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Psychosocial and Cultural Correlates of Depression among Hispanic Men with HIV Infection: A Pilot Study

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Abstract

Background—Depression is a common mental health condition among persons with HIV infection. Depression influences quality of life, social relationships, and adherence to medication therapy. Little is known about depression among Hispanic men with HIV infection.

Aim—The purpose of this pilot study was to describe the relationships of depression to other psychosocial factors (self-esteem, Hispanic stress, substance abuse, and violence) and cultural factors (familism & Hispanic stress) among a sample of Hispanic men with HIV infection.

Method—Using a cross-sectional, descriptive research design a convenience sample of 46 Hispanic men with HIV infection was recruited and surveyed from the South Florida area of the United States.

Results—The majority of the participants (65%; $n = 30$) were depressed. In addition, the majority of participants reported high *familism* and self-esteem and low Hispanic stress. A history of substance abuse and childhood and adult violence were common. Significant relationships were noted between depression, and self-esteem, Hispanic stress, substance abuse, and adult physical violence.

Implications—Healthcare providers need to be aware of the high rates of depression, substance abuse, and violence that may occur among Hispanic men with HIV infection. More research is needed to further explore the relationship of these factors, as well as to determine the impact that these variables have on adherence to medication therapy among Hispanic men with HIV infection.

Keywords

Depression; Hispanics; HIV infection; Men

Introduction

Depression is a common psychiatric disorder in persons with HIV infection, second only to substance abuse disorders (Rabkin, 2008). The diagnosis and treatment of depression is important in the care of persons with HIV infection because depression potentially influences quality of life, social and professional relationships, and adherence with HIV-related care and treatment (Rabkin, 2008).

Much like depression in the general population, the exact prevalence of depression among persons with HIV infection is not precisely known. A meta-analysis of research studies concluded that people with HIV infection have higher rates than the general population (Ciesla & Roberts, 2001). A number of studies over the past ten years that have focused on

depression among individuals infected with HIV reported that the prevalence ranges from 22% to 42% (Bing et al, 2001; Horberg et al., 2008; Orlando et al., 2002). It appears that those with symptomatic HIV have higher rates of depression compared to those with asymptomatic HIV infection (Atkinson et al., 2008).

Despite the number of studies that have focused on depression and HIV infection, relatively little is known about depression among Hispanics with HIV infection. A study was conducted that measured symptoms of psychological distress reported by Hispanics seeking HIV-related mental health services, but did not specifically measure depression. Psychological distress among Hispanics was mediated by engagement in HIV-related mental health services (Basta, Shacham & Reece, 2008).

Among persons with HIV infection, depression is a significant predictor of disease progression (Bounnik et al., 2005) and increased mortality (Kopinsky et al., 2004). However, the exact relationship between HIV infection and depression remains unclear. A diagnosis of depression may result in depression because of psychosocial factors associated with HIV infection such as stigma or marginalization. Conversely, the physiological changes that occur in the central nervous system may also be responsible for depression (Lesserman, 2008).

Correlates of depression among the general population of people living with HIV infection have been studied. These include a prior history of depression, symptomatic illness (Evans et al., 2005), substance abuse, younger age, female gender, and the experience of HIV-related stigma (Emlet, 2006; Flowers et al., 2006). The correlates of depression among men with HIV infection include a history of depression or a lifetime psychiatric co-morbidity (Atkinson et al., 2008). However, the correlates of depression among Hispanic men in specific are not currently known. Given this identified gap in the knowledge base, a pilot study to explore the relationship of depression to other psychosocial factors among Hispanic men with HIV infection is warranted. The purpose of this study was to determine the correlates of depression in a sample of community-dwelling Hispanic men with HIV infection in the South Florida area of the United States.

Review of the Literature

Psychosocial Correlates of Depression among HIV Infected Individuals

Research studies conducted over the past ten year on the correlates of depression among men infected with HIV infection are scarce. A literature search was conducted using CINAHL, MEDLINE, and PUBMED that was restricted to English publications. Only two studies could be located that included samples comprised only of men with HIV infection published between 2001 and 2011. The first study compared 297 heterosexual men and men who have sex with men (MSM) with HIV to 90 men without HIV infection over a two-year period. Although at baseline the prevalence rates of depression and other psychiatric disorders did not differ between the two groups of men, those with symptomatic HIV infection were more likely to experience depression than those with asymptomatic infections or those who were not infected with HIV at the two year follow-up ($t = 4.69$, $p = 0.001$). A past medical history of depression or a diagnosis of another mental health disorders predicted subsequent episodes of depression ($OR = 3.9$, 95% $CI = 2.2 - 6.8$). Life adversity events were not predictive of future episodes of depression ($t = 0.40$, $p = 0.693$) (Atkinson et al., 2007).

The second study surveyed an ethnically diverse sample of 179 gay and bisexual men with HIV infection to assess associations between adult abuse and partner violence on quality of life, medication adherence, and ER visits through structural equation modeling (SEM).

Mental health was tested as a mediator variable. The structural model demonstrated acceptable fit ($X^2 [2, 123 = 157.05]$, $CFI = .95$, $TLI = .94$, $RMSEA = .04$, $SRMR = .06$, $p < .02$) and explained 41% of the variance in quality of life; 24% of the variance in mental health; 13% of the variance in viral load; 9% of the variance in ER visits; and 7% of the variance of adherence. The authors concluded that intimate partner violence has a major impact on the mental health of men with HIV infection, and that care providers should assess for intimate partner violence, mental health problems among all groups of gay and bisexual men with HIV (Pantalone, Hessler & Simoni, 2010).

Despite the scarcity of research on the correlates of depression among men with HIV infection, a larger number of studies conducted over the past 10 years have included both male and female participants living with HIV infection. One study examined the influence of anxiety and depression on the risk of transmission of HIV with a sample of 936 men and women with HIV infection over a 2-year period. A more positive mental health status (lower levels of anxiety and depression) was associated with lower levels of alcohol and drug use. Higher levels of depression were associated with more high risk sexual behaviors ($RR = .05$, $p = .05$). The researchers concluded that changes in mental health, substance abuse, and sexual behaviors occur in tandem among people with HIV infection (Comulada et al., 2010).

Noting that depression was prevalent among persons newly diagnosed with HIV infection, a study of 180 men and women with HIV infection measured a number of variables at 90-day intervals. The researchers reported that 67% of the sample met criteria for depression. Risk factors for depression included female gender, those with incomes less than \$25,000/year, recent substance use, poor access to HIV care, and low self-efficacy. Depression was associated with poor linkage to HIV care. Clinicians providing care for people with HIV infection need to address depression, substance abuse, and adherence to care and treatment in tandem (Bhatia et al., 2010).

Noting the relationship between mental health and substance abuse disorders among people living with HIV infection, the influence of these variables on mortality using a 12-year period of medical records of 9,750 people with HIV infection was investigated. About 25% of the sample had a mental health diagnosis and 26% had a substance abuse disorder. Nearly 12% of the sample had co-occurring mental health and substance abuse disorders. The researchers concluded that the risk for mortality was greatest for participants with both a mental health and substance abuse diagnosis who did not receive treatment for either condition ($HR = 4.17$, 95% $CI = 2.35-7.40$). The study notes the necessity of screening patients with HIV for both mental health and substance abuse disorders (De Lorenze et al., 2010).

Depression in combination with substance abuse disorders hastens disease progression in people with HIV infection. Data from 603 medical records of people living with HIV infection were analyzed to study the relationship of depression, medication discontinuation, and viral loads. Participants with higher levels of depression were more likely to discontinue HIV medications ($AOR = 1.39$, 95% $CI = 1.08-1.78$), which resulted in a 50% increase in viral load. Poor adherence to HIV medications explains some of the relationship of depression to disease progression (Carrico et al., 2011).

Focusing specifically on alcohol abuse and depression, a study was conducted to examine the relationship between these variables among people with HIV infection. The 400 participants in this study had a current diagnosis or past medical history of alcohol abuse. Alcohol dependence and heavy alcohol use were associated with higher levels of depression ($OR = 3.49$, 95% $CI = 1.76-5.22$) (Sullivan et al., 2008).

Depression and substance have been linked to a delay in the start of antiretroviral therapy in clients with HIV infection, as clients with depression were less likely to start ART ($HR = 0.4, p = 0.02$). In addition, clients with depression or substance abuse disorders initiate ART at lower CD4+ counts and higher viral loads than those without depression (stats). Once clients were prescribed medications for the treatment of depression, clients were more likely to initiate ART ($HR = 0.9, p = 0.05$) (Tegger et al., 2008).

Cultural Correlates of Depression among HIV infected Individuals

There is no research published in the past ten years that describes the cultural factors that predict depression among Hispanic HIV infected individuals. *Familism*, is a pervasive belief among Hispanics that the family unit (nuclear and extended) should be prioritized over the individual and are interdependent and cooperative (Schwartz, 2007). This construct has been identified as one of the most fundamental elements of Hispanic culture (Campos et al., 2008) and research has supported that Familism is higher among Hispanics than their Non-Hispanic White counterparts (Sabogal et al., 1987). Research studies that have examined the relationship between *Familism* and behavioral and mental health have found it to be a strong protective factor. For example, one study found that an increased contact with family members is negatively associated with sexual risk taking activity among Hispanic women (Landau et al., 2009).

Hispanics face common stressors related to being an ethnic minority group in the U.S., immigration status, language, acculturation and changing personal and family values and norms (Cervantes et al., 1991). There is a plethora of research linking stress, when defined more broadly, to depression and maladaptive behaviors such as risky sexual behaviors, substance abuse and risk for HIV among diverse populations. Recently, researchers have begun to explore the relationship between Hispanic stress and behavioral and mental health outcomes among Hispanics, documenting a strong and positive relationship between Hispanic stress, depression and co-occurring behavioral conditions (Authors removed for peer-review, under review). Nevertheless, this is the first study to explore the relationship between Hispanic stress and depression among Hispanics infected with HIV.

Method

Design

A descriptive, cross-sectional design was used with a convenience sample of community-dwelling Hispanic men. This study is an analysis of a subset of Hispanic men with HIV infection ($n = 46$). This subset is part of a larger study, called Project VIDA, which enrolled 160 Hispanic men (80 heterosexual men and 80 men who have sex with men [MSM]). The larger study included data on violence, intimate partner relationships, and substance abuse among Hispanics. To enroll in Project VIDA, participants were required to be: 1) a Hispanic male between the ages of 18 and 55; 2) willing to disclose sexual orientation; 3) residing in the South Florida area of the United States at least 12 months preceding study enrollment. From the 160 participants in Project VIDA, 46 participants (~ 28.8%) reported a diagnosis of HIV infection. This study is a report of those 46 Hispanic men with HIV infection.

Setting

Data were collected from Hispanic male participants who were recruited by the use of posters and business cards that were distributed in South Florida during community and social events such as block parties, flea markets, music festivals, and local businesses that catered to Hispanic men such as cafes, nightclubs, community-based agencies, immigration offices, and clinics. Snowball sampling was also used to recruit participants. Snowball

sampling is a non-probability sampling technique whereby participants who have completed the study are encouraged to refer additional participants (Creswell, 2008).

Sample

The sample was comprised of 46 Hispanic men with HIV infection who reside in South Florida. Participants ranged in age from 26 to 56 with a mean of 44.20 years ($SD \pm 7.34$). Nearly all of the participants ($n = 44$; 95.6%) were foreign-born. Length of time in the United States ranged from 1 year to 52 years ($M = 21.09$, $SD \pm 13.99$). Table 1 provides a more complete demographic profile of the participants.

Procedures

Before beginning data collection Institutional Review Board approval for the study was obtained. Potential participants were provided with a telephone number on flyers and business cards so that eligibility screening could be conducted by telephone. Once eligibility criteria were met, an appointment was scheduled for a face-to-face interview administered in the participant's preferential language. Before commencing the interview, study personnel provided an explanation of the study, answered questions, and obtained a signed informed consent.

In addition to the signed informed consent procedures that were designed to protect the rights of research participants, there were a few ethical issues that were also important. Protection of confidentiality and privacy were of utmost importance during the study because of the participants' HIV status and the sensitive nature of the data that were collected such as violence and drug use behaviors. In order to ensure confidentiality and privacy, the interviews were conducted in a private research office free from interruption. Only the participant and one member of the research team were present during data collection.

Instruments were then administered in an interview format. On average, the interviews lasted 1.5 to 2 hours. Literacy was not a concern for this study because the questions were read to the participants in their preferential language and recorded using a computerized data collection and management program. Upon completion of the interview, participants were compensated \$30 US dollars for time and travel.

Instruments

Six standardized instruments in addition to the demographic questionnaire were used in this study. These specific instruments were used to operationalize the study variables of depression, *familism*, self-esteem, Hispanic stress, substance abuse, and violence.

Depression—Depression was measured by the Centers for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977). The CES-D is a 20-item Likert scale that is designed to measure depressive symptoms for research purposes. The scale contains responses that are scored from 0 (*rarely or none of the time or less than 1 day*) to 3 (*most or all of the time or 5 to 7 days*). Total CES-D scores can range from 0 to 60, with two methods of interpreting total CES-D scores. The first method is that scores greater than or equal to 16 are indicative of higher levels of depressive symptoms. The second provides a categorical rating of depression. Scores of 9 or less indicate no depression; scores of 10-15 indicate mild depression; 16 to 24 moderate depression; and scores of 25 and greater indicate severe depression. Radloff (1977) reported a reliability coefficient of .85 for the general population, and validity of the CES-D was established by correlating it with other depression and mood scales. The CES-D has been used with various Hispanic subgroups and reliability coefficients of .78 to .99 have been reported (De Santis et al., 2008; Yang et al., 2008).

Familism—*Familism* was measured using the *Familism Scale* (Sabogal et al., 1987). This instrument measures attitudes about family support and family membership. The *Familism Scale* is a 15 item Likert scale that contains scores from 1 (*very much in disagreement*) to 5 (*very much in agreement*). Total scores can range from 15 to 75 with higher scores indicating more positive attitudes about family support, family obligations, more perceived support from the family, and family as referents. Sabogal and colleagues (1987) reported a reliability coefficient of .60 among various Hispanic subgroups.

Self-esteem—Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965; 1989). This instrument measures participants' perceptions of self. The RSES is a 10 item Likert scale that contains responses that are scored from 0 (*strongly disagree*) to 3 (*strongly agree*). Total scores on the RSES range from 0 to 30. Like the CES-D (Radloff, 1977), there are two methods for interpreting RSES scores. The first method is that scores less than or equal to 16 indicate lower self-esteem. The second does not use any "cut off" scores, but that higher scores indicate higher self-esteem. Rosenberg (1989) reported reliability coefficients of .77 to .88. The RSES has been used with Hispanic samples and has been shown to have strong predictive validity (De Santis et al., 2008; Gonzalez-Guarda et al., 2009; Martin-Albo et al., 2007).

Hispanic Stress—Stress was measured by the Hispanic Stress Inventory (HSI) (Cervantes, Padilla & Salgado de Snyder, 1991). The HSI is a 73-item instrument that asks participants to respond "yes or no" to items perceived as stressful during the past three months. With each affirmative response, participants are then asked to rate how stressful the event was using a 5-point Likert scale with responses that are scored from 1 (*not at all stressful*) to 5 (*extremely stressful*). The HSI contains four subscales: family/cultural stress, immigration stress, marital stress, and occupational/economic stress. Higher scores indicate higher levels of stress. Alpha coefficients of .77 to .91 have been reported on the HSI (Cervantes et al., 1991).

Substance Abuse—Substance abuse was measured by using a modified version of Substance Abuse Behaviors (Kelly et al., 1994). This instrument contains 12 items that require a "yes or no" response. This instrument asks participants to report the following behaviors: needle-sharing, trading sex for drugs or money, injecting drugs, alcohol intoxication, drug intoxication, partner alcohol intoxication, partner drug intoxication, using alcohol or drugs during sex, and partners' use of alcohol or drugs during sex. The instrument yields categorical data that describes participants' past and current substance abuse behaviors. Reliability and validity data on this instrument is not reported.

Violence—Violence was measured using the Violence Assessment (Peragallo et al., 2005). This instrument contains six questions that relate to lifetime experiences of violence and abuse. Participants are asked to respond "yes, no, or refused" to these six questions that focus on physical abuse, sexual abuse, and verbal/emotional abuse before the age of 18 and physical, sexual, and verbal/emotional abuse experienced as an adult. This instrument yields categorical data that provides researchers with participants' experiences with violence/abuse during childhood as well as adulthood. Reliability and validity data on this instrument has not been reported.

Data Analysis

Data analysis included descriptive statistics, correlation coefficients, and *t*-tests. Before data analysis began, data were examined for normal distributions. Continuous data were normally- or near-normally distributed. The total score of the CES-D was used as the dependent variable, and all other scores of the measures were independent variables.

Total scores on each of the measures that yielded continuous data (*familism*, self-esteem, and stress) were compared using correlation coefficients so that the relationship of depression to the other continuous variables could be assessed. For measures that yielded categorical data (substance abuse and violence), the total scores on the CES-D was the dependent variable and other categorical variables were analyzed using *t*-tests. Estimation of Cronbach's *alphas* of the standardized measures were also calculated.

Results

Description of the Study Variables

Participants were between the ages of 26 and 56 ($M = 44.20$, $SD = 7.34$) and reported being gay (45.7%), bisexual (21.7%) or heterosexual (30.4%). Only 2% of the sample were born in the U.S. In fact, participants represented 11 different countries in Latin America and had spent a range of 1 year to their entire lifetime residing in the U.S. ($M = 13.99$, $SD = 7.34$). Participants reported a mean education of 12.17 years ($SD = 3.84$) and a monthly income (78.3% earned less than \$1,000 a month). Table 1 provides more detailed demographic characteristics of the sample.

Generally, the mental and behavioral health of the participants was poor. Approximately 65% of the sample were depressed, 37.0% of whom were severely depressed. Nevertheless, the majority of participants had high levels of *Familism* ($M = 54.80$, $SD = 6.18$) and Self-esteem ($M = 20.46$, $SD = 4.75$). The scores for Hispanic stress were moderate ($M = 14.83$, $SD = 1.61$), with scores on immigration stress being the highest of the subscales ($M = 5.13$, $SD = .74$). Eleven percent of participants reported a lifetime history of sharing needles, but no participants reported sharing needles in the past three months. Seventeen percent reported a lifetime history of trading sex for drugs, and 15.2% reported a lifetime history of trading sex for money. During the previous three months, 8.7% reported trading sex for drugs or money. A large proportion of participants reported physical, sexual, and/or psychology abuse as children (17.4%, 17.4%, 32.6%) and adults (21.7%, 2.2%, 13%) respectively. Table 2 provides a more complete description of the findings related to the participant's mental and behavioral health. Relationship of Depression and Study Variables

Depression and Demographic Variables—Demographic variables that were continuous (age, number of years living in the U.S., number of emergency room visits in the previous three months, and number of years of education) were examined using correlation coefficients to determine if there were associations between these continuous variables and total CES-D scores. Statistically significant correlations were not found between total CES-D scores and any of the continuous demographic variables: age ($r = -.223$, $p = .136$); number of years in the U.S. ($r = -.272$, $p = .067$); number of emergency room visits ($r = .075$, $p = .625$); and number of years of education ($r = -.232$, $p = .754$). When stratified by sexual orientation, no differences were found in levels of depression when compared by sexual orientation ($t = -.246$, $p = .809$). These findings indicate that none of the demographic variables in this study have a statistically significant influence on depression in this sample of Hispanic men with HIV infection.

Depression and Familism—Correlation coefficients of the total CES-D scores and total *Familism* scores were examined. A statistically significant correlation between depression and *familism* was not found ($r = -.108$, $p > .05$). This indicates that depression was not related to *familism* in this sample of Hispanic men with HIV infection.

Depression and Self-Esteem—Correlation coefficients of the total CES-D scores and total RSES scores were examined. A statistically significant negative correlation between

depression and self-esteem was found ($r = -.570, p < .001$). This indicates that higher levels of depression is associated with lower levels of self-esteem in this sample of Hispanic men with HIV infection.

Depression and Hispanic Stress—Correlation coefficients of the total CES-D scores and total HIS scores were examined. A statistically significant correlation between depression and Hispanic stress was noted ($r = .325, p < 0.05$). This indicates that higher depression scores are associated with higher levels of Hispanic stress in this sample of Hispanic men with HIV infection.

Correlations coefficients of the total CES-D scores and the HSI subscales of family/cultural stress, immigration stress, marital stress, and economic/occupational stress were also examined. The only statistically significant correlation noted was between depression and immigration stress ($r = .350, p < .05$). This finding indicates that Hispanic men who were depressed were also experiencing stress related to immigration issues. All other correlations between depression and the other subscales of the HSI were not significant: family/cultural stress ($r = .255, p > .05$); marital stress ($r = .046, p > .05$); and economic/occupational stress ($r = .249, p > .05$) in this sample of Hispanic men with HIV infection.

Depression and Substance Abuse—Certain substance abuse behaviors differed by levels of depression in this sample of Hispanic men with HIV infection. Men with higher levels of depression were more likely to report being drunk on alcohol during the last three months than men with lower levels of depression ($t = -2.41, p = .023$). Higher levels of depression were also associated with being high on drugs in the past three months ($t = -1.75, p = .023$). Higher levels of depression were also associated with being drunk on alcohol or high on drugs before sexual activity during the past three months ($t = -3.25, p = .003$).

A number of substance abuse behaviors did not differ by levels of depression. When compared by levels of depression, Hispanic men with HIV infection did not differ in a lifetime history of needle sharing ($t = 1.09, p = .288$); a lifetime history of trading sex for drugs ($t = -.628, p = .533$); trading sex for money ($t = -1.41, p = .164$); having a partner who was drunk on alcohol during the last three months ($t = -1.44, p = .161$); having a partner who was high on drugs during the last three months ($t = -1.05, p = .301$); having sex with a partner high on alcohol or drugs during the last three months ($t = -1.80, p = .083$); sharing needles in the past three months ($t = 1.86, p = .083$); or trading sex for drugs or money in the past three months ($t = 1.45, p = .163$).

Depression and Violence—Only one aspect of abuse differed by levels of depression in this sample of Hispanic men with HIV infection. Men with higher levels of depression were more likely to have experienced physical abuse as an adult ($t = -2.25, p = .030$). No differences were noted in aspects of violence experienced during childhood when compared by depression levels in terms of physical abuse before the age of 18 ($t = -.628, p = .533$); sexual abuse before the age of 18 ($t = -.663, p = .512$); or verbal/emotional abuse before age 18 ($t = .507, p = .615$).

No differences were found in aspects of adult violence when compared by depression levels in terms of sexual abuse as an adult ($t = -.726, p = .471$) or verbal/emotional abuse as an adult ($t = -.988, p = .329$).

Discussion

The results of this study on the correlates of depression among Hispanic men with HIV infection are important because relatively little attention has been focused on depression or the correlates of depression among this population. Despite the study's small sample size, this study adds some important information to the knowledge base of this topic.

A diagnosis of HIV infection presents a number of psychosocial stressors and challenges for clients (Bravo et al., 2010; De Santis & Barroso, 2011). The most significant challenge for clients newly-diagnosed with HIV infection is adhering to antiretroviral therapy (ART) (Berg et al., 2007). In addition to adherence issues, self-care behaviors such as managing depression, decreasing high risk sexual behaviors, and seeking treatment for co-existing substance abuse disorders present challenges for these clients (Berg et al., 2007).

The high rate of depression among the participants (65%; $n = 30$) is important to note. Because of the study's small sample size, the results on the number of participants who were depressed must be interpreted cautiously, but the findings are higher than the rates reported in previous studies (Bing et al., 2001; Horberg et al., 2008; Orlando et al., 2002).

The high rate of depression noted in this sample provides some implications for healthcare providers. Frequent client screenings for depression should be conducted at each healthcare encounter, especially for those clients with a past medical history of depression because each episode of depression increases the risk for subsequent episodes (Atkinson et al., 2007). Screening must also include co-occurring mental health conditions. These include substance abuse (Bhatia et al., 2010; De Lorenze et al., 2010; Sullivan et al., 2008), and violence (Pantalone et al., 2010). Identification and subsequent treatment for these co-occurring conditions are essential because a diagnosis of more than one condition increases the risk of death for people with HIV infection (Bhatia et al., 2010).

This study provides some important information on HIV infection within the context of Hispanic culture. Among many Hispanics, the family provides support in addition to assistance with decision-making. It was expected that family support would be inversely related to depression, as the family is expected to provide support to buffer against depression. There are a few possible explanations for the study's finding that *familism* was not related to depression. Many people with HIV infection do not disclose their diagnosis to family members, and cannot access family support because of the unwillingness to disclose the diagnosis of HIV infection. In contrast, some people with HIV infection who are willing to disclose their diagnosis to family members are often ostracized and rejected by their family (De Santis & Barroso, 2011). Either possibility could serve as a possible explanation for the lack of a relationship between *familism* and depression in this study. It is also possible that *familism* may serve as a moderator for Hispanic stress and depression. Although this hypothesis was not tested due to the small sample size future research should investigate this potential interaction. Finally, the *Familism* Scale performed marginally in this study ($\alpha = .66$) and perhaps was not a valid and reliable measure for the construct for this sample.

Despite moderate levels of stress among the participants, Hispanic stress was related to depression, especially in terms of immigration stress. Nearly all of the participants were foreign-born; therefore, the finding on immigration stress is not surprising. Even though people with HIV infection are eligible for HIV care and medications despite their immigration status, this finding indicates that clinicians providing care to this population of men with HIV infection need to assess immigrant status as a source of stress. Assessment of immigrant status must be conducted in a direct, non-judgmental manner so that appropriate

services and support can be accessed for Hispanic men with HIV infection who are dealing with immigration issues as well as mental health issues such as depression.

The results on *familism* and Hispanic stress among Hispanic men with HIV infection offer some implications for healthcare providers. Clients with HIV infection are confronted with the chronic nature of HIV infection in addition to the physical and psychosocial health issues (Barvo et al., 2010; De Santis & Barroso, 2011). Compared to the physical issues of HIV infection, relatively little attention has been focused recently on the psychosocial needs of clients with HIV (Barvo et al., 2010). An assessment of psychosocial stressor as well as available support systems should be frequently conducted by healthcare providers. Psychosocial support is essential for clients with HIV infection because it assists clients in buffering HIV-associated stressors. (Grant et al., 2009). Clients lacking psychosocial support should be referred to support groups which are effective in reducing stress and providing support for people with HIV infection. (Walch et al., 2006).

Higher levels of depression were associated with alcohol intoxication and drug use during the previous three months. In addition, higher levels of depression were associated with the use of substances during sexual activity. This study's findings are consistent with previous studies that have noted the relationship between depression and substance abuse among people with HIV infection (De Lorenze et al., 2010; Sullivan et al., 2008), as well as the relationship between substance abuse, depression, and high risk sexual behaviors (Comulada et al., 2010). Clinicians providing care to people with HIV infection should always assess clients for co-occurring substance abuse, mental health, and sexual health issues. Clients engaging in substance abuse behaviors and who are depressed may engage in high risk sexual behaviors with other people with HIV infection or those who are not infected. Transmission of resistant strains of HIV infection to those who are already infected with HIV is just as concerning as transmission of HIV to those who are not infected. Transmission of resistant strains of HIV theoretically could result in fewer treatment options for clients with HIV infection (Martinez-Cajas et al., 2009).

Few differences were found in terms of violence when stratified by depression, with the exception of physical violence during adulthood. A number of the participants reported violence during childhood as well as adulthood. Physical violence was the second most common form of violence experienced by the participants, with verbal/psychological abuse the most common form. Physical and sexual abuse during childhood is responsible for a 3.8-fold increase for risk of physical abuse during adulthood for men. (Whitfield et al., 2003). This could be a possible explanation for differences in depression levels among participants who had experienced abuse during adulthood versus those who did not experience physical violence.

The assessment of violence by healthcare providers during episodic healthcare encounters is essential. Clients with HIV infection are at risk for intimate partner violence (Mugavero et al., 2006). Violence has the potential to impact not only physical and mental health, but adherence also has a potential impact on adherence to ART (Mugavero et al., 2006). An assessment of violence offers an opportunity for healthcare providers to intervene not only in terms of physical and mental health, but also allows exploration into reasons for non-adherence to ART. Clients experiencing violence may have difficulty adhering to ART, but little attention has been given to the exact influence of violence on adherence. More research is required to study the relationship between violence and adherence to ART among Hispanic men with HIV infection.

The sole treatment of HIV infection is the use of antiretroviral therapy (ART) to control viral replication. The control of viral replication prevents the depletion of CD4+ cells and

halts immune suppression (Simoni et al., 2005). Adherence to ART is a challenge for many people living with HIV infection (Markowitz et al., 1999). Adherence is further complicated when clients are depressed. Depressed clients with HIV infection are less likely to initiate ART (Tegger et al., 2008), and those with depression are less likely to adhere to ART, which hastens disease progression (Carrico et al., 2011). When depressed clients with HIV infection are provided with psychotropic medications to treat depression, adherence to ART is greatly improved (Tegger et al., 2008).

The results of this study provide directions for further research. This study should be replicated with a larger sample so that more complex statistics can be used to determine the influence of the study variables on depression.

Limitations

As discussed throughout, a major limitation of the study is the small sample size. The sample may not be representative of the population of Hispanic men with HIV infection. The small sample size limits generalizability of the findings because of the potential of sampling error (Creswell, 2008). A second limitation involves a lack of data on immune status of the participants. The study did not collect data on length of time since HIV diagnosis, viral loads, CD4+ cells, or clinical status of the participants (HIV infection vs. AIDS). Collecting this data would allow an examination of these immune system variables on depression among the sample. Lastly, this sample consisted of a very specific population, Hispanic men in South Florida with HIV infection. Although this study adds to the limited research on this vulnerable group, the inability to find relationships between certain variables of interest (i.e., depression and some high risk sexual behaviors) may be due to a lack of variability in these variables. The specificity of the sample also limits the ability to generalize the findings to other communities of Hispanics or HIV infected individuals throughout the country.

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Table 1

Demographic Characteristics of the Sample (N = 46).

Variable	<i>M</i>	<i>SD</i>	Range
Age	44.20	7.34	26 - 56
Years of Education	12.17	3.84	0 - 20
Years in the U.S. (if foreign-born)	21.09	13.99	1 - 52
Number of times in the ER in the past 3 months	0.51	1.46	0-8

<i>N</i> and %		
Country of origin	Cuba	16 (34.8)
	Puerto Rico	7 (15.2)
	Colombia	6 (13.0)
	Nicaragua	4 (8.7)
	Honduras	3 (6.5)
	United States	2 (4.3)
	Mexico	2 (4.3)
	Dominican Republic	2 (4.3)
	Chile	1 (2.2)
	Costa Rica	1 (2.2)
	El Salvador	1 (2.2)
	Peru	1 (2.2)
Reported Sexual Identification	Gay	21 (45.7)
	Bisexual	10 (21.7)
	Heterosexual	14 (30.4)
	Refused to report	1 (2.2)
Monthly income	Less than \$1,000	36 (78.3)
	More than \$1,000	9 (19.6)
	Refused to report	1 (2.1)

Table 2

Study Variables in a Sample of Hispanic Men with HIV Infection (n = 46)

Variable	Measure	Scale Range of Sample	Mean (SD)	Cronbach's Alpha
Depression	CES-D	0-55	21.57 (13.28)	.853
<i>Familism</i>	<i>Familism Scale</i>	40-72	54.80 (6.18)	.661
Self-Esteem	RSES	7-29	20.46 (4.75)	.811
Stress	HSI	0-37	14.83 (1.61)	.761
	Family	0-12	4.26 (.48)	--
	Immigration	0-18	5.13 (.74)	--
	Occupational/ Economic	0-10	3.48 (.43)	--
	Marital	0-9	2.00 (.38)	--
Substance Abuse	Substance Abusing Behaviors			N and %
	Drunk on alcohol in the past 3 months			5 (10.9)
	High on drugs in the past 3 months			5 (10.9)
	Partner drunk in the past 3 months ^a			5 (4.3)
	Partner high in the past 3 months			2 (4.4)
	Drunk/high during sex in the past 3 months			8 (17.5)
	Partner drunk/high during sex in past 3 months			3 (6.5)
Violence	Violence Assessment			
	Physically abused before age 18			8 17.4
	Sexually abused before age 18			8 17.4
	Verbally/emotionally abused before age 18			15 32.6
	Physically abused as an adult			10 21.7
	Sexually abused as an adult			1 2.2
	Verbally/emotionally abused as adult			6 13.0

^a n = 45 because participant refused to provide response.