Cross-Cultural Differences in Patient Perceptions and Outpatient Management of

Chronic HIV/AIDS-related Pain

by

Christina Anne Jelly

Duke Global Health Institute
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Date: August 5, 2011
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Daniel Westreich

Thesis submitted in partial fulfillment of
the requirements for the degree of Master of Science in the Duke Global Health Institute
in the Graduate School
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ABSTRACT

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Abstract

Chronic pain is a common problem among HIV-infected persons and yet data on the prevalence, character, severity and management of HIV-related pain is lacking. No studies have evaluated cross-cultural differences in perceptions of pain and its impact on the quality of life of HIV-infected patients. The goals of this study were to examine the differences in pain intensity reports and impairment in quality of life determinants attributed to pain among American, Ethiopian and Ghanaian HIV patients. We performed a multi-center cross-sectional study among 20 American, 50 Ethiopian and 51 Ghanaian HIV patients, regardless of stage of HIV disease or presence of highly active antiretroviral therapy (HAART), being managed in outpatient clinics within three tertiary referral health care facilities. Pain intensity and quality of life impairment levels were measured on a 0 to 10 Likert scale. Additionally, we also assessed demographic and socioeconomic variables and clinical characteristics of HIV disease. Clinical characteristics of HIV disease, such as CD4 cell count and presence and length of ARV therapy were not significantly different among the three cohorts. American patients were more likely to report higher levels of pain and more quality of life impairment, despite receiving higher levels of opioid analgesics. This study confirms the role of cultural influence on pain intensity and impact of pain on quality of life among American, Ethiopian and Ghanaian patients. Further research is warranted to better

understand the present findings and future studies should attempt to explore the underling mechanisms that may explain cultural differences in pain reports and implications for clinical care of patients with chronic pain.

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1. Introduction

1.1 Background

Over the past 30 years, the therapeutic management of human immunodeficiency virus (HIV) infection has made significant progress, transforming the natural history of HIV infection from a progressive terminal illness to a manageable chronic disease. We understand more about the virus and the pathophysiology of HIV/AIDS infection than ever before and ongoingl research is making remarkable advancement in the medical management of HIV. Pain is a common symptom among HIV patients; yet despite the therapeutic improvements in antiretroviral medications, pain continues to be a distressing issue for many HIV patients (Marcus, 2000; Keswani, 2002). The etiologies and management of pain symptoms and syndromes in HIV/AIDS infection are complex and not well understood as they may be related to HIV infection, antiretroviral (ARV) medications, or opportunistic infections and may vary depending on the demographic, socioeconomic and clinical characteristics of HIV-infected patients.

Pain in HIV infected individuals has been found to directly impair daily function and perceived quality of life, both before and after the introduction of highly active antiretroviral therapy (Singer, 1993; Lui, 2006). Differences in personal characteristics are known to interact with HIV management and influence pain experience. Earlier studies have examined both predictors of pain in HIV-infected patients and effects on quality of life caused by HIV-related pain (Hays, 2000). Factors identified as having an

association with increased pain burden and impact on quality of life include increased age, female gender, lower socioeconomic and education level, minority status, co-morbid psychological illness and later stage of HIV disease (Hays, 2000; Tsao, 2006; Koeppe, 2010). However, research on race, ethnic and cultural differences in pain intensity and pain-related impairments on quality of life among HIV patients is lacking.

1.2 Rationale

The increasing interest in the relationship between cultural background and the experience of pain has led to preliminary studies of pain attitudes among HIV patients, examining racial and ethnic differences among various groups within the same country. Such studies suggest that perception and reporting of pain intensity may vary among ethnic or cultural groups (Bates, 1993; Tsao, 2007; Vlaar, 2007). Although there is general consensus that pain attitude and beliefs may differ between cultures, empirical evidence for existing differences in pain intensity reports between HIV patients from varying cultures is limited and cross-cultural studies of HIV and pain between different countries are non-existent to our knowledge.

This study was designed to determine the proportion of HIV patients who experience significant pain, assess impact on quality of life and describe pain treatment practices in three different cultural settings. The goals of study were to examine differences in pain intensity scores and impact of pain on quality of life in a cohort of American, Ethiopian and Ghanaian patients with HIV. Secondary aims of the study

were to assess the correlates of pain in patients and to explore the influence of possible confounding variables.

A better understanding of the prevalence, severity, and type of pain could lead to improvements in its diagnosis and management. The identification of psychosocial, HIV, patient, provider and country-related variables affecting pain management and analgesic use may provide guidance to physicians and policy makers on how to effectively alleviate pain in persons living with HIV/AIDS.

1.2 Hypotheses

Studies of socio-economic status and self-reported perceptions of health have shown that individuals of lower socio-economic status (SES) are usually sicker, with more chronic health problems compared to individuals of higher socio-economic status. Those of lower SES also have fewer opportunities for treatment and report lower self-rated health. Theories of the relation of SES to self-reported health should have naturally led us to hypothesize that HIV/AIDS patients in Ethiopia and Ghana would have greater HIV-related pain due to decreased access to medicines and health facilities. Similarly, HIV/AIDS patients in Ethiopia and Ghana would presumably report greater negative impact on their quality of life due to advanced stage of disease.

However, we hypothesized that relative socioeconomic status was not the only factor at play and that cultural differences in pain attitudes and pain coping strategies would influence patient reports of his or her health status. Compared to HIV/AIDS

patients in the United States, we hypothesized that despite equivalent or greater individual HIV disease burden, patients in Ghana and Ethiopia would self-report lower pain intensity scores as well as less impairment of quality of life.

2. Literature Review

2.1 Prevalence of HIV-related Pain

Pain is a common and distressing symptom among HIV/AIDS patients with significant impact on physical, social and psychological well being (Breitbart 1996). Estimates of prevalence of pain among HIV-positive patients in the United States range between 30-50% for neuropathic pain and up to 90% when all pain syndromes are considered, compared to a prevalence of pain symptoms of 16% in the general population. (Crook, 1984; Marcus 2000; Keswani, 2002). Pain in HIV patients tends to be progressive, affecting about a quarter of patients with early disease, more than half of people with AIDS and almost all patients in the few last weeks of life (Breitbert, 1996). Pain symptoms and symptom distress have significant and debilitating effects on individual well-being. The number of symptoms has been shown to be associated with increasing psychological distress and poorer quality of life (Vogl, 1999).

However, pain is under-estimated, under-diagnosed and under-treated by physicians in both HIV-positive and HIV-negative populations (Larue, 1997). The progress of therapeutic interventions in patients infected with HIV has not been mirrored in areas of pain control. The advent of highly active anti-retroviral therapy (HAART) has increased life expectancy and quality of life of HIV-infected individuals. However, progress in the understanding, diagnosis and management of HIV-related pain remains wanting. Pain goes undiagnosed by physicians in over 40% of HIV-

infected patients (Bernard 1999). And even when pain is diagnosed and treated with analgesics, many HIV/AIDS patients experience ongoing pain (Koeppe, 2010).

All studies of pain in HIV-infected patients have surveyed patients from single sites or multiple sites within the same country; no studies have examined the differences in pain prevalence, impact on quality of life and management across multiple countries or continents. Differences in pain experience are known to interact with HIV management and influence patient outcomes. Moreover, inequities in access and availability of pain medicines vary significantly across the globe. Further studies are needed to examine differences in symptom experience and impact on quality of life across several countries, which may direct changes in pain treatment policies to improve quality of life outcomes in HIV/AIDS patients.

2.2 Pathophysiology and Clinical Presentation of HIV-related Pain

Many of the opportunistic infections and HIV-associated neoplasms present as pain. Pain in HIV patients may generally be categorized into three types: those directly related to HIV infection or immunosuppression, those caused by HIV therapies, and those unrelated to HIV or HIV therapies (O'Neill, 1993; Swica, 2002). Pain directly related to HIV infection or AIDS includes HIV neuropathy, HIV myelopathy, Kaposi's sarcoma, secondary infections, organomegaly, arthritis, vasculitis, myopathy or myositis. Pain syndromes associated with HIV/AIDS therapy may be the result of antiretroviral medication, antimycobacterial and *Pneumocystic jiroveci* pneumonia

prophylaxis, chemotherapy, irradiation, surgeries or procedures (bronchoscopies, biopsies, etc). Pain in HIV patients unrelated to viral infection may result from vertebral disc disease, diabetic neuropathy or other chronic pain syndromes. Most HIV patients without pain are at significant risk of experiencing later episodes of pain with the highest number of episodes of disturbing pain occurring in the last six months of life (Kimball, 1996).

Clinical manifestations of HIV-related pain may be divided by organ system. Gastrointestinal complaints are common HIV patients, with many of the opportunistic infections and HIV-associated neoplasms presenting as pain referred to the gastrointestinal (GI) tract. Oropharyngeal candidiasis occurs in up to 75% of HIV-positive individuals and may present as oral cavity pain (Arribas, 2000). Oral ulceration may result in severe and persistent oral or perioral pain due to any number of opportunistic pathogens, including herpes simplex virus (HSV), Epstein-Barr virus (EBV) or mycobacterial infection. Opportunistic pathogens may also cause esophagitis leading to odynophagia (pain upon swallowing). Abdominal pain is also a common and troubling complaint and is often difficult to find an etiology for abdominal pain and then to treat (Parente, 1994). Immunocompromised patients are at higher risk of developing intestinal infections due to Cryptosporidium, Shigella, Salmonella, Campylobacter or Cytomegalovirus (Freedberg, 1998; Brooks, 2009). Neurological manifestations of HIV-related pain include headache and peripheral neuropathy

(Ferrari, 2006). The causes of headache in HIV vary widely and may result from primary HIV infiltration into the central nervous system, HIV encephalitis, atypical aseptic meningitis, opportunistic infections and AIDS-related central nervous system neoplasms. Rheumatological manifestations of HIV-related pain include arthritis, arthropathy, myositis and myopathy (O'Neill, 1993; Reveille, 2006).

2.3 Factors Associated with HIV-related Pain

Multiple studies on the risk factors associated with HIV-related pain have yielded varying results. Women infected with HIV experience greater burden of disease due to HIV/AIDS and also report experiencing pain more frequently than HIV-infected men (Gray, 2007). One study demonstrated that symptom burden was unrelated to age, CD4 count, AIDS diagnosis and presence of antiretroviral therapy (Lee, 2009). However, other studies have demonstrated that increased age and CD4 cell counts are related to increasing severity of self-reported pain (Tsao, 2006). Other factors identified as having an association with increased pain burden and impact on quality of life include lower socioeconomic and education level, minority status, and co-morbid psychological illness (Hays, 2000; Tsao, 2006; Koeppe, 2010).

Although HAART regimens may have a direct and positive impact on HIV illness as evidenced by repletion of CD4 lymphocytes and decrease in HIV viral load, the effect of HAART on pain symptoms and psychological well-being is much less clear (Brechtl, 2001). HAART requires diligent adherence to achieve and sustain viral

suppression, maintain immune health and slow disease progression; episodic non-adherence can lead to viral mutations and drug resistance. Pain has been negatively associated with antiretroviral adherence, which has shown to be partially mediated by adherence self-efficacy (Berg, 2009). However, in resource-limited countries, the widespread use of both generic and non-generic antiretroviral regimens including drugs with known negative side effect profiles may exacerbate pain syndromes despite improvement in HIV viral loads. For example, exposure to stavudine and didanosine was significantly associated with heightened risk for symptomatic sensory neuropathy (Cherry, 2006; Boulle, 2007; Westreich, 2009).

One of the most persistent positive correlates of HIV-associated pain has been a history of substance abuse. Intravenous drug users (IDUs) have consistently reported higher rates of pain compared to non-IDUs (Del Borgo, 2001). The higher prevalence of pain may due to a number of reasons: underdiagnosis of pain secondary to underutilization of health services; undertreatment of pain by physicians for fear of contributing to substance abuse or relapse; or over-reporting of pain by HIV-infected IDUs due to drug seeking behavior. HIV-infected individuals with a history of problematic drug use more often reported on-going patterns of using prescription analgesics, specifically for persistent pain, relative to non-problem abusers (Tsao, 2007). Increased pain in drug-abusing patients may be a result of poorer health status rather

than a direct effect of substance abuse or may be secondary to the reduced effectiveness by habituation of pain relieving effects.

2.4 Diagnosis and Management of HIV-related Pain

The initial step in all pain management requires a comprehensive assessment of pain symptoms including a careful history and physical examination by health professionals with a working knowledge of HIV/AIDS and the etiology and treatment of pain in AIDS. The patient's history of pain symptoms may provide insight into the nature of the underlying process responsible for pain. The characteristics of pain should be assessed including pain location, onset, duration, intensity, frequency, exacerbating and relieving factors, and impact on quality of life. Qualitative descriptions of pain (shooting, stabbing, burning, dull etc) may provide valuable clues to the mechanism of pain - whether somatic, nociceptive, visceral or neuropathic. A detailed medical, neurological and psychosocial history, including a history of substance abuse, may provide valuable insight into the contributing factors to HIV-related pain.

The management of cancer pain has largely guided the management of HIV/AIDS-related pain. Like cancer pain, HIV-related pain is progressive and worst in the last few weeks of life (Breitbart, 1996). Like cancer pain, pain in HIV patients can be divided into three categories: as a result of HIV disease, due to treatment, or unrelated to disease or treatment. The World Health Organization's analgesic ladder has been the foundation for the pharmacological treatment of HIV-related pain. However, as

mentioned previously, the changing natural history of HIV/AIDS from terminal illness to chronic disease has prompted a unique approach to pain management, specific for HIV. Differences between HIV-related pain and cancer pain to be considered when managing HIV pain include higher incidences of polypharmacy, heightened sensitivity to drug side-effects, chemical dependence, psychiatric co-morbidity, AIDS dementia complex, lack of access to expertise in pain clinics, limited evidence for efficacy of analgesics, the importance of disease specific therapy in very advanced stages of disease and the higher incidence of 'difficult-to-manage' pain syndromes (Glare, 2010). Accordingly, management plans must be individualized, with clear goals set and conditions for opioid therapy outlined, if opioids are deemed necessary, and multidimensional approach should be employed with non-pharmacologic interventions in addition to medications (Swica, 2002). Effective management at the beginning may prevent HIV patients seeking untested drug treatments or unproven complementary or alternative medicines (Tsao, 2005).

2.5 Research in HIV-related Pain and Pain Management

Despite widespread research and therapeutic improvements in patients infected with HIV, issues of control of pain and their management remain limited. An accurate and complete assessment of the patient's pain, HIV status, medical, neurological and psychosocial history is an essential prerequisite to effective management. Much work also remains to be done to improve availability and patient access to opioids. HIV/AIDS

patients in resource-poor settings undoubtedly face further health-systems related barriers to obtaining adequate relief of pain. Governments may lack a functioning and effective system of providing pain medications as well as anti-retroviral therapy. Similarly, policies may not be in place on how administer and coordinate palliative care and pain treatment. These factors compounded with the lack of education and training among healthcare workers, lack of healthcare access among patient populations and the prohibitive costs of medical care, treatment and medication lead to the under recognition and under treatment of HIV related pain.

Pain may be a subjective, culturally variant, and multifactorial symptom but it can be effectively managed. Further studies on the prevalence, risk factors, diagnosis and treatment are still needed to guide both practice and policy of effectively managing HIV/AIDS-related pain.

3. Materials and Methods

3.1 Participants and Study Design

This study was designed as a cross-section survey with data gathered from HIV-infected patients from the United States, Ethiopia and Ghana being managed in an outpatient setting. An *a priori* power analysis indicated that 50 patients in each group would be required to achieve 80% power to detect a clinically meaningful difference of 20% in the effect of pain on quality of life between any two groups.

All three groups followed the same participant assessment protocol. During the patients' outpatient visit to the clinic, the study was explained in the patients' own language by a member of the patient's health care team. The study coordinator and a local translator, when appropriate, then approached patients who agreed to participate. Inclusion criteria were individuals who were HIV positive, regardless of stage of disease, above the age of 18 years who had a history of pain symptoms. Patients who had already been diagnosed with diabetic nephropathy, arthritis, sciatica or trauma-induced pain were excluded from the study.

The American patients were recruited between March and May 2012 at the outpatient Infectious Disease clinic of Duke University Medical Center in Durham, North Carolina, USA. The Ethiopian sample was recruited in June 2012 at the outpatient HIV/AIDS clinic at Black Lion (Tikur Anbessa) Hospital of Addis Ababa University School of Medicine in Addis Ababa, Ethiopia. The Ghanaian sample was recruited

between June and July 2012 at the outpatient Fevers Unit of Korle-Bu Teaching Hospital in Accra, Ghana.

In accordance with local regulations, approval from the institutional ethics committees of all institutions involved in the study was obtained. Institutional ethics approval for the American cohort was obtained from Duke University Medical Center. Ethics review in Ethiopia was obtained from Black Lion (Tikur Anbessa) Hospital's institutional review board and in Ghana, approval was obtained from the Ghana Health Service as well as the Chief Executive Officer of Korle-bu Teaching Hospital. Written informed consent (either in the participant's first language in print or with the help of a translator) was obtained before participation in research. Potential subjects who were determined by the study coordinator to be unable to provide legally effective consent were not considered for the study.

3.2 Measures

Participants were requested to fill in a questionnaire, which was composed of a data sheet and the modified brief pain inventory. A local translator assisted patients who were unable to read in filling out the questionnaire. The data sheet included patient demographic information and clinical characteristics of HIV disease. Age, gender, education, marital status and income were included in the baseline demographic data. Income was assessed categorically into low, middle and high-income brackets. The income strata for the three countries were not equivalent, given the diverse

socioeconomic makeup of the three countries. The individual countries income categories were constructed to loosely differentiate those in the low, middle and high income categories within the individual country. Race/ethnicity was not included in the survey; all study participants were of African-American or African descent.

Clinical characteristics of HIV disease were also assessed including length of HIV infection, presence and duration of ARV therapy, most recent viral load test and most recent CD4 cell count. Characteristics of disease, such as CD4 cell count, not obtained directly from patients were drawn from their medical records with their permission.

Pain was assessed using the modified brief pain inventory, previously validated on studies of pain among cancer and HIV/AIDS patients. Participants were considered to have pain if they experienced pain due their disease in the past week. The modified brief pain inventory included items assessing pain severity, use of analgesics, effect of analgesics on pain and effect of pain on quality of life.

The original design of the study included the participation of the subject's health care provider in filling out a survey describing the characteristics of the patient's disease, the provider's assessment of the patient's level of pain and a description of the patient's current analgesic regimen. Providers were meant to fill out the survey after seeing the participant, without knowing the participant's responses to his or her own questionnaire. Care-providing physicians in the study gave written informed consent and filled out a baseline demographic questionnaire. The provider survey was included

in the study to assess for adequacy of pain treatment and to identify undertreatment of pain. However, after the fact the provider survey was excluded from this study for two reasons. First, the number of surveys collected from providers was insufficient from two sites (USA and Ghana) to draw a meaningful comparison. Second, the providers who filled out the surveys for the Ethiopian cohort also often acted as the local translator administering the survey. We believed this knowledge of the patient's answers was likely to influence the provider survey and make us unable to use it to identify undertreatment and adequacy of pain treatment.

3.3 Statistical Analysis

Data analysis was performed using Stata, Version 11 [Stata Corp, College Station, TX]. Demographic differences among participants from Ethiopia, Ghana and the USA were tested with one-way analysis of variance (normally distributed variables) and Pearson chi-square tests (categorical variables).

One-way analyses of variance were used to determine differences in time since HIV diagnosis, CD4 cell counts, length of ARV therapy, pain intensity, adequacy of pain treatment and levels of quality of life impairment among the three cohorts. Differences in pain intensity between subsets of participants (male vs female, employed vs unemployed, presence of ARV vs absence of ARV) were tested using independent sample t tests.

Univariate correlations between pain intensity and effect of pain on quality of life and demographic and clinical variables were analyzed separately for the total study sample and the American, Ethiopian and Ghanaian cohorts using Spearman correlation coefficients.

4. Results

4.1 Patient Demographics

Participant demographics are summarized in Table 1. A total of 121 patients participated in the study with 20 from the United States, 50 from Ethiopia and 51 from Ghana. We were unable to reach 50 patients in the American cohort due to the limited number of patients willing to participate in the study.

Table 1: Demographic Characteristics of American, Ethiopian and Ghanaian Participants

	USA	Ethiopia	Ghana
Gender (n [%])			
Male	14 (70)	14 (28)	5 (9.8)
Female	6 (30)	36 (72)	46 (90.2)
Age, years (n [%])			
18-31 yrs	1 (5)	13 (28)	10 (20)
31-40 yrs	6 (30)	21 (45)	16 (32)
41-50 yrs	7 (35)	9 (19)	14 (28)
51-77 yrs	6 (30)	4 (8)	10 (20)
Marital Status (n [%])			
Married	7 (35)	9 (18)	19 (38)
Unmarried	12 (60)	13 (26)	14 (28)
Divorced	1 (5)	12 (24)	8 (16)
Widowed	0	16 (32)	9 (18)
Education (n[%])			
No formal education	0	10 (20)	14 (28)
Some elementary	0	13 (27)	22 (43)
Some secondary	4 (20)	5 (10)	12 (24)
High school graduate	4 (20)	14 (29)	2 (4)
Post-secondary education	12 (60)	6 (8)	1 (2)
Work status (n[%])			
Employed	4 (20)	10 (20)	34(67)
Unemployed	13 (65)	24 (48)	11 (22)
Other	3 (15)	16 (32)	6 (11)

The sample consisted of 33 (27%) males and 88 (73%) females. The American cohort was predominantly male whereas the African cohorts were predominantly female. Participants ranged from age 24 to 77 with a plurality of patients in the 31-40 year age group (37%).

Over half of the participants in Ethiopia and Ghana never went beyond primary education whereas all American participants completed at least some secondary education. Of the 121 patients, 40% were employed and 40% were unemployed. The remaining 20% either worked from home or had retired. 67% of participants in Ghana were employed while 20% of participants in both the American and Ethiopian were employed.

4.2 HIV Status and ARV Therapy

Clinical characteristics of the American, Ethiopian and Ghanaian patients are outlined in Table 2. Using one-way analysis of variance to compare the three groups, patients did not differ significantly between settings with respect to time since HIV

Table 2: Clinical Characteristics of American, Ethiopian and Ghanaian Patients

	USA	Ethiopia	Ghana
Time since HIV Diagnosis, yrs	3.21 (6.83)	4.79 (2.81)	3.66 (3.28)
CD4 cell count (cell/uL)	403 (230)	320 (175)	414 (230)
Presence of ARV Therapy, N*	15	45	41
Length of ARV Therapy, yrs	2.7 (7.7)	3.7 (2.1)	2.5 (2.2)

Note: Values are mean (standard deviation) unless otherwise noted.
***Number of individuals on ARV Therapy.**

diagnosis (P= 0.203), CD4 cell count (P= 0.0730), presence of ARV therapy (P = 0.252) and length of ARV therapy (P = 0.539).

4.3 Pain Severity

The three populations differed with respect to average pain intensity over the preceding week. Out of a 0 to 10 numerical scale with 0 being no pain and 10 being pain as bad as one can imagine, American patients reported experienced greater pain than Ethiopian and Ghanaian patients, as described by Figure 1.

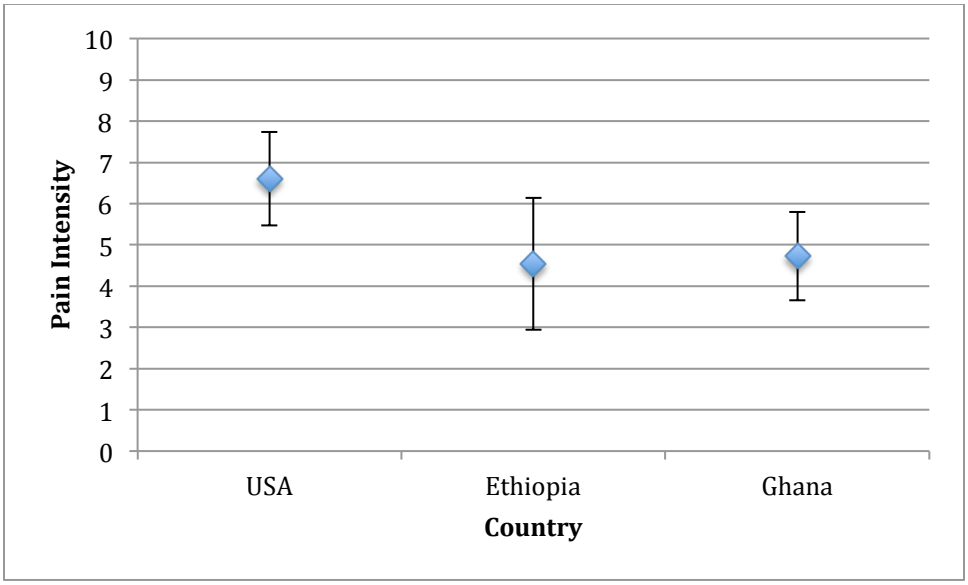

Figure 1: Modified Brief Pain Inventory Average Pain Score over the Preceding Week for American, Ethiopian and Ghanaian Participants

American patients reported an average pain value of 6.6 out of 10; Ethiopian and Ghanaian patients reported lower average pain intensity values of 4.54 and 4.73, respectively. An independent t test between the pain intensity levels of the Ethiopian

and Ghanaian cohorts was not statistically significant (P=0.733). Independent t tests between average pain intensity and a selected group of demographic and clinical variables, including gender, employment status and presence of ARV therapy, were not statistically significant.

4.4 Impact of Pain on Quality of Life

The brief pain inventory looked at the perceived effect of pain on the quality of life of these patients. The assessment of quality of life was divided into a number of questions asking patients to document the impact of pain on their ability to perform daily, moderate or vigorous activities and their ability to bathe and dress, sleep, and enjoy life (Appendix A). Participants from all three cohorts reported significant impairment of pain on their quality of life. There was no significant difference among the three countries of the impact of pain on vigorous activities, sleep and overall enjoyment of life using one-way analysis of variance. African patients reported much lower levels of pain affecting daily activities such as bathing and dressing compared to American patients. Out of a 0 to 10 scale with 0 being no interference on daily activities of life caused by pain to 10 being complete interference, the mean reported level of interference caused by pain in American patients was 4.15. Ethiopians reported a score of 0.816 and Ghanaian patients reported an average score of 0.823. Using independent t test between country of residence and impact of pain on daily activities, there was no

statistically significant difference between Ethiopian and Ghanaian participants with respect to impact of pain on daily activities (P=0.9868).

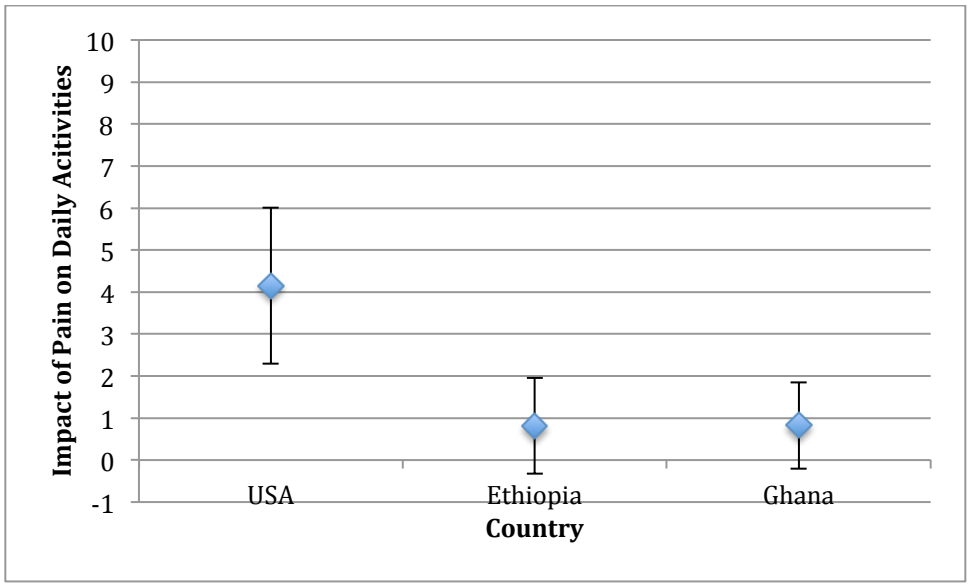

Figure 2: Impact of Pain on Activities of Daily Living Among American, Ethiopian and Ghanaian Patients

American and African patients also differed with respect to the impact of pain on overall mood. American patients reported a mean level of interference of pain on mood of 6.07; Ethiopian patients reported a mean level of 2.3 and Ghanaian patients, a mean level of 2.8. An independent t test between country of origin and impact of pain on overall mood was not statistically significant between Ethiopian and Ghanaian patients (P=0.3856).

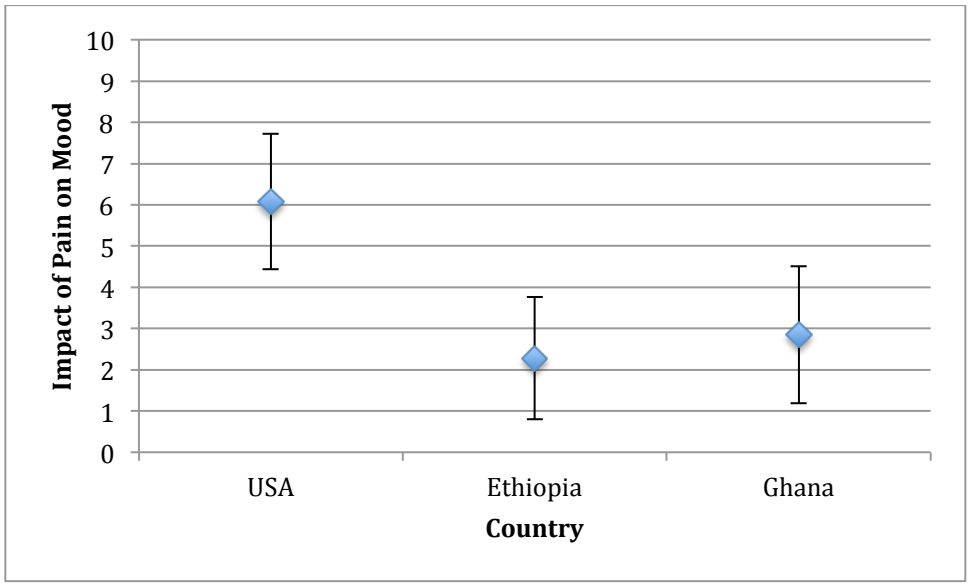

Figure 3: Impact of Pain on Mood Among American, Ethiopian and Ghanaian Patients

Table 3 shows the univariate correlations between demographic and clinical variables and pain intensity in the total sample and within the individual country cohorts.

Table 3: Spearman Correlations between Pain Intensity and Demographic and Clinical Variables

	Total		**USA**		**Ethiopia**		**Ghana**	
	N = 121		N = 20		N = 50		N = 51	
	R	P	R	P	R	P	R	P
Age	0.20	0.04	0.17	0.53	0.05	0.75	-0.16	0.23
Education	-0.08	0.38	0.01	0.97	-0.18	0.23	-0.09	0.57
Income	-0.11	0.25	0.42	0.14	-0.20	0.17	-0.24	0.14
TimeDiag*	-0.28	**0.00**	-0.48	0.08	-0.16	0.28	-0.24	0.11
CD4	-0.05	0.63	-0.35	0.24	-0.14	0.34	-0.01	0.97

*Time since HIV diagnosis; R = Spearman's Rho

In the total sample, pain intensity was associated with the time since HIV diagnosis but an association was not observed within multiple comparisons. However, this result was likely due to pure chance as the significance level of 0.05 will yield a result due to pure chance for one in every 20 observations.

Table 4 shows univariate correlates between demographic and clinical variables and the level of interference of pain on the activities of daily life in the total sample and the individual country cohorts. The only statistically significant observation was that American patients who had greater income were more likely to report greater interference of pain on daily activities. This relationship did not hold for the total sample or within the Ethiopian and Ghanaian samples. However, this may also be due to pure chance for the same reason as the result in Figure 3 given the 20 observations shown.

Table 4: Spearman Correlations between Impact of Pain on Daily Activities and Demographic and Clinical Variables

	Total		**USA**		**Ethiopia**		**Ghana**	
	N = 121		N = 20		N = 50		N = 51	
	R	P	R	P	R	P	R	P
Age	0.05	0.59	0.47	0.10	0.02	0.90	0.20	0.16
Education	0.12	0.21	0.02	0.94	-0.08	0.60	-0.04	0.77
Income	-0.18	0.07	0.67	**0.02**	-0.27	0.06	-0.16	0.29
TimeDiag	-0.09	0.33	-0.20	0.52	0.10	0.50	-0.08	0.56
CD4	0.02	0.84	-0.03	0.92	0.19	0.22	-0.95	0.74

* Time since HIV diagnosis

4.5 Analgesics and Pain Relief

Patients were also asked to report use of prescription and non-prescription analgesic medications, which is summarized in Table 5.

Table 5: Prescription and Non-prescription Analgesic Use Among American, Ethiopian and Ghanaian Patients

	USA	Ethiopia	Ghana
Analgesic (N[%])			
None	1 (7)	2 (4)	4(9)
Non-opioid analgesic	4 (29)	41 (87)	42 (91)
Weak Opioid	9 (64)	4 (9)	0

American patients received significantly more opioid analgesics than both Ethiopian and Ghanaian patients . However, despite receiving stronger pain medications, American HIV patients were less likely to report receiving adequate levels of relief from analgesics. As demonstrated in Figure 4, Ghanaian patients were more likely to report receiving higher levels of relief from pain medications compared to American and Ethiopian participants as demonstrated in Figure 4. Individual t tests between the USA and Ethiopia revealed there was not a statistically significant difference in reported percentages of pain relief achieved from analgesic medications.

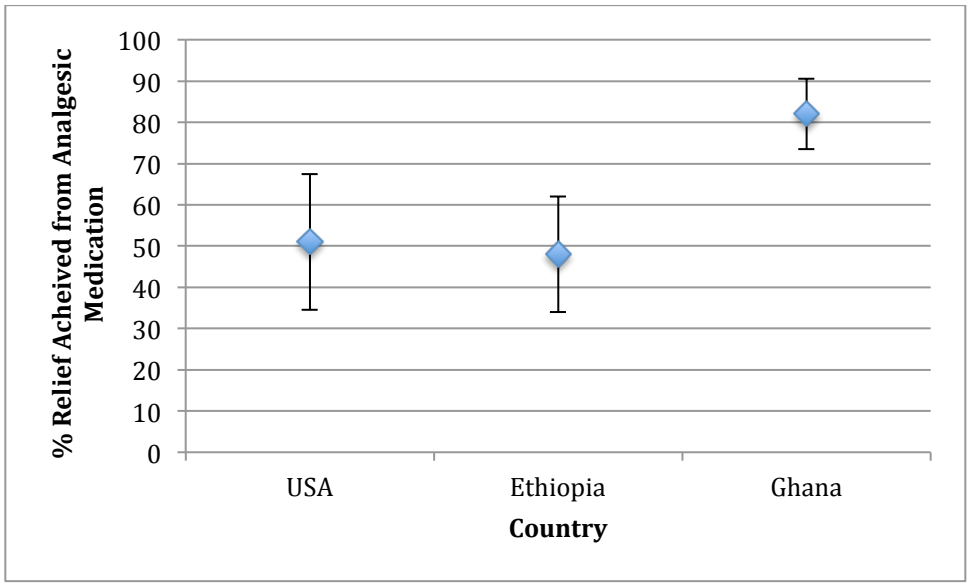

Figure 4: Percentage of Pain Relief Achieved from Analgesic Medications among American, Ethiopian and Ghanaian Patients

5. Discussion

The results of this study further validate previous research that pain in HIV patients has significant negative impact on quality of life determinants such as ability to perform the activities of daily living, work, walking, mood, sleep and overall enjoyment of life. HIV-infected patients reported significant levels of pain and impairment on quality of life despite medical and pharmacological therapeutic intervention. Assessment of pain and adequate management is an unmet need of HIV patients both in the U.S. and in the relatively resource-poor settings of Ethiopia and Ghana. Moreover, HIV patients surveyed in this study were from tertiary referral hospitals; HIV-infected patients without access to such institutions may have even more significant undertreatment of their pain. The effect of pain on quality of life and ability to perform daily activities reduces productivity of HIV-infected individuals, which may potentially exacerbate preexisting pain symptoms, and effect of pain on quality of life measurements.

The findings of this study demonstrate differences in reported pain among HIV/AIDS patients in USA, Ethiopia and Ghana, after controlling for various demographic, socioeconomic and clinical variables; American patients with HIV reported a greater severity of pain than African HIV patients. American patients were also more likely to be prescribed opioid analgesics for their pain whereas African patients were more likely to be prescribed non-opioid analgesics such as paracetamol

(acetaminophen) and non-steroidal anti-inflammatory drugs (NSAIDs). Despite American HIV patients having access to stronger analgesic medications, they were more likely to report lower levels of pain relief achieved from such pain medications.

The findings of differing pain levels across various cultural settings are consistent with previous investigations reporting ethnic differences in reported severity of pain in HIV patients (Silverberg, 2009). Furthermore, these results parallel earlier cross-cultural pain studies between both healthy cohorts and cohorts consisting of patients with diseases other than HIV/AIDS (Burnett, 2009; Vlaar, 2007). Cultural differences in reported pain between cohorts may be mediated by a variety of biological, physical, social, psychological and medical mechanisms. In this study, we concentrated on differences in demographic variables, clinical characteristics of HIV disease, pain intensity reports, analgesic use and the impact of pain on a number of quality of life determinants. Despite controlling for these variables, country of origin was a statistically significant determinant of pain.

A number of possible explanations may explain these results. First, cultural differences in self-reported pain levels may be a consequence of cultural differences in one or more other variables such as demographic, socioeconomic and clinical variables. However, other potentially important factors could have contributed to the observed differences among American, Ethiopian and Ghanaian patients. Psychosocial variables such as history of depression, anxiety, other mood disorders or substance abuse

disorders may explain the observed difference between cultures. Coping mechanisms and social support are other important variables that may have influenced the present results. Other unmeasured variables that may have affected our current results include genetic or biological differences across cultures, comorbid medical conditions and family history of pain disorders.

Another principle concern in all cross-cultural research especially when working with self-reports of pain are semantic differences in pain descriptions across cultures. Pain is subjective and no medical or chemical tests can be employed to measure levels of pain in individuals. Descriptions of pain are grounded in language whether measured orally or verbally. We attempted to mitigate the potential influences of semantic differences by employing a non-verbal, graphical method of pain assessment (Appendix A).

This study also demonstrated that although disease severity as measured by CD4 cell count was similar in the American, Ethiopian and Ghanaian patients, the impact of pain on quality of life determinants were significantly worse in the American cohort. This could suggest that HIV disease and pain are undertreated in the American cohort. However, American patients received high level of opioid analgesics for pain reduction. And despite receiving stronger medications, American patients were more likely to report lower levels of pain relief achieved from their prescribed medications.

5.1 Limitations

The present study includes a number of methodological limitations that may limit the generalizability of the results. First, we only looked for the presence and duration of ARV therapy, rather than looking at the specific ARV drugs the patient was prescribed. Further studies should include prescribed medications to possibly correlate pain symptoms with ARV treatment regimens. Second, we did not specify differing cultural and ethnic subgroups but rather used country of residence as a proxy for differing cultural groups. Third, the results are based on a relatively small and selective sample size with the American cohort of patients underpowered for our study based on our a priori power calculation. Fourth, there were country specific differences in the administration of the questionnaires as the majority of Ethiopian and Ghanaian patients required a translator to assist in completing the questionnaire and may have introduced bias.

6. Conclusion

This study confirms the role of cultural influence on pain intensity and impact of pain on quality of life among American, Ethiopian and Ghanaian patients. The present results suggest that American patients are more likely to report higher levels of pain and disability due to pain despite receiving high level of analgesics and having similar levels of disease in comparison to Ethiopian and Ghanaian HIV patients. Further research is warranted to better understand the present findings and future studies should attempt to explore the underlying mechanisms that may explain cultural differences in pain reports.

Appendix A: Modified Brief Symptom Inventory for Patients

MODIFIED BRIEF SYMPTOM INVENTORY for PATIENTS

Version 1-5-2011

Date:

Patient ID:

Site ID:

The purpose of this study is to help us better understand the health and quality of life concerns in HIV/AIDS patients who are experiencing pain. Please answer all the questions that apply to you.

1.) Gender: ☐ Male ☐ Female

2.) Year of Birth: _____

3.) Marital Status (at present)

☐ Single ☐ Married or Steady Relationship

☐ Widowed ☐ Separated/Divorced

4.) Education (Circle only the highest grade or degree completed)

☐ No formal education ☐ College

☐ Some elementary education ☐ Some graduate school

☐ Some high school ☐ Master's Degree

☐ High School ☐ Doctoral Degree

☐ Some college

5.) Which of the following best describes your current job status?

☐ Employed outside the home, FT ☐ Employed outside the home, PT

☐ Work from home ☐ Homemaker

☐ Retired ☐ Odd jobs (outside the home)

☐ Unemployed ☐ Other (please specify):

_____

6.) Current Occupation

_____

7.) Spouse's Occupation (if applicable)

_____

8.) Income During the last 12 months, what was your total household income from all sources? (Select one)

☐ $20,000 or less ☐ $20,000-$60,000 ☐ Over $60,000

9.) How long has it been since you first learned you were HIV-infected?

_____ years and _____ months

9a.) Have you ever taken HIV drug therapy to treat HIV infection?

☐ Yes ☐ No ☐ Uncertain

9b.) Are you **currently** taking drug therapy to treat HIV-infection?

☐ Yes ☐ No ☐ Uncertain

9c.) How long in **total** have you been getting HIV drug therapy?

_____ years and _____ months

9d.) What was your most **recent** viral load test?

_____ copies/ml ☐ Uncertain

9e.) What was your **most recent** CD4 T-cell count?

_____ cells/mm3 ☐ Uncertain

10.) Have you ever had pain related to your HIV disease?

☐ Yes ☐ No ☐ Uncertain

11.) When you first received your HIV diagnosis, was pain one of your symptoms?

☐ Yes ☐ No ☐ Uncertain

12.) Throughout our lives, most of us have had pain from time to time (such as minor headaches, sprains, toothaches). Have you had pain <u>other</u> than these everyday kinds of pain during the <u>past week</u>?

☐ Yes ☐ No ☐ Uncertain

12a.) Did you take pain medications in the last 7 days?

☐ Yes ☐ No ☐ Uncertain

12b.) I feel I have some form of pain now that requires medication every day.

☐ Yes ☐ No ☐ Uncertain

IF YOUR ANSWERS TO 12, 12a AND 12b WERE ALL NO, PLEASE STOP HERE.

IF ANY OF YOUR ANSWERS TO 12, 12a AND 12b WERE YES, PLEASE CONTINUE.

Please rate your pain by circling the one number that best describes:

13.) your worst pain in the past week.

0 1 2 3 4 5 6 7 8 9 10

No Pain Most Severe Pain

14.) your least pain in the past week.

0 1 2 3 4 5 6 7 8 9 10

No Pain Most Severe Pain

15.) your average pain in the past week.

0 1 2 3 4 5 6 7 8 9 10

No Pain Most Severe Pain

16.) how much pain you have right now.

0 1 2 3 4 5 6 7 8 9 10

No Pain Most Severe Pain

17.) What makes your pain feel better?

_____

18.) What makes your pain worse?

_____

19.) What treatments or medications are you receiving for pain that are prescribed by your doctor?

_____

_____

20.) What other medications do you take for pain that are not prescribed by your doctor?

_____

_____

21.) Other methods I use to relieve my pain include: (Please check all that apply)

- ☐ Warm compresses ☐ Cold compresses
- ☐ Relaxation ☐ Distraction
- ☐ Traditional Medicine ☐ Hypnosis
- ☐ Other (please specify) _____

22.) In the last week, how much relief have pain treatments or medications provided? (Please circle the percentage that shows how much relief you have received.)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

No Relief Complete Relief

23.) If you take pain medication, how many hours does it take before the pain returns?

☐	Pain Medication doesn't help	☐	Four hours
☐	One hour	☐	Five to twelve hours
☐	Two hours	☐	More than twelve hours
☐	Three hours	☐	I do not take pain medication
☐	I take pain medications regularly to keep the pain away		

Check the appropriate answer for each item.

24.) I believe my pain is due to:

☐ Yes ☐ No a.) The effects of treatment

☐ Yes ☐ No b.) HIV disease

☐ Yes ☐ No c.) A medical condition unrelated to HIV/AIDS.

Please describe condition: _____

25.) I prefer to take my pain medicine:

☐ On a regular basis

☐ Only when necessary

☐ I do not take pain medicine

26.) I take my pain medicine (in a 24-hour period):

☐	I do not take pain medicine	☐	3-4 times per day
☐	Not every day	☐	5-6 times per day
☐	1-2 times per day	☐	More than 6 times per day

Circle the one number that describes how, during the past week, pain has interfered with:

27.) Vigorous Activities (such as running, lifting heavy objects, playing sports)

0 1 2 3 4 5 6 7 8 9 10

Does not interfere Completely Interferes

28.) Moderate Activities (such as moving a table, shopping at the market).

0 1 2 3 4 5 6 7 8 9 10

Does not interfere Completely Interferes

29.) Walking Ability

0 1 2 3 4 5 6 7 8 9 10

Does not interfere Completely Interferes

30.) Normal Work (includes both work outside the home and housework)

0 1 2 3 4 5 6 7 8 9 10

Does not interfere Completely Interferes

31.) Bathing or dressing yourself

0 1 2 3 4 5 6 7 8 9 10

Does not interfere Completely Interferes

32.) Mood

0 1 2 3 4 5 6 7 8 9 10

Does not interfere Completely Interferes

33.) Sleep

0 1 2 3 4 5 6 7 8 9 10

Does not interfere Completely Interferes

34.) Enjoyment of life

0 1 2 3 4 5 6 7 8 9 10

Does not interfere Completely Interferes

35.) Do you feel you need a stronger type of pain medication?

☐ Yes ☐ No ☐ Uncertain

36.) Do you feel you need to take more of the pain medication than your doctor has prescribed?

☐ Yes ☐ No ☐ Uncertain

37.) Are you concerned that you use too much pain medication?

☐ Yes ☐ No ☐ Uncertain

If yes, why? _____

38.) Are you having problems with side effects from your medication?

☐ Yes ☐ No ☐ Uncertain

Which side effects?

_____

39.) Do you want more information about your pain medication?

☐ Yes ☐ No ☐ Uncertain

What kind of information?

_____

_____

END OF SURVEY

Thank you for your participation.

We appreciate your helping us today, as well as your important contribution to HIV/AIDS research.

Appendix B: Consent Form for Duke University Health System

Consent to Participate in a Research Study ***Cultural Differences in Patient Perceptions and Outpatient Management of Chronic HIV/AIDS-related pain***

You are being asked to take part in this research study because you are HIV-positive and have low CD4 count. Research studies include only people who choose to take part. Please read this consent form carefully and take your time making your decision. As a member of the study staff discusses this consent form with you, please ask him/her to explain any words or information that you do not clearly understand. We encourage you to talk with your family and friends before you decide to take part in this research study. The nature of the study, risks, inconveniences, discomforts, and other important information about the study are listed below.

Please tell the study staff if you are taking part in another research study.

The person in charge of this study is Dr. Ross McKinney at Duke University Medical Center (DUMC), part of the Duke University Health System (DUHS). The study is being done by Christina Jelly.

Why is this study being done?

The purpose of this study is to better understand cultural factors that affect the diagnosis and treatment of pain in HIV-infected people.

How many people will take part in this study?

Approximately 150 people will take part in this study at three different hospitals and medical facilities in 3 different countries, and approximately 50 people will take part at Duke.

What is involved in this study?

If you agree to be in this study, you will be asked to sign and date this consent form. Then you will be asked to fill out a survey questionnaire, which should take about 20 minutes. This can be done at the same visit or at your next visit. Your physician will also fill out a brief survey regarding your HIV status and pain management.

How long will I be in this study?

Your participation will end as soon as you and your physician have completed the surveys. You can choose to stop participating at any time without penalty or loss of any benefits to which you are entitled. However, if you decide to stop participating in the study, we encourage you to talk to your physician or a member of the study team first.

What are the risks of the study?

There are no physical risks related to participation. The greatest risk is possible loss of confidentiality. However, all study records will be kept confidential and secured according to law.

Are there benefits to taking part in the study?

There is no direct benefit to you from this study. We hope that in the future the information learned from this study will benefit other people with HIV –related pain.

What alternatives are there to participation in this study?

Participation is voluntary. You do not have to participate in this study to receive care for HIV or for pain.

Will my information be kept confidential?

Study records that identify you will be kept confidential as required by law. Federal Privacy Regulations provide safeguards for privacy, security, and authorized access. Except when required by law, you will not be identified by name, social security number, address, telephone number, or any other direct personal identifier in study records. You will be assigned a unique code number that will be used on all study records. The key to the code will be kept in a locked file in the study research office.

Your records may be reviewed in order to meet federal, state, and institutional regulations. Reviewers may include representatives of DUHS and of the Duke University Health System Institutional Review Board. If any of these groups review your research record, they may also need to review your entire medical record.

The study results will be retained in your research record for at least six years after the end of the study. Any research information in your medical record will be kept indefinitely. If this information is disclosed to outside reviewers for audit purposes, it may be further disclosed by them and may not be covered by the federal privacy regulations.

While the information and data resulting from this study may be presented at scientific meetings or published in a scientific journal, your identity will not be revealed.

What are the costs?

There are no costs associated with your participation in this study. You or your insurance provider will continue to be responsible for all costs related to your medical care.

What about research related injuries?

Immediate necessary medical care is available at Duke University Medical Center in the event that you are injured as a result of your participation in this research study. However, there is no commitment by Duke University, Duke University Health System, Inc., or your Duke physicians to provide monetary compensation or free medical care to you in the event of a study-related injury.

For questions about the study or research-related injury, contact Christina Jelly, at (919)-932-0033, during regular business hours, after hours and on weekends and holidays or Dr. Ross McKinney, at (919)-668-9000, during regular business hours.

What about my rights to decline participation or withdraw from the study?

You may choose not to be in the study, or, if you agree to be in the study, you may withdraw from the study at any time. If you withdraw from the study, no new data about you will be collected for study purposes other than data needed to keep track of your withdrawal.

Your decision not to participate or to withdraw from the study will not involve any penalty or loss of benefits to which you are entitled, and will not affect your access to health care at Duke. If you do decide to withdraw, we ask that you contact Christina Jelly in writing and let her know that you are withdrawing from the study. Her mailing address is: Christina Jelly, c/o Dr. Ross McKinney,

DUMC 3461, Durham, North Carolina, 27710.

Whom do I call if I have questions or problems?

For questions about the study or a research-related injury, or if you have complaints, concerns or suggestions about the research, contact Dr. Ross McKinney at mckin002@mc.duke.edu or 919-668-9000 during regular business hours or 919-684-6335 after hours, on weekends and holidays.

For questions about your rights as a research participant, or to discuss problems, concerns or suggestions related to the research, or to obtain information or offer input about the research, contact the Duke University Health System Institutional Review Board (IRB) Office at (919) 668-5111.

Statement of Consent

"The purpose of this study, procedures to be followed, risks and benefits have been explained to me. I have been allowed to ask questions, and my questions have been answered to my satisfaction. I have been told whom to contact if I have questions, to discuss problems, concerns, or suggestions related to the research, or to obtain information or offer input about the research. I have read

this consent form and agree to be in this study, with the understanding that I may withdraw at any time. I have been told that I will be given a signed and dated copy of this consent form."

_____	_____
Signature of Subject	Date
_____	_____
Signature of Person Obtaining Consent	Date

Appendix C: Consent Form for Black Lion Hospital

Consent to Participate in a Research Study ***Cultural Differences in Patient Perceptions and Outpatient Management of Chronic HIV/AIDS-related pain***

You are being asked to take part in this research study because you are HIV-positive. Research studies include only people who choose to take part. Please read this consent form carefully and take your time making your decision. As a member of the study staff discusses this consent form with you, please ask him/her to explain any words or information that you do not clearly understand. The nature of the study, risks, inconveniences, discomforts, and other important information about the study are listed below.

The person in charge of this study is Dr. Ross McKinney at Duke University Medical Center (DUMC), part of the Duke University Health System (DUHS). The study is being coordinated by Christina Jelly (henceforth study coordinator).

Why is this study being done?

The purpose of this study is to better understand cultural factors that affect the diagnosis and treatment of pain in HIV-infected people.

How many people will take part in this study?

50 HIV patients from Black Lion Hospital

What is involved in the study?

If you agree to be in this study, you will be asked to sign and date this consent form. Then you will be asked to fill out a survey questionnaire, which should take about 20 minutes.

Will my information be kept confidential?

Study records that identify you will be kept confidential as required by law.

Whom do I call if I have questions or problems?

For questions about the study or a research-related injury, or if you have complaints, concerns or suggestions about the research, contact the study coordinator, Christina Jelly at caj14@duke.edu or 0923022556.

STATEMENT OF CONSENT

"The purpose of this study, procedures to be followed, risks and benefits have been explained to me. I have been allowed to ask questions, and my questions have been answered to my satisfaction. I have been told whom to contact if I have questions, to discuss problems, concerns, or suggestions related to the research, or to obtain information or offer input about the research. I have read this consent form and agree to be in this study, with the understanding that I may withdraw at any time. I

_____ _____

Signature of Subject Date

_____ _____

Signature of Person Obtaining Consent Date

Appendix D: Consent Form for Ghana Health Service

Consent to Participate in a Research Study ***Cultural Differences in Patient Perceptions and Outpatient Management of Chronic HIV/AIDS-related pain***

You are being asked to take part in this research study because you are HIV-positive. Research studies include only people who choose to take part. Please read this consent form carefully and take your time making your decision. As a member of the study staff discusses this consent form with you, please ask him/her to explain any words or information that you do not clearly understand. The nature of the study, risks, inconveniences, discomforts, and other important information about the study are listed below.

The person in charge of this study is Dr. Ross McKinney at Duke University Medical Center (DUMC), part of the Duke University Health System (DUHS). The study is being coordinated by Christina Jelly (henceforth study coordinator).

Why is this study being done?

The purpose of this study is to better understand cultural factors that affect the diagnosis and treatment of pain in HIV-infected people.

How many people will take part in this study?

50 HIV patients from Korle-Bu Teaching Hospital

What is involved in the study?

If you agree to be in this study, you will be asked to sign and date this consent form. Then you will be asked to fill out a survey questionnaire, which should take about 20 minutes.

Will my information be kept confidential?

Study records that identify you will be kept confidential as required by law.

Whom do I call if I have questions or problems?

For questions about the study or a research-related injury, or if you have complaints, concerns or suggestions about the research, contact the study coordinator, Christina Jelly at caj14@duke.edu or 0242305878.

STATEMENT OF CONSENT

"The purpose of this study, procedures to be followed, risks and benefits have been explained to me. I have been allowed to ask questions, and my questions have been answered to my satisfaction. I have been told whom to contact if I have questions, to discuss problems, concerns, or suggestions related to the research, or to obtain information or offer input about the research. I have read this consent form and agree to be in this study, with the understanding that I may withdraw at any time. I

_____ _____

Signature of Subject Date

_____ _____

Signature of Person Obtaining Consent Date

Appendix E: Baseline Questionnaire for Providers

Cultural Differences in Patient Perceptions and Outpatient Management of Chronic HIV/AIDS-related pain

Baseline Questionnaire for PROVIDERS

Date:

Patient ID:

Site ID:

The purpose of this study is to help us better understand the health and quality of life concerns in HIV/AIDS patients with pain. The information we gather will help us learn how you, as a health care professional, currently counsel patients about HIV and how assess, diagnose and treat HIV patients with chronic pain. Because a broad range of clinical and social support providers are participating, some questions in this interview may not apply to you; however we ask the same questions of all participants. We appreciate your helping us today, as well as your important contribution to HIV/AIDS research.

Demographics

1.) Sex: ☐ Male ☐ Female

2.) Date of Birth: _____

3.) What is your profession/occupation?

☐ Physician ☐ Nurse Practitioner

☐ Nurse ☐ Clinical Pharmacist

☐ Other _____

4.) Do you provide primary medical care? ☐ Yes ☐ No

5.) If you are a primary medical care provider, do you consider yourself to be an HIV specialist? ☐ Yes ☐ No

6.) About how long have you been providing care or services to people living with HIV?

☐ Less than 1 year ☐ 1 – 2 years

☐ 3-5 years ☐ 5 – 10 years

☐ More than 10 years

7.) About how many patients with HIV did you personally see at this clinic during the past 5 working days?

☐ Less than 10 ☐ 10 – 20

☐ More than 20

8.) Do you commonly treat or refer patients with HIV-related pain?

☐ Yes ☐ No

9.) In your assessment, what percentage of patients with HIV/AIDS have chronic pain symptoms?

☐ Less than 10% ☐ 11 - 20%

☐ 21 – 50% ☐ 50 – 75%

☐ More than 75%

Appendix F: Patient Performance Status Survey for Providers

1) Patient's latest CD4 Count

☐ >350 ☐ 200-349

☐ 50-199 ☐ <50

2) **Did this patient seek care because of pain?** ☐ Yes ☐ No

3) What is the most likely source of this patient's pain?

☐ Primary disease (HIV/AIDS)

☐ The effects of treatment (for example, medication, surgery)

☐ A medical condition unrelated to HIV/AIDS

Please describe condition: _____

4) **Please rate the <u>average</u> severity of pain this patient most likely experienced during the past week**.

0 1 2 3 4 5 6 7 8 9 10

No Pain Worst pain imaginable

5) Please circle below the extent to which the patient's pain has affected their performance in the activities of daily living:

	100	Normal; no complaints; no evidence of disease
	90	Able to carry on normal activity; minor signs or symptoms of disease
	80	Normal activity with effort; some sign or symptoms of disease
	70	Cares for self; unable to carry on normal activity or do active work
	60	Requires occasional assistance, but is able to care for most personal needs

	50	Requires considerable assistance and frequent medical care
	40	Disabled; requires special care and assistance
	30	Severely disabled; hospitalization is indicated, although death not imminent
	20	Very sick; hospitalization necessary; active support treatment is necessary

6) **How is the patient's pain currently being managed?**

Dosage (if applicable)

- ☐ No analgesic treatment
- ☐ Non-opioid analgesic _____
- ☐ Weak opioid _____
- ☐ Morphine _____

Appendix G: Physician Consent Form

You are being asked to take part in this research study because you are a health care provider for HIV-positive patients. Research studies include only people who choose to take part. Please read this consent form carefully and take your time making your decision. As a member of the study staff discusses this consent form with you, please ask him/her to explain any words or information that you do not clearly understand. The nature of the study, risks, inconveniences, discomforts, and other important information about the study are listed below.

Please tell the study staff if you are taking part in another research study.

The person in charge of this study is Dr. Ross McKinney at Duke University Medical Center (DUMC), part of the Duke University Health System (DUHS). The study is being done by Christina Jelly.

Why is this study being done?

The purpose of this study is to better understand cultural factors that affect the diagnosis and treatment of pain in HIV-infected people.

How many people will take part in this study?

Approximately 150 patients and their health care providers will take part in this study at three different hospitals and medical facilities in 3 different countries, and approximately 50 people will take part at Duke.

What is involved in the study?

If you agree to be in this study, you will be asked to sign and date this consent form. Then you will be asked to fill out a baseline questionnaire for providers which should take no more than 5 minutes. Following enrollment of HIV-positive patients you care for into this study, you will be asked to fill out a single-page, 5 question survey on each patient.

How long will I be in this study?

Your participation will end as soon as you and your patient have completed the surveys. You can choose to stop participating at any time without penalty or loss of any benefits to which you are entitled. However, if you decide to stop participating in the study, we encourage you to talk to a member of the study team first.

What are the risks of the study?

There are no physical risks related to participation. The greatest risk is possible loss of confidentiality. However, all study records will be kept confidential and secured according to law.

Are there benefits to taking part in the study?

There is no direct benefit to you from this study. We hope that in the future the information learned from this study will benefit people with HIV – related pain and the clinicians that treat HIV-related pain.

What alternatives are there to participation in this study?

Participation is voluntary.

Will my information be kept confidential?

Study records that identify you will be kept confidential as required by law. Federal Privacy Regulations provide safeguards for privacy, security, and authorized access. Except when required by law, you will not be identified by name, social security number, address, telephone number, or any other direct personal identifier in study records. You will be assigned a unique code number that will be used on all study records. The key to the code will be kept in a locked file in the study research office.

Your research records may be reviewed in order to meet federal, state, and institutional regulations. Reviewers may include representatives of DUHS and of the Duke University Health System Institutional Review Board.

The study results will be retained in your research record for at least six years after the end of the study. If this information is disclosed to outside reviewers for audit purposes, it may be further disclosed by them and may not be covered by the federal privacy regulations.

While the information and data resulting from this study may be presented at scientific meetings or published in a scientific journal, your identity will not be revealed.

What are the costs?

There are no costs associated with your participation in this study.

What about research related injuries?

Immediate necessary medical care is available at Duke University Medical Center in the event that you are injured as a result of your participation in this research study. However, there is no commitment by Duke University, Duke University Health System, Inc., or your Duke physicians to provide monetary compensation or free medical care to you in the event of a study-related injury.

For questions about the study or research-related injury, contact Christina Jelly, at (919)-932-0033, during regular business hours, after hours and on weekends and holidays or Dr. Ross McKinney, at (919)-668-9000, during regular business hours.

What about my rights to decline participation or withdraw from the study?

You may choose not to be in the study, or, if you agree to be in the study, you may withdraw from the study at any time. If you withdraw from the study, no new data about you will be collected for study purposes other than data needed to keep track of your withdrawal.

Your decision not to participate or to withdraw from the study will not involve any penalty or loss of benefits to which you are entitled. If you do decide to withdraw, we ask that you contact Christina Jelly in writing and let her

know that you are withdrawing from the study. Her mailing address is: Christina Jelly, c/o Dr. Ross McKinney,
DUMC 3461, Durham, North Carolina, 27710.

Whom do I call if I have questions or problems?

For questions about the study or a research-related injury, or if you have complaints, concerns or suggestions about the research, contact Dr. Ross McKinney at mckin002@mc.duke.edu or 919-668-9000 during regular business hours or 919-684-6335 after hours, on weekends and holidays.

For questions about your rights as a research participant, or to discuss problems, concerns or suggestions related to the research, or to obtain information or offer input about the research, contact the Duke University Health System Institutional Review Board (IRB) Office at (919) 668-5111.

STATEMENT OF CONSENT

"The purpose of this study, procedures to be followed, risks and benefits have been explained to me. I have been allowed to ask questions, and my questions have been answered to my satisfaction. I have been told whom to contact if I have questions, to discuss problems, concerns, or suggestions related to the research, or to obtain information or offer input about the research. I have read this consent form and agree to be in this study, with the understanding that I may withdraw at any time. I have been told that I will be given a signed and dated copy of this consent form."

_____ _____

Signature of Subject Date

_____ _____

Signature of Person Obtaining Consent Date

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