIV-infected subpopulation. Research is needed

in this area. If, in fact, gender differences are found in HIV-infected patients then clinicians must be educated regarding these differences so that diagnosis is performed more quickly and in a more effective manner.

The majority of studies that have looked at the relationship between depression and HIV have been conducted primarily on male subjects. However, a few studies have been conducted that have looked specifically at depression in HIV-infected females (Jones, 2001; Simoni & Ng, 2000; Moore et al., 1999). These studies have suggested that the prevalence of depression in women with HIV is higher than in their male counterparts. Jones (2001) noted significantly more symptoms of depression using both self-report and clinician-rated measures in HIV-infected single mothers. Greer (2001) reported that HIV-infected women who suffer from depression had a lower survival rate than those HIV-infected women who were not depressed. Simoni & Ng (2000) noted a link between trauma and higher CES-D scores in HIV-infected women. Moore et al. (1999) suggested that socio-environmental factors were more important in predicting depressive outcomes in women than HIV infection. In several of the studies, significant weaknesses in design were discussed. More research is needed in this area.

The overall purpose of this study was to examine the relationship between HIV-infection, depression, and gender in a community sample of HIV-infected persons living in Illinois exclusive of Cook County.

Review of the Literature

Depression is among the most common problems faced by contemporary mental health care providers. Much research has been done on the issue to identify causes, prevalence, and treatments. This review will focus on the prevalence of depression in specific subpopulations. Hypothesized causes along with effects of the disease will be examined in each subpopulation. This review of literature begins with depression in women. Next, depression in the chronically ill is discussed. Finally, this review concludes with a discussion of depression in HIV-infected patients.

Depression in Women

The phenomenon of higher rates of depression in women although well-documented is still not fully understood. Several researchers have noted that in North America the rates of depression in women are consistently higher than for men (Bebbington, 1996; Kessler et al., 1994; Weissman & Klerman, 1997; Schrieber, 2001). In their study, Bhatia and Bhatia (1999) stated that approximately 20% of women, compared with only 10% of men will be afflicted with depression over the course of a lifetime. Schreiber (2001) notes in her introduction that "rates for depression for women are consistently higher than for men". According to the National Mental Health Association approximately 12 million American women suffer from clinical depression each year (Rabat, 2001). Real (2000) notes in his summary that depression is often referred to as a female illness because of the higher incident rates in the female community.

This difference in incident cases of depression, however, has not been found in some subcultures. For example, in a study of Mexican-Americans, Aranda, Castandeda,

Lee, and Sobel (2001) interviewed 88 Mexican-American adult males and 83 Mexican-American adult females. The participants were from rural and urban areas of Pennsylvania and Los Angeles, California. The researchers found no significant differences in prevalence of depression between genders. The researchers hypothesized that the size of their sample may not have been adequate to detect a statistical difference or that nonrandom sampling bias yielded a much different participant group than found in other studies. Study participants were recruited from community agencies in rural and urban areas of Pennsylvania and Los Angeles, California.

Hypothesized Reasons for Increased Prevalence in Depression in Women.

Several reviews of the literature have been written that have reported or implicated various causes for the increased prevalence rates in depression in women. These reviews are important to the current study because they allow the researchers to examine the existence of such factors, including: presence of an internal dialogue, history of oppression, presence and/or history of violence, and competing roles, in this study. The presence and or absence of such factors will be used as a tool in discussing findings and/or implications of the results of this study. In addition, such hypothesized reasons are of the utmost importance to clinicians both when they assess patients for depression and when they treat patients.

Schreiber (2001) examined data from three grounded theory studies on women and depression. The data examined was gathered using participant observation and more than 70 interviews of women ages 18 to 69. Common themes that were identified in the three studies include: presence of an internal dialogue, history of oppression and marginalization, and the presence of violence. The internal dialogue in the participants

was between the competing voices of society's expectations and their own will. This internal dialogue often limited women, encouraging them to invalidate their own needs in favor of the needs of others. This self-sacrifice was thought to contribute to the marginalization of women. All of the participants who experienced depression had also experienced some form of violence in their lives. As a result of these findings Schreiber (2001) suggests that a woman's depression should be viewed as a social disease that disproportionately affects women as a result of their gender. Thus, in order to effectively treat a woman's depression, it is first necessary to deal with these social forces.

In their discussion on depression in women, Bhatia and Bhatia (1999) agreed with the conclusions of Schreiber (2001), indicating that clinicians must address issues such as competing roles, which particularly affect women. In addition, they identified possible unique factors for reactive depression in women including: menstruation, pregnancy, infertility, miscarriage, the perinatal period, the perimenopausual period, and birth control pill or hormone replacement therapy. The researchers also noted that the presentation and course of depression in females often differs than that of their male counterparts. Women are more likely to experience seasonal depression, atypical depression, anxiety, panic, phobia, eating disorders, and dependent personality disorder.

Silverstein (1999) uncovered differences in depression symptom reporting in men and women through his analysis of 8,000 clinical interviews of Americans from the National Comorbidity survey. He found that women were more likely to complain of somatic symptoms during their depression. Men, on the other hand, are more apt to hide their depression. Instead of reaching out for help, men are more likely to turn to substance abuse, extramarital affairs, or work to escape their condition. National studies

have suggested that clinicians miss the diagnosis of depression 70% of the time in males

(Chronic depression, 2000).

Depression in Chronically Ill Patients

Depression has also been found by many researchers to be more prevalent in

chronically ill patients. Depression has been known to accompany the diagnosis of life-

threatening conditions for some time. Richardson et al. (1999) noted an association

between depression and morbidity and mortality in those patients with medical illnesses.

Wells et al. (1989) conducted a study that examined the relationship between the

functioning and well-being of patients, chronic illness, and depression. In this study

hypertension, diabetes, advanced coronary artery disease, angina, arthritis, back

problems, and gastrointestinal disorders were all classified as chronic illnesses.

Outpatients in three health care provision systems in three United States cities were

recruited for study participation; 11,242 outpatients participated. The results indicated an

increased prevalence of depression in this sample of chronically ill patients. The

researchers also found that subjects with either depressive symptoms or current

depressive disorder tended to display lower physical and social functioning. In addition,

the researchers found that depression and the existence of a chronic medical condition

had an additive effect on patient functioning, such that an individual who suffered from

both a chronic medical condition and depression displayed lower physical and social

functioning than a patient who was inflicted with only one of these conditions.

In line with previous research that had noted an increased prevalence of

depression in women, Hough and Brumitt (1999) examined the relationship between

chronic illness and depression in urban women. Their sample consisted of 450 women

ages 19-87 residing in the Detroit metropolitan area who responded to a large-scale telephone survey and who reported having at least one chronic illness. Each woman interviewed was asked if she had any of the following chronic conditions: heart disease, hypertension, tuberculosis, epilepsy, diabetes, anorexia nervosa/bulimia, multiple sclerosis, osteoporosis, HIV/AIDS, cancer, or any other chronic health problem. The chronic illnesses reported by more than 1% of the total number of women were retained as separate categories and all others were entered into an "other" category. As a result, tuberculosis, epilepsy, anorexia/bulimia, multiple sclerosis, and HIV/AIDS were pooled together into the "other" category. Of the women in the study who self-reported having a chronic illness, 24% scored high enough on the CES-D to be considered clinically depressed; this is a higher percentage than would be expected in the general population.

Popkin et al. (1988) also examined the relationship of gender, depression, and chronic illness. The researchers' study looked specifically at patients with long-standing Type I Diabetes Mellitus. Seventy-five candidates for pancreas transplantation admitted to the University of Minnesota Hospital's CRC over a two-year period of time were included in this study. The researchers examined the lifetime rates of depression in male and female subjects; they found that both male and female subjects had a significantly higher lifetime rate of major depression than would be expected in the general population. The lifetime prevalence of major depression was found to be comparable for males (25.9%) and females (22.9%). Thus, gender was not a significant factor in this study.

A study by Pillay (2001) looked specifically at the chronic illness cancer. Pillay conducted a study using 50 adult patients who had been diagnosed with cancer

approximately 6 weeks prior and 50 physically healthy individuals. In this study, Pillay found that cancer subjects exhibited significantly more depressive symptoms than the controls; the mean depression score of the cancer subjects was more than twice that of the controls. Gender was not a factor in this study.

Depression in HIV Patients

Prevalence of depression in HIV-infected patients varies in part due to the vast differences in methodology among researchers. Penzak, Reddy, and Grimsley (2000) noted in their review that depression does appear to be more common in HIV-infected persons than in the general population. According to the review of literature by Fishman and Lyketsos (1996) major depression has an increased prevalence in HIV patients, particularly in clinical settings and at later stages of disease. This prevalence of depression in HIV-infected patients is a rather new finding perhaps because HIV is now identified earlier, thus people are living longer with the disease allowing a longer period of time for psychiatric symptoms to manifest themselves (Fishman & Lyketsos, 1996). Depression prevalence in HIV patients has been found to be higher than in those with other progressive and fatal diseases but similar to that found in elderly patients with other chronic illnesses (Derogatis et al., 1983).

Penzak, Reddy, and Grimsley (2000) also noted in their review of the literature that the symptoms of depression are often confused with somatic symptoms of the HIV illness in HIV-infected patients. The researcher felt that this overlapping of symptoms might make depression diagnosis in HIV-infected patients more difficult.

It is thought that some individuals have depression prior to their HIV infection, while depression emerges as a result of HIV diagnosis in other individuals. Those with a

history of depression, homosexual men, women, and intravenous drug uses are thought to be at an increased risk for depression. Data suggest that depressive disorders are equal between HIV-infected and non-infected homosexual men, indicating that homosexuality may be a predisposing factor for depression (Penzak, Reddy & Grimsley, 2000).

Depression has been associated with unsupportive social interactions, medications, and HIV-subcortical damage. Ingram, Jones, Fass, Neidig, and Song (1999) conducted a study with 96 HIV-infected individuals, 90% of whom were male, that examined the association between unsupportive social interactions and depression. The researchers found that participants with more HIV-related unsupportive social interactions reported being more depressed; this finding was significant. Some medications administered for the HIV infection are thought to depress mood as a side effect (Penzak, Reddy, & Grimsley, 2000). HIV-subcortical damage has been hypothesized to be a risk factor for mood disorders, including depression (Fishman & Lyketsos, 1996).

Depression has been associated with a decreased functioning of the immune system along with a decrease in medication compliance in HIV-infected persons. Depression is thought to contribute to self-neglect, apathy, and forgetfulness in patients with HIV (Fishman & Lyketsos, 1996). According to Chronic depression (1996), HIV-positive men are two-thirds more likely to die as a result of AIDS related complications if they suffer from depression.

Richardson et al. (1999) completed comprehensive evaluations on 243 behaviorally-rated gay and bisexual African-American men from the greater Los Angelos area. These evaluations included: demographic information, medical and education

history, drug/alcohol use history, a detailed description on past and present sexual practices, psychiatric history and status, neuropsychological examinations, and assessment of a range of psychosocial factors. In addition, blood and urine samples were obtained. Over half of the participants were identified as being at risk for depression based upon a CES-D score greater than 16. This rate of possible depression was far greater than might be anticipated in a community sample of African-American men, but consistent with findings of previous studies of depression among gay and bisexual white males. No statistically significant relationship was found between serostatus and depression status.

Depression in HIV-Infected Females

Jones (2001) conducted a study of 86 HIV-infected and 120 non-infected single African-American mothers. Demographic and depressive symptom information was collected through one-on-one interviews. HIV-infected single mothers had significantly more symptoms of depression using both self-report and clinician-rated measures. The researchers noted the possibility of bias as a weakness to their study because the interviewers may have expected HIV-infected women to be more depressed.

Greer (2001) reported that HIV-infected women who also suffer from depression experience more complications and have lower survival rates than other HIV-infected women. Women with chronic depression were twice as likely to succumb to HIV than non-depressed HIV-infected women.

Simoni and Ng (2000) examined the association between retrospective self-reports of sexual and physical abuse, current coping strategies, and depressive symptomatology (as measured by the CES-D) of 220 HIV-infected women from New

York City. Analyses of data revealed high rates of physical and sexual abuse. An extremely high history of crack cocaine and/or other injection drug use (77%) was also found. Analyses showed that a history of trauma was associated with a higher CES-D score. The researchers noted the lack of an HIV-negative control group as a weakness in the study.

Unlike Simoni and Ng (2000), Moore et al. (1999) did have an HIV negative control group in their study. The researchers' sample of 871 HIV-infected and 439 demographically and behaviorally similar uninfected women were interviewed regarding their socio-demographic characteristics, sexual and drug-using behaviors, and psychological function. Researchers found that HIV serostatus did not uniquely predict scores on the CES-D even after they controlled for socio-demographic and lifestyle factors. Thus the researchers felt that socio-environmental factors were more important in predicting depressive outcomes in women than HIV infection.

Gender Differences in Depression in HIV-Infected Patients

Very few studies have examined the existence (or lack there of) of gender differences in depression in the HIV-Infected population. Most of the studies conducted that have looked at gender, have looked solely at depression in males or depression in females. Ingram, Jones, Fass, Neidig, and Song (1999) did not find a gender difference in their study. The researchers hypothesized that their inability to find a gender difference may have resulted because their sample was almost entirely male (90%).

Summary

This review of literature indicates a well-documented increase in prevalence of depression in women (Bebbington, 1996; Kessler et al., 1994; Weissman & Klerman,

1997; Schrieber, 2001). This increase in prevalence, though well-documented, has not

been found in a limited number of studies on specific subpopulations (Aranda,

Castandeda, Lee, & Sobel, 2001). In addition, studies have shown an increase in

depression in chronically-ill patients (Pillay, 2001; Popkin et al., 1988; and Wells et

al.,1989). In addition, Hough and Brumitt (1999) found an increased prevalence in

depression in chronically ill women. Penzak, Reddy, and Grimsley (2000) and Fishman

and Lyketsos (1996) both noted an increased prevalence of depression in HIV-infected

individuals. Only a few studies have looked at gender and depression prevalence rates in

HIV-infected individuals. These studies have yielded varying results (Moore et al., 1999;

Jones, 2001). Even fewer studies have looked specifically at gender differences in

depression in HIV-infected individuals. One such study that did look at gender

differences in HIV-infected patients, did not find a statistically significant difference;

however, this study's sample was 90% male and the researchers feel that this

characteristic of the sample could have effected the results (Ingram, Jones, Fass, Neidig,

& Song, 1999). Much research has been conducted on depression in women. More

research is needed on the rates of depression in HIV-infected individuals, specifically

more research is needed on the existence (or lack there of) of gender differences in

depression in HIV-infected individuals. The purpose of this study is to determine if

gender differences exist on the CES-D depression screening tool in this particular sample

of HIV-infected patients living in downstate Illinois.

Methods

Larger Study

An in-depth assessment of persons with HIV/AIDS living in downstate Illinois

was performed by researchers at the University of Illinois-Chicago (Baldwin, Lewis, &

Rogers, 2000). Counties included in the study were: Peoria, Woodford, Tazewell, Stark,

Marshall, Putnam, Knox, Fulton, LaSalle, McLean, and Mason. The purpose of the

assessment was to provide a description and analysis of the health (physical,

psychological, and social) needs and resources available to persons with HIV/AIDS

living in Illinois exclusive of Cook County. The assessment specifically attempted to

determine: client needs from both the client and provider perspective, service usage

patterns, strengths of community services, and gaps in services available to this

population.

Subjects

To be able to participate in this study an individual had to be receiving case

management services through the Ryan White CARE Act, live in the state of Illinois

outside of Cook County, and be at least 18 years old. (The Ryan White CARE Act was

passed in 1990 and reauthorized in 1996 and again in 2000 for a five-year period. The

Ryan White CARE Act funds primary care and support services for individuals living

with HIV who lack health insurance and financial resources for their care. CARE Act

programs reach more than 500,000 individuals each year. Ambulatory health care and

support services are the primary focus of the legislation; training, technical assistance,

and demonstration projects are also funded.) In addition to the preceding participation

criteria, individuals could not be currently incarcerated in local, county, or federal prison

nor could they be suffering from AIDS-related dementia or mental incapacity that would prohibit the participant from giving informed consent.

Case managers from each participating consortia area were trained in the process of using a random numbers table to select a random sample of their clients. Potential subjects were then chosen by case managers using the random numbers table as trained. After an individual was chosen, he/she was then contacted in person or by phone by the case manager using the written script to invite study participation. This script explained the purpose of the study to the potential participant and invited him/her to participate. All individuals contacted had the right to refuse participation. If the client agreed to participate, the case manager then established an appointment with the client to obtain consent and to initiate the data collection procedures. If participation was refused the case manager merely noted the client's gender, ethnicity, and risk category. This information was gathered to allow the researchers to compare the study sample to refusals to identify any significant differences. In addition, if a client refused, the case manager returned to the random numbers table to select the next potential participant. This procedure continued until the desired sample size was obtained.

There were 292 subjects in the study. Not all data was available for all subjects; missing data resulted either from participants who accidentally or purposefully did not respond to a survey item or from a case manager not filling out all the information as a result of incomplete patient records. The racial background of the subjects was as follows: 171 subjects were white, non-Hispanic; 75 were Black, non-Hispanic; 23 were Hispanic; and 23 did not specify. There were 206 males, 63 females, and 23 did not specify.

Instruments

Several instruments were used in this study including the: Center for

Epidemiological Studies, Depression Scale (CES-D), Emotional and Social Loneliness

and Isolation Scale (ESLI), State-Trait Anxiety Inventory (STAIS), MOS-HIV Health

Survey (MOS-HIV), and housing surveys. However, the only instrument used that

pertains to this particular part of the study is the Center for Epidemiological Studies,

Depression Scale (CES-D).

Center for Epidemiological Studies, Depression Scale (CESD). The CES-D is a

short self-report scale designed to measure depressive symptomatology in the general

population; it is a screening tool for depression. Components of the CES-D include:

depressed mood, feelings of guilt and worthlessness, feelings of helplessness and

hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance. Only a

few items on the scale represent each of these components. Four items are worded in the

positive direction to break tendencies toward response set as well as to assess positive

affect. To emphasize current state the directions state, "How often this past week did

you..." Each response is scored on a scale from 0 – 3 depending on frequency of

occurrence of the symptom (Radloff, 1977).

Procedure

Possible study participant identification, method of contacting possible

participants, refusal rights, and the procedure for obtaining consent are described

previously in the Method's "Subject" section. Once consent was obtained, data was

collected from provider client records and local health department/consortia records.

From these sources the subject's county, zip code, gender, age, race, risk factor,

household composition, income, HIV diagnosis date, AIDS diagnosis date, place of HIV

diagnosis, years of education, employment status, history of substance abuse, current

substance abuse, and other information was gathered. In addition, participants were

asked to complete multiple mental health and health status measures. These measures are

all listed in the Method's "Instruments" section. To ensure understanding, written and

verbal instructions were given for each survey. Subject identification numbers were

assigned to maintain confidentiality while allowing for matching measures. In order to

compensate individuals for their time, a $20 cash incentive was paid to each subject that

completed the self-report mental health, health status, and housing surveys.

Results

The goal of this study was to determine if gender differences existed in depression, as measured by the CES-D screening tool, in this particular sample of HIV+ patients. The means on the CES-D were not significantly different for males and females for the CES-D sum scores or for the CES-D categorized scores. Males, (n=206), had a 19.75 mean (SD=12.32) CES-D sum score and a 1.89 mean (SD=0 .91) CES-D categorized score. Females, (n = 63), had a 21.24 mean (SD=13.50) CES-D sum score and a 1.94 (SD=0.93) CES-D categorized score. These differences were not significant; for the CES-D sum score, t=-0.822, df=267, p=.412 and for the CES-D categorized score, t=-0.329, df=267, p = .743.

Further analyses were then run to explore depression in this population. Descriptive statistics were run to determine if the differences existed in CES-D sum scores when the participants were grouped by age, race, and risk factor. Race was the only factor which was found to produce significant results; depression level, as measured by the CES-D sum score, did not vary by age or risk factor. Race groups (White, non-Hispanic; Black, non-Hispanic, and Hispanic) and CES-D sum scores yielded significant results; F=3.615, df=2, 266, p =.028. Table 1-1 contains the number of subjects in each race group, the mean CES-D sum scores for that race group, and the standard deviations. Ages were broken down into 4 categories: 18-29, 30-39, 40-49, and 50+. The number of subjects in each age group, the mean CES-D sum scores, and standard deviations are presented in table 1-2. A one-way ANOVA looking at age group versus CES-D sum score did not yield significant between group differences ; F=2.375, df=3, 267, p= .071. Risk factors examined included: men having sex with men (MSM), men having sex with

men who were also intravenous drug users (MSM/IDU), intravenous drug users (IDU), heterosexual contact, blood transfusion/hemophilia, health care exposure, and unknown. The mean and standard deviations for each risk factor can be found in table 1-3. In addition, an ANOVA was run to look at between and within group differences based on risk factor; this difference was not significant.

When grouped based on education a significant difference was found between educational groups and CES-D sum scores. Subjects were grouped into 3 education levels: non-high school graduate, high school graduate, and 13+ years of education. The number of subjects in each educational category, the mean CED-D sum scores, and standard deviations are presented in table 1-4. In addition, an ANOVA was run to look at between and within group differences based on risk factor; this difference was significant, $F=7.949$, $df=6, 263$, $p < .001$. In addition, education and CES-D sum score were found to be negatively correlated; $r = -.290$, $p < .01$.

As would be expected, age and years since HIV diagnosis were significantly correlated; $r = .234$, $p < .01$. Years since HIV diagnosis and CES-D sum score were surprisingly not significantly correlated; $r = .072$, $p = .255$. This information can be found in Table 1-5.

Table 1-1 Mean CES-D Sum Scores by Race

Race	N	Mean CES-D Sum Score	Standard Deviation
White, non-Hispanic	171	19.43	13.08
Black, non-Hispanic	75	19.59	10.64
Hispanic	23	26.78	13.30
Total	269	20.10	12.59

Table 1-2 Mean CES-D Sum Scores by Age

Age Group	N	Mean CES-D Sum Score	Standard Deviation
18-29	29	25.38	15.31
30-39	106	18.43	11.94
40-49	100	20.29	12.12
50+	36	20.09	`1.56
Total	271	20.09	12.56

Table 1-3 Mean CES-D Sum Scores by Risk Factor

Risk Factor	N	Mean CES-D Sum Score	Standard Deviation
MSM	145	18.91	11.99
MSM/IDU	3	21.00	16.64
IDU	21	24.62	11.48
Heterosexual	81	20.64	13.64
Blood transfusion/hemophilia	6	18.67	16.19
Unknown	13	23.54	11.14
Health care exposure	1	8.00	----
Total	270	20.07	12.58

Table 1-4 Mean CES-D Sum Score by Education Level

Education Level	N	Mean CES-D Sum Score	Standard Deviation
Non-High School Graduate	52	24.73	12.14
High School Graduate	89	20.88	12.66
13+ Years of Education	92	16.42	12.06
Total	233	19.98	12.67

Table 1-5 Correlation Table: Age & Years Since HIV Diagnosis

		Years Since HIV Diagnosis
Age	Pearson Correlation	.234**
	Significant (2-tailed)	.0001
	N	260

** Correlation is significant at the .01 level (2-tailed)

Discussion

In this study, no significant differences were found between men and women on the CES-D depression screening tool. This result is contradictory to the majority of previous studies that have examined gender differences on depression.

Depression in HIV-infected individuals can be unrelated to HIV diagnosis, can precede HIV diagnosis, or emerge as a consequence of HIV infection (Fishman & Lyketsos, 1996). Thus when attempting to explain depression in HIV-infected individuals it is necessary to examine factors that are independent of HIV infection (factors that existed prior to HIV infection and/or are unrelated to HIV) and HIV contributing factors. Independent factors that were examined include: race, sexual orientation, and age. HIV contributing factors that were examined include: length of diagnosis, emotional openness, and effects of medication.

Although the results of this study were contrary to expected, it is possible that these findings are indeed representative of gender differences in the HIV-infected population. The HIV-infected population may be a subpopulation in which no gender differences exist. However, it is also possible that characteristics of this sample prevented the study from producing significant results, when in fact such a difference does exist in the HIV-infected population.

The sample was primarily men, n= 210 (female, n=63). Of these men 143 were White. Thus the sample is composed of primarily Caucasian men. This racial demographic may in part contribute to the inability to find a significant difference between men and women on the CES-D depression screening tool. African-American men have relatively low rates of depression compared to White and Hispanic males. The

sample included only 49 Black, non-Hispanics. Thus it is possible that the higher rates of

Caucasian men compared to Black, non-Hispanic men may have caused the male

depression score to be higher than if the sample had included a larger percentage of

Black, non-Hispanics.

It is also possible that the sample did not include enough women to yield

statistical significance. Of the 273 subjects that identified their gender, only 63 were

female, while 210 were men. This inequality in gender could possibly have resulted in an

inability to produce statistical significance.

In addition to being primarily male, our sample was also primarily homosexual.

One hundred forty-six of the 210 males identified their risk category as men having sex

with men. Penzak, Reddy, and Grimsley (2000) concluded that homosexuality in men

may be a predisposing risk factor for depression. Fishman and Lyketsos (1996) agreed,

finding that homosexual men and intravenous drug users have higher rates of depression

than the general population. Based on this information, it is possible that the large

number of homosexuals in this sample may have caused the depression level of men to be

higher than it would have otherwise been if more heterosexual men had been included.

Low-Beer et al. (2000) reported that the rates of depression increase in the later

stages of HIV infection and that this increase continues throughout AIDS diagnosis.

Likewise, Fishman and Lyketsos (1996) found that major depression increase in HIV-

infected patients in the later stages of the disease; the researchers implied this increase

might be attributable to HIV-subcortical damage which is common in the later stages of

the disease. In addition, Fishman and Lyketsos (1996) implied that the increase in

depression in the later stages of HIV-infected persons might also result because the

longer an individual is diagnosed the longer the length of time psychological symptoms have to manifest themselves. The length of diagnosis time may also have contributed to the inability to find gender differences on the CES-D screening tool because although not significantly different, the men in the sample were diagnosed on average earlier than the women. However, this explanation seems unlikely based on the lack of a statistically significant correlation between years since HIV diagnosis and CES-D sum score found in this study.

Another possible factor is that the men in the sample may have experienced a greater social stigmatization, loss of friends to HIV, and isolation from social support. These factors were found by Penzak, Reddy, and Grimsley (2000) to contribute to depression in HIV-infected persons. It is possible that the men in this study, being primarily homosexual, may have experienced more social stigmatization than the women in the sample; homosexual HIV-infected men are vulnerable to experiencing social stigmatization as a result of both HIV-infection and sexual orientation. In addition, it seems likely that these homosexual men are more likely to experience the loss of friends to HIV than HIV-infected women.

Finally, some HIV medications have been found to depress mood (Penzak, Reddy, & Grimsley, 2000). It may be possible that the men, who had been on average diagnosed for longer, were more likely to be symptomatic. If this is the case, then it possible that as a result the men may have been taking more medications than the females in this study, and that these medications may as a result have caused the men to be more depressed than they otherwise would be. This would help to explain why the men and women's CES-D scores were similar.

The findings presented indicate fairly high levels of depression in both genders, thus it is apparent that early intervention for both HIV-infected men and HIV-infected women is indicated. The findings of this study bring into question the common belief that women experience a higher rate of depression in the HIV-infected community. It is important for clinicians to know if a gender difference exists so they can identify and treat depression in their HIV-infected patients. The results of this study were not as expected. Characteristics of the sample may explain the inability of this study to find statistically significant gender differences on depression or it is possible that gender differences do not exist in depression in HIV-infected individuals. Further research is needed.

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