

Age Difference in Rates of Mental Health/Substance Abuse and Behavioral Care in HIV-Positive Adults

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ABSTRACT

This study aims to investigate age differences in rates of mental health/substance abuse and behavioral health treatment in HIV-positive adults. One-hundred and nine HIV-positive adults (21–88 years old) were recruited from the University of Pennsylvania Center for AIDS Research (CFAR) infectious disease clinics. Each subject participated in a 3-hour comprehensive behavioral/psychosocial interview. Over half of the sample displayed significant mental health and substance abuse symptoms, of which approximately a third were actively participating in behavioral health care. Major depression and illicit drug use appeared to be the most prevalent syndromes. However, individuals with mania and psychosis were most likely to be participating in behavioral health treatment, while individuals with at-risk drinking and illicit drug use were least likely to be participating in treatment. Furthermore, older-aged adults were less likely to be receiving behavioral health care when there was evidence of need. The findings of this investigation generally concluded that HIV-positive adults, especially older-aged adults, are in need of improved behavioral health management for mental health/substance abuse.

INTRODUCTION

UNTIL NOW, examining age differences in HIV care has not been a salient concern in research because of the limited age span of the HIV population. However, more attention to older HIV-positive patients is necessary because of their emergence in the HIV epidemic,^{1,2} unique stage in the life span, and status in clinical care. The number of HIV-positive individuals over the age of 50, currently estimated to be 15% of the HIV population, is growing rapidly.³ Two factors have been contributing to the growth. First, the success of highly active anti-

retroviral therapy (HAART) has dramatically reduced mortality from HIV infection and transformed the condition into a chronic illness. Second, approximately 10% of all new cases (incidence) of HIV infection are among persons over 50 years of age.⁴ The growth of HIV in older adults adds a new obstacle for a group that already has heightened physical and mental impairment,⁵ declining health behaviors,⁶ and a greater likelihood of developing comorbid conditions.⁷ Furthermore, older HIV-positive adults are more likely to face non-HIV-related causes of death,⁷ implying the need to address comorbidity in this portion of the HIV population.

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Determining the age differences in mental health and substance abuse (MH/SA) status and behavioral treatment rates is an important area of consideration for planning appropriate service delivery systems and for the overall care management of older individuals. In the mental health literature, several studies have indicated that depressive symptoms lead to poor health behavior lifestyles.⁸⁻¹³ Furthermore, evidence has indicated that depressive syndromes can lead to higher risks in adverse health outcomes (e.g., disability, poor health services, cancer risk, premature mortality, cardiac mortality, stroke mortality, suicide).¹⁴⁻¹⁸ Specific to HIV care, neglected MH/SA can lead to poor HIV disease-management¹⁹⁻²³ and can increase the risk of developing comorbidities, leading to poor quality of life.^{24,25} Additionally, HIV-positive adults who exhibit MH/SA symptoms have reported poor mental and physical functioning and quality of life.^{26,27} Higher levels of psychological symptoms in HIV-positive older adults are related to more: limitations in daily activities, HIV-related life-stressor burden, limitations in social support, and barriers to care.²⁸ These disadvantages are partly due to medical/mental health care inadequacies, illness-related stigma, and limited personal resources. MH/SA distress can cause HIV-positive adults to miss medical appointments and have poorer medication adherence.²² While MH/SA conditions are logically associated with a poorer quality of life, these conditions also have an impact on HIV disease-management, negatively affecting quality of life and dispersion of the HIV virus.

Furthermore, HIV-positive adults appear to be at higher risk of experiencing MH/SA symptoms as compared to their HIV-negative counterparts.²⁹⁻³¹ In the HIV-positive population as a whole, depression is one of the most prevalent mental health disorders, while mania and psychosis are rare conditions.³² Mental health rates from a nationally representative HIV-positive sample support the indications, with depression (36%) as most prevalent (36%), followed by dysthymia (26%), generalized anxiety disorder (16%), panic disorder (11%), drug dependence (12%), and heavy drinking (6%).²⁶ Rates among older HIV-positive adults, com-

pared to their HIV-negative counterparts, indicate that they are more likely to experience depression, alcohol abuse/dependence, and drug abuse/dependence,³³ and to have a history of alcohol abuse.³⁴ Despite the higher level of MH/SA conditions, behavioral health treatment rates are below optimal levels in HIV populations,^{35,36} with less than 50% of HIV-positive adults who experience MH/SA symptoms treated for MH/SA conditions, regardless of having insurance coverage.³⁷ There is limited literature on HIV and MH/SA conditions and management rates, particularly in HIV-positive older adults. This investigation is unique in that it will examine and compare MH/SA across the age spectrum and will add to the literature on the understudied older HIV-positive population.

Together, these factors suggest a strong need for understanding HIV and MH/SA comorbidity and management levels, as well as age differences for these factors. Therefore, as a first step, this study aims to: (1) investigate rates of mental health and substance abuse conditions in HIV-positive individuals and (2) investigate age differences in the rates of mental health and substance abuse conditions. The secondary aims of this study are to: (1) investigate rates of behavioral health treatment in HIV-positive adults displaying MH/SA symptoms and (2) investigate age differences in the rates of behavioral health treatment.

MATERIALS AND METHODS

Participants

Participant pool. The participant pool for this cross-sectional observation study (HIV-Aging Study) consisted of individuals in the Philadelphia Center for AIDS Research (CFAR) clinical registry. Individuals in the registry were known to be infected with HIV, were actively seeking medical treatment at local infectious disease clinics (e.g., Presbyterian Hospital, Pennsylvania Hospital, and Hospital of the University of Pennsylvania), and had consented to being part of the registry and to be contacted for research recruitment. From this

registry $n = 411$ individuals were randomly selected using study-specified gender and age group stratification (young-aged, 18–44 years; middle-aged, 45–59 years; old-aged, 60+), with the goal of obtaining $n = 20$ participants in each age-gender group. Once randomly identified, participants were then contacted by telephone and invited to participate. In accordance with CFAR recruitment guidelines, each CFAR patient's infectious disease physician provided permission to contact their patient for study participation, prior to being called. Alternatively some participants ($n = 75$) were referred to the HIV-Aging Study through coordinating CFAR clinical sites. These participants were identified either through clinical staff or self-referrals. Interested patients were referred to the study by clinical staff after obtaining patients' oral consent; interested patients who chose not to provide oral consent were instead provided with study information so that they could contact HIV-Aging Study recruitment personnel directly. As a whole, the referred segment of the participant pool were significantly younger ($p = 0.0001$, mean age, 41 years) compared to those selected from the CFAR registry (mean age, 52 years). There were no differences in gender between the two groups.

Patients were not contacted if their physician did not provide consent to contact ($n = 69$; 14%) or if the age/gender group to which they belonged had already met its quota ($n = 173$; 35%). As a result, only $n = 244$ individuals were contacted for recruitment, of which 44% ($n = 109$) agreed to participate. At the end of the study recruitment, $n = 72$ (66%) study participants were successfully recruited from the registry, with the remaining from referrals ($n = 37$; 34%). Individuals obtained through referrals were more likely ($p = 0.0008$) to participate in the study (63%) compared to those obtained from the CFAR registry (38%). This difference is logical because consent to contact was obtained from the referral participant prior to the recruitment phone call being placed; whereas recruitment calls to individuals on the CFAR registry was the first exposure to information about the study.

Selection criteria. To be included into the study participants had to be: (1) HIV-positive;

(2) 18 years of age or older; (3) a participant in the CFAR registry or coordinating CFAR clinic; (4) able to communicate adequately to allow study participation; and (5) cognitively intact (no severe cognitive impairment as evidenced by a Mini-Mental State Examination (MMSE) (<16). All participants provided written consent in accordance with the University of Pennsylvania Institutional Review Board (IRB) regulations. Each participant attended a one-time, 3-hour interview conducted by a trained research assistant, for which they were compensated \$40 for their time and effort. Participants were not contacted after the interview was completed.

Study participants. Recruitment and study interviews took place from October 2004 to September 2005. At the conclusion of study recruitment, $n = 109$ participants were interviewed. Older females were not equally represented in our sample; this group proved most difficult to recruit due to limited availability of HIV-positive female patients in the CFAR clinics and in the CFAR registry. Furthermore, difficulty attaining older HIV-positive women has also been documented in the existing HIV literature.³⁸ Because of the underrepresentation of older women, analysis was modified to use 2 age groups: younger-aged (21–49 years; $n = 62$) and older-aged (50–88 years; $n = 47$). This categorization is also more consistent with other HIV literature.

Based on information obtained from the study interviews, the results indicated that there were significant differences between the two recruitment groups for selected study variables explored in this investigation: age ($p = 0.0001$), marital status ($p = 0.0002$), and behavioral health participation ($p = 0.0185$). Participants who were recruited from the CFAR registry were older (54 versus 40 mean years of age), less likely to be married (48% versus 71% married), and less likely to have attended behavioral health treatment in the last 90 days (23% versus 45%). There were no significant differences between the two recruitment groups for gender, race, education, living status, social support, work status, income, insurance, and MH/SA status.

Instruments

Mental health diagnoses were assessed using the International Neuropsychiatric Interview (MINI) modules for hypomania, psychosis, panic disorder, mood disorder, generalized anxiety disorder (GAD), and posttraumatic stress disorder (PTSD).³⁹ Further mental health symptoms were assessed using the Inventory of Depressive Symptomatology (IDS),⁴⁰ Patient Health Questionnaire (PHQ-9),⁴¹ and the Paykel Suicide Scale.⁴² Substance abuse was assessed using the 60-day Time Line Follow Back scale (TLFB) for drug days (e.g., amphetamines, barbiturates, benzodiazepines, cocaine, cannabis, heroin, methadone, opiates/analgescics, sedatives/hypnotics/tranquilizers, hallucinogens, inhalants) and alcohol days/drinks.⁴³ In addition, a Breathalyzer analysis and a urine drug screen for THC (marijuana), amphetamines, benzodiazepines, cocaine, and barbiturates were administered. Behavioral treatment participation was assessed using a self-reported measure of service use in the past 90 days.

Selected variables/proposed analyses

Mental health status was defined as meeting either: the IDS cutoff for major depression (>22); PHQ cutoff for major depression (>15); MINI criteria for mania, psychosis, mood disorder, panic disorder, GAD, or PTSD; or the Paykel Suicide Scale criteria for suicidal ideation (yes to having thoughts about suicide

even if the subject did not have intent). Substance abuse status was defined by meeting either illicit drug use or at-risk drinking criteria. Illicit drug use was identified through any report of current illicit drug use in the TLFB or from a positive drug-urine analysis. At-risk drinking status was identified as consuming more than 60 drinks or having more than 4 binges (consuming more than 4 drinks in a drinking day) in the TLFB. A lower threshold for at-risk drinking was used, due to recommendations suggesting a need for a lower cutoff for healthy drinking in HIV-positive adults, to prevent adverse alcohol related events.²³ Rates of behavioral health treatment were estimated from the question, "During the last 90 days, have you seen a therapist that is a psychiatrist, psychologist, counselor, or social worker for drug, psychological, or emotional problems?" Frequencies and χ^2 were used to assess rates of and age differences in MH/SA health conditions and behavioral health treatment. Statistical analyses were conducted only for the more common MH/SA conditions (those with greater than $n = 40$ cases).

RESULTS

Table 1 depicts demographic distribution of the sample. Based on χ^2 analyses, significant demographic differences indicate that our age groups do represent distinctive age spectrums.

TABLE 1. SAMPLE DEMOGRAPHICS

	Total sample (n = 199)	Younger (57%, n = 62)	Older (43%, n = 47)	p values
Age (years)	49.4 (14.0)	39.6 (7.7)	62.2 (9.3)	< 0.001
Gender (% males)	55.0%	45.1%	68.0%	< 0.02
Ethnicity (% white)	32.4%	30.6%	34.7%	n/s
Education (years)	13.0 (3.7)	12.4 (2.7)	13.8 (4.7)	n/s*
Income (nearest thousand)	29K (39K)	31K (43K)	27K (33K)	n/s
Marital status (% single)	56.0%	67.2%	41.3%	< 0.002
Living status (% living alone)	42.0%	29.5%	58.7%	< 0.003
Social support	4.2 (1.0)	4.2 (1.0)	4.1 (1.1)	n/s
Work status (% work full-time)	17.7%	21.3%	13.0%	< 0.001
Insurance (% no insurance)	3.7%	5.0%	2.1%	< 0.02
Duration of HIV	9.8 (6.1)	10.1 (6.2)	9.5 (6.1)	n/s
HIV contact (sexual)	69.8%	67.2%	73.3	n/s

Note. Values represent means (standard deviations) for continuous measures and percentages for categorical measures. Social Support is measured on a scale of 1–5, higher values represent more support. Nonsignificant p values ($p > 0.05$) are denoted as n/s and with a (*) denotes a trend ($p < 0.10$).

There was a higher proportion of males (68%) represented in the older group, and older adults were less likely to be single (41.3% versus 67.2%), work full-time (13.0% versus 21.3%), or be without some health insurance (2.1% versus 5.0%), and were more likely to live alone (58.7% versus 29.5%). There were no significant age-group differences in ethnicity, education, income, social support, duration of HIV, and source of HIV contact.

Table 2 depicts mental health and substance abuse condition rates for the total sample and for each age group. More than half of the sample (73%) met criteria for some mental health/substance abuse condition and 24% were comorbid (having both a mental health and substance abuse condition). There were significantly more cases of any MH/SA condition in the younger group as compared to the older group (80% versus 63%). There were no statistical differences in the distribution of MH/SA comorbidity, depression, or illicit drug use across the age groups. Based on rank comparisons of percentages, the most common conditions across age groups were depression (45%) and illicit drug use (including cannabis; 38%) and the least common conditions were mania (7%) and psychosis (7%). In younger adults the most common condition was depression (50%) and the least common condition was mania (8%). In older adults the most com-

mon condition was depression (38%) and the least common condition was psychosis (4%).

Table 3 depicts behavioral health treatment rates by age group for each mental health/substance abuse condition. Approximately one third of the sample (35%) that met criteria for an MH/SA condition and 44% of the comorbid group received behavioral health treatment in the previous 90 days. Individuals that met the criteria for psychosis (75%) and mania (62%) were most likely to be in behavioral health treatment, followed by suicidal ideation (57%), PTSD (53%), anxiety (45%), depression (44%), and illicit drug use (27%–30%); individuals with at-risk drinking were least likely to be in behavioral health treatment (6%). Younger adults with psychosis were most likely to be in behavioral health treatment (83%), and those with at-risk drinking were least likely to be in behavioral health treatment (9%). Older adults with PTSD were most likely to be in behavioral health treatment (66%), and those with at-risk drinking were least likely to be in behavioral health treatment (0%). Older adults with any MH/SA condition, including depression, illicit drug use, mania, psychosis, suicidal ideation, and at-risk drinking, as well as those in the comorbid group, were generally less likely to be in behavioral health treatment in the last 90 days, as compared to younger adults. Anxiety and PTSD were the only exceptions, with older

TABLE 2. DISTRIBUTION OF MENTAL HEALTH/SUBSTANCE ABUSE CONDITIONS

Age groups	Total sample (n = 109)	Younger (n = 62)	Older (n = 47)	χ^2 p values
Any MHSA condition	73.3% (n = 79)	80.6% (n = 50)	63.8% (n = 29)	<0.03
Comorbid	24.3% (n = 26)	29.0% (n = 18)	17.7% (n = 8)	n/s
Depression	45.7% (n = 48)	50.8% (n = 31)	38.6% (n = 17)	n/s
Illicit drug use	38.5% (n = 42)	45.1% (n = 28)	29.7% (n = 14)	n/s
excluding cannabis	20.1% (n = 22)	24.1% (n = 15)	25.5% (n = 7)	—
Mania	7.5% (n = 8)	8.2% (n = 5)	6.6% (n = 3)	—
Psychosis	7.5% (n = 8)	9.8% (n = 6)	4.4% (n = 2)	—
Anxiety	20.5% (n = 22)	22.5% (n = 14)	17.7% (n = 8)	—
PTSD	12.1% (n = 13)	16.1% (n = 10)	6.6% (n = 3)	—
Suicidal ideation	18.8% (n = 20)	26.2% (n = 16)	8.8% (n = 4)	—
At-risk drinking	13.7% (n = 15)	17.7% (n = 11)	8.5% (n = 4)	—

Note. Only observations with complete data analyzed. Statistical computations were only performed on conditions that contained more than the $n = 40$ cases.

MHSA, Meeting criteria for any mental health/substance condition. Comorbid, Meeting criteria for both a mental health and substance use condition. Nonsignificant p values ($p > 0.05$) are denoted as n/s.

PTSD, posttraumatic stress disorder.

TABLE 3. DISTRIBUTION OF BEHAVIORAL HEALTH CARE ACROSS MENTAL HEALTH/SUBSTANCE ABUSE CONDITIONS (PERCENT IN TREATMENT)

Sample representing each MH/SA condition	Total sample (percent in treatment) ^a	Younger adults (percent in treatment) ^a	Older adults (percent in treatment) ^a	χ^2 p values
Any MH/SA condition (<i>n</i> = 79)	35.0% (<i>n</i> = 27)	40.4% (<i>n</i> = 19)	27.5% (<i>n</i> = 8)	n/s
Comorbid (<i>n</i> = 26)	44.0% (<i>n</i> = 11)	52.9% (<i>n</i> = 9)	25.0% (<i>n</i> = 2)	n/s
Depression (<i>n</i> = 48)	44.6% (<i>n</i> = 21)	46.6% (<i>n</i> = 14)	41.1% (<i>n</i> = 7)	0.01
Illicit drug use (<i>n</i> = 42)	27.5% (<i>n</i> = 11)	34.6% (<i>n</i> = 9)	14.2% (<i>n</i> = 2)	n/s
excluding cannabis (<i>n</i> = 22)	30.0% (<i>n</i> = 6)	30.7% (<i>n</i> = 4)	28.5% (<i>n</i> = 2)	—
Mania (<i>n</i> = 8)	62.5% (<i>n</i> = 5)	80.0% (<i>n</i> = 4)	33.3% (<i>n</i> = 1)	—
Psychosis (<i>n</i> = 8)	75.0% (<i>n</i> = 6)	83.3% (<i>n</i> = 5)	50.0% (<i>n</i> = 1)	—
Anxiety (<i>n</i> = 22)	45.0% (<i>n</i> = 9)	41.6% (<i>n</i> = 5)	50.0% (<i>n</i> = 4)	—
PTSD (<i>n</i> = 13)	53.8% (<i>n</i> = 7)	50.0% (<i>n</i> = 5)	66.6% (<i>n</i> = 2)	—
Suicidal ideation (<i>n</i> = 20)	57.8% (<i>n</i> = 11)	60.0% (<i>n</i> = 9)	50.0% (<i>n</i> = 2)	—
At-risk drinking (<i>n</i> = 15)	6.6% (<i>n</i> = 1)	9.0% (<i>n</i> = 1)	0% (<i>n</i> = 0)	—

Note. Only observations with complete data analyzed. MHSA, Meeting criteria for any mental health/substance condition. Comorbid, Meeting criteria for both a mental health and substance use condition. Nonsignificant *p* values (*p* > 0.05) are denoted as n/s.

^aThe *n* in each cell represents the number of individuals in care.

PTSD, posttraumatic stress disorder.

adults showing better behavioral treatment rates, as compared to younger adults.

DISCUSSION

The findings of this study generally conclude that HIV-positive adults are in need of improved MH/SA health management. Over half of the sample displayed significant MH/SA health symptoms, of which approximately one third were actively participating in behavioral health care. Depression and illicit drug use appeared to be the most prevalent MH/SA syndromes, while mania and psychosis were the least prevalent. However, individuals with mania and psychosis were more likely to be participating in behavioral health treatment, while individuals with substance abuse were less likely. Older-aged adults generally appeared to have poorer rates of behavioral health treatment, as compared to younger adults.

The findings in this study are congruent with previous conclusions concerning poor MH/SA health in the HIV-positive population^{29–34} and the neglect of behavioral health management in HIV care.^{35–37} The current findings elaborate upon the existing literature by examining concurrent MH/SA symptoms and behavioral health treatment rates in HIV-positive individ-

uals across the adult lifespan. The conclusions of this study verify the need to include MH/SA care as part of HIV care, as well as illustrating the increased attention necessary for older HIV patients in order to prevent poor late-life physical and mental health outcomes. Research targeting psychiatric comorbidities in HIV-positive adults has led to some clinical developments in psychiatric diagnostic⁴⁴ and cost-effective mechanisms⁴⁵ to improve care. However, to effectively handle the growing elderly HIV-positive population and prevent poor health outcomes, more developments are necessary. Future research needs to focus on long-term health and behavioral outcomes associated with HIV and MH/SA comorbidity and on the consequences of untreated MH/SA conditions, in addition to expanding these findings into clinical applications. There is also a need for increased development of clinical strategies and effective integration of HIV and MH/SA care.

These study findings imply that MH/SA conditions are likely to be insufficiently managed in HIV-positive patients. MH/SA needs to be addressed within HIV care to prevent poor HIV disease-management,^{19–22} comorbidities, and poor quality of life.^{23–26} HIV is by definition an infectious disease. However, the disease emulates a chronic condition by having

its etiology and prognosis tied to treatment adherence and health behaviors, such that consistent (monthly) post-infection medical attention is needed to maintain a positive quality of life. Most of the chronic care involved in HIV management occurs in infectious disease clinics, which, as a result of the consistent and high intensity of care, appear to serve as proxies for primary care. Because infectious disease clinics serve as the principal care facilities for HIV treatment, these clinics could ideally assume the added responsibility of mental health and substance abuse screenings and assessment^{46,47} to provide a comprehensive spectrum of care. Developing mechanisms for clinical support for MH/SA management would be beneficial, since one of the main reasons for MH/SA mismanagement appears to be the difficulty of treating HIV-positive adults with co-occurring MH/SA conditions.⁴⁸

When considering these results, it is important to take into account that they may be less generalizable to older women, given that they were less represented in our sample. However, the decreased representation of women is similar to the distribution of existing HIV-positive adults. Also, because of the small sample size and some extremely small cell sizes for certain MH/SA conditions, it is important to cautiously interpret statistical *p* values and instead utilize the quantitative data as descriptive information for future investigations in this area of study. In addition, due to the cross-sectional nature of this study, we cannot infer any causal effects. Further, since the presented sample was not entirely randomly selected, prevalence cannot be accurately estimated from these findings. Future research may benefit from a larger scale randomized longitudinal investigation of HIV-positive adults in this area, to further explore the challenges they are faced with as part of aging with HIV.

From this study, we conclude that there is a need to manage MH/SA conditions as part of HIV care, with special attention to depression/substance abuse symptoms and older adults. As a whole, HIV-positive adults with psychosis and mania appear to access behavioral health treatment more frequently, even though these conditions are less prevalent. The HIV-positive adults with conditions such as de-

pression and substance abuse, particularly older adults, require increased behavioral attention. These findings have policy and clinical implications for enhanced MH/SA management as part of HIV care in infectious disease settings, with special attention to the growing HIV-positive elderly population.

ACKNOWLEDGMENTS

Supported, in part, by a grant from Penn Center for AIDS Research (Penn CFAR) Pilot and Feasibility Grant Program, the National Institute of Mental Health P30 MH66270, and T32 MH19931-08A1.

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