Research

Poor Healthcare Coverage and Management of Low Back Pain: Descriptive Analysis of an African American Cohort

Ekele I. Enyinnaya, DC, MS[1*], Ann Gill Taylor, EdD, RN, FAAN[2], William A. Knaus, MD[3]

Address: [1]Postdoctoral Research Fellow, Center for the Study of Complementary and Alternative Therapies, School of Nursing, University of Virginia, Charlottesville, VA, USA, [2]Betty Norman Norris Professor of Nursing, Director, Center for the Study of Complementary and Alternative Therapies, University of Virginia, Charlottesville, VA, USA, [3]Evelyn Troup Hobson Professor of Health Evaluation Sciences, Department of Publish Health Services, University of Virginia Health Sciences Center, Charlottesville, VA, USA.

E-mail: Ekele I. Enyinnaya, DC, MS – ee2fv@virginia.edu

*Corresponding author

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Abstract

Purpose: Low back pain is one of the most common musculoskeletal disorders in the developed world and remains a growing and potentially debilitating condition. Management of this condition for individuals with poor healthcare coverage poses an additional burden. The purpose of this study was to characterize management of low back pain in a cohort of African Americans (AA), a majority of who were determined to have poor or no healthcare coverage.

Methods: Data from the general and AA patient populations with low back pain were extracted from the University of Virginia Medical Center Clinical Data Repository (CDR), which contains 15 years of data on approximately one million patients seen at the University of Virginia Medical Center. Patient demographics, healthcare coverage status, comorbidities, low back pain diagnoses, and procedure codes were extracted from the CDR and analyzed for differences between both groups and among healthcare coverage types within the AA cohort with low back pain.

Results: The largest percentage of completely indigent patients, Medicaid recipients, and the uninsured was found within the AA cohort compared to the general cohort ($P < .001$). AAs with poor healthcare coverage received less healthcare services than AAs with private insurance in management of low back pain.

Conclusion: Differences in the management of low back pain by healthcare coverage type were observed within a cohort of AA with low back pain. Further investigation into the most appropriate low back pain management options for this and other vulnerable communities is warranted.

Introduction

In 2008, over 40 million Americans under age 65 were without insurance.[1] From 2008 to 2009, a decrease in the number of insured was reported, which was the first time this trend had been observed since 1987.[2] In addition, the percentage of Americans receiving Medicaid coverage increased between1999-2007, with a steady decline in private coverage between1980-2007.[1]

The recently signed healthcare reform law provides a description of adequate healthcare coverage or "essential health benefits" that will be required of all health insurance companies as well as Medicaid by 2014, and available to consumers through an exchange.[3] Until then, current evidence indicates that individuals who purchase their own health insurance, are uninsured, or are on public programs such as Medicaid, may not have access to the same benefits and services as those with private insurance (e.g., employer-based group plans), indicating poorer healthcare coverage. These individuals may be required to increase their out-of-pocket expenditures or cost-sharing to obtain similar benefits as those with better healthcare coverage.[4]

For many Americans, the decline in adequate healthcare coverage has led to disproportionate access to care, with consequential differences in quality of care received and health status.[1] Inadequate coverage has also translated into less appropriate management for chronic conditions, with the uninsured less likely to have a usual source of healthcare, go without screenings and preventive care, to delay or forgo needed medical care, and pay more for their care.[5]

Individuals most likely to be uninsured are the socioeconomically disadvantaged and racial and ethnic minorities.[5] According to the 2004 Medical Expenditure Panel Survey, AAs accounted for 15% of the uninsured or one out of five AAs with an additional 28% on public insurance.[6] Over half of the un- or under-insured were 25% below the poverty level in the same year.[7]

A large portion of uninsured minorities such as AAs and Hispanics are adults with chronic conditions, nearly half of which are non-elderly AA adults.[8] In the case of chronic

musculoskeletal conditions, the effect of inadequate healthcare coverage imposes a tremendous burden on society. Low back pain is one of the most common musculoskeletal disorders in the developed world and remains a growing and potentially debilitating condition.[9] In 2004 low back pain accounted for 1 in 25 healthcare resource visits in the U.S., resulting in an estimated total cost of over $100 billion in 2005, which increases when the uninsured are taken into account.[9-11]

Clinical management guidelines for low back pain advocate a conservative approach in the early stages of symptoms, including a detailed patient evaluation that may include imaging and diagnostic studies, an initial treatment regimen of modified activities, pain medications and education, and referral for physical treatments if the patient does not improve.[12,13] Additional modalities such as behavioral treatments, exercise programs, spinal manipulation, and multidisciplinary rehabilitation and acupuncture are recommended for individuals with sub-acute or chronic pain.[13] Decreased access to care for these services may be experienced by individuals with poor healthcare coverage.[14] In a study by Mort et al., it was determined that primary care physicians were more likely to recommend healthcare services to insured patients than uninsured patients, and many racial and ethnic disparities in healthcare have been attributed primarily to differences in health insurance status.[15,16] These factors may impact outcomes following a course of management for low back pain in those of minority status with poor health coverage.

Reforms aimed at providing adequate access to affordable care and services appropriate to the management of low back pain for vulnerable populations are necessary. Evidence of the benefits of utilization of higher levels of integrated care, including use of low cost specialists such as chiropractors and acupuncturists, has been presented and these services have been proposed as a means of potentially decreasing elevated costs from management of low back pain.[17]

The purpose of this study was to characterize management of a cohort of AA patients presenting with low back pain to an academic medical center for treatment and in whom the majority of this group were determined to have poor healthcare coverage or none at all. Poor healthcare coverage in this study is represented by individuals receiving Medicaid, or those unable to pay for healthcare services (indigent).

A better understanding of low back pain management for no- or low healthcare coverage individuals in the AA community, typically considered a vulnerable population, will demonstrate need and aid in identification of potentially less costly treatment recommendations to best fit the needs of this AA community and other similar communities.

Methods

Data were extracted from the University of Virginia Medical Center (UVA) Clinical Data Repository (CDR), which contains 15 years of data on approximately one million patients from Charlottesville, Virginia, and the surrounding satellite communities, who were seen at the UVA outpatient and inpatient centers. The database includes patient demographics, diagnoses, outpatient visit details, physician referrals, histories and physicals with all patient and provider confidential information de-identified to protect patient and provider privacy.

A cohort of AA patients with low back pain who presented to UVA in 2009 was drawn from the CDR and, a comparison cohort of patients representing the general patient population held to the same criteria as the AA cohort (except for race), was also extracted from this database. The diagnosis of low back pain for both cohorts was established from a list of diagnostic codes generally considered to cause low back pain symptoms in individuals.[9] These codes were specified as the primary diagnoses within the search criteria. Procedure codes for each low back pain episode associated with the diagnoses codes noted above were extracted from the CDR for both cohorts.

Patient demographics, healthcare coverage status, and comorbidity conditions were also extracted from the CDR and were analyzed for differences between the AA and general cohorts using Pearson Chi-square tests. A statistical significance level of $P < .05$ was used to assess comparisons between groups.

The study protocol was deemed exempt by the University of Virginia Institutional Review Board for Health Sciences Research under federal regulation 45 CFR §46.101(b)(1-6).[18]

Results

Demographics

The majority of individuals in both the general and AA cohorts were between 45-64 years old followed by those in the 18-44 age group with a greater percentage of females than males receiving a diagnoses of low back pain. The majority of individuals in the AA cohort resided in an urban area, although in the general cohort the majority resided in a suburban area **(Table 1)**.

Table 1. Patient sample size, demographics and residence for the general and African American patient cohorts with low back pain in 2009.

	General cohort	African American cohort
Number of patients	10298	1797
Patient demographics	*n patients(%)*	*n patients(%)*
Gender		
Males	4440(43.1)	688(38.3)
Females	5851(56.8)	1109(61.7)
Age		
17 and under	389(3.8)	62(3.5)
18-44	3526(34.2)	712(39.6)
45-64	3990(38.7)	780(43.4)
65 and over	2393(23.2)	243(13.5)
Residence		
Urban	2192(21.3)	640(35.6)
Suburban	3913(38.0)	623(34.7)
Remote	1570(15.2)	193(10.7)

Low Back Pain and Comorbidities

The four most common low back pain diagnoses for both groups included lumbago, backache, lumbosacral spondylosis, and lumbosacral disc degeneration. Comorbidities were present in both the AA and general population cohorts with hypertension reported as the most common comorbidity followed by depression in both groups. The third largest comorbidity in the general population was chronic pulmonary disease, whereas in the AA population the third largest comorbidity was obesity. **(Table 2)**

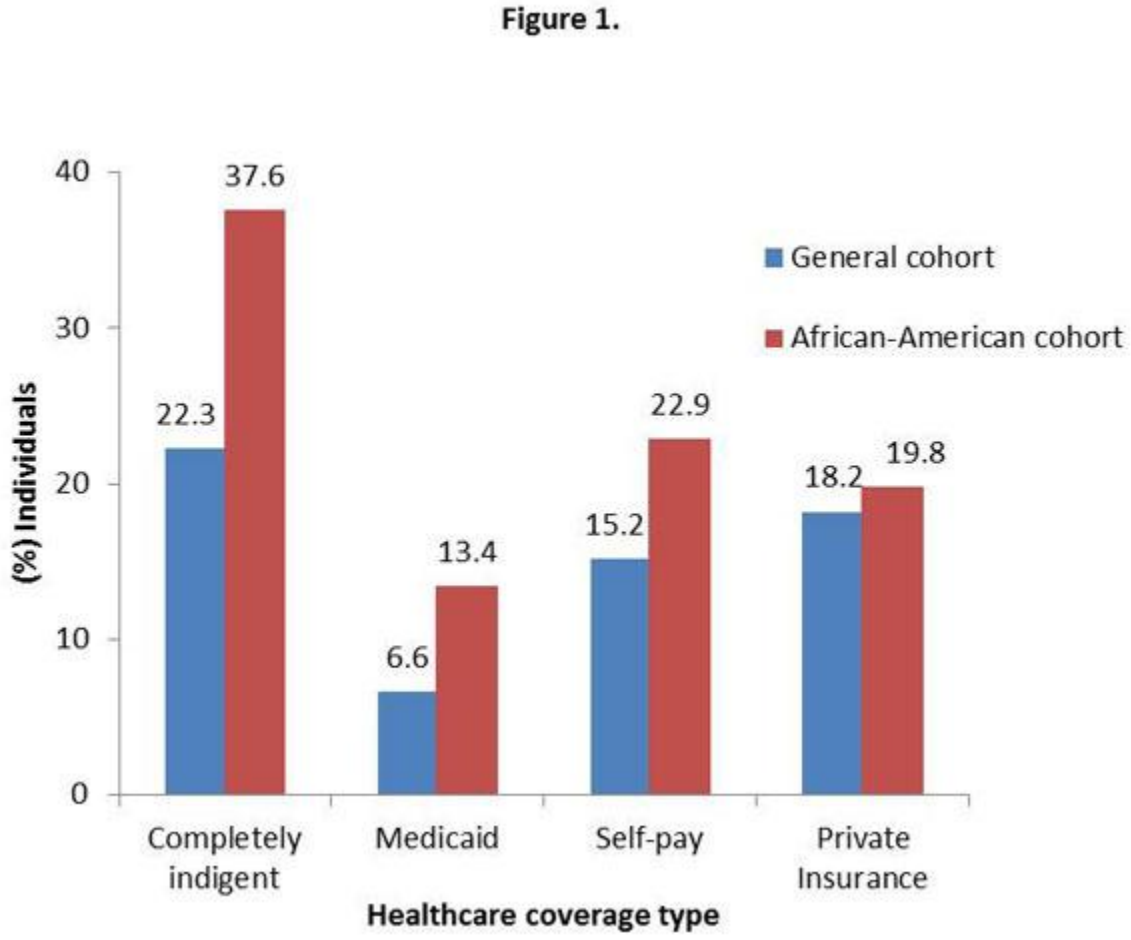
Table 2. Patient sample size, number of low back pain cases, five most common low back pain diagnoses and comorbidities recorded for the general and African American patient cohorts with low back pain in 2009.

	General cohort	African American cohort
Number of cases	*19663*	*3484*
Low back pain diagnosis	*n cases(%)*	*n cases(%)*
Lumbago	8200(41.7)	1484(42.6)
Backache	2371(12.1)	480(13.8)
Lumbosacral spondylosis	1323(6.7)	225(6.5)
Lumbosacral disc degeneration	1959(9.9)	312(9.0)
Lumbar disc displacement	1034(5.3)	105(3.0)
Lumbosacral neuritis	863(4.4)	146(4.2)
Number of patients	*10298*	*1797*
Comorbidities	*n patients(%)*	*n patients(%)*
Hypertension	4374(42.5)	1026(57.1)
Depression	3009(29.2)	587(32.7)
Obesity	1459(14.2)	554(30.8)
Diabetes, uncomplicated	1803(17.5)	521(29.0)
Chronic pulmonary disease	2087(20.3)	503(28.0)
Cardiac arrhythmias	1906(18.5)	404(22.5)

Healthcare coverage

The largest percentage of completely indigent patients was found within the AA cohort compared to the general cohort (X^2=190.2, $P < .001$). Also, a greater percentage of AAs were on Medicaid or without insurance (self-pay) compared to individuals within the general cohort (X^2=176.8, $P < .001$). Healthcare coverage by Medicare was the same in both groups (20.3%) and the AA cohort had a slightly higher percentage with private health insurance than the general population. **(Figure 1)**

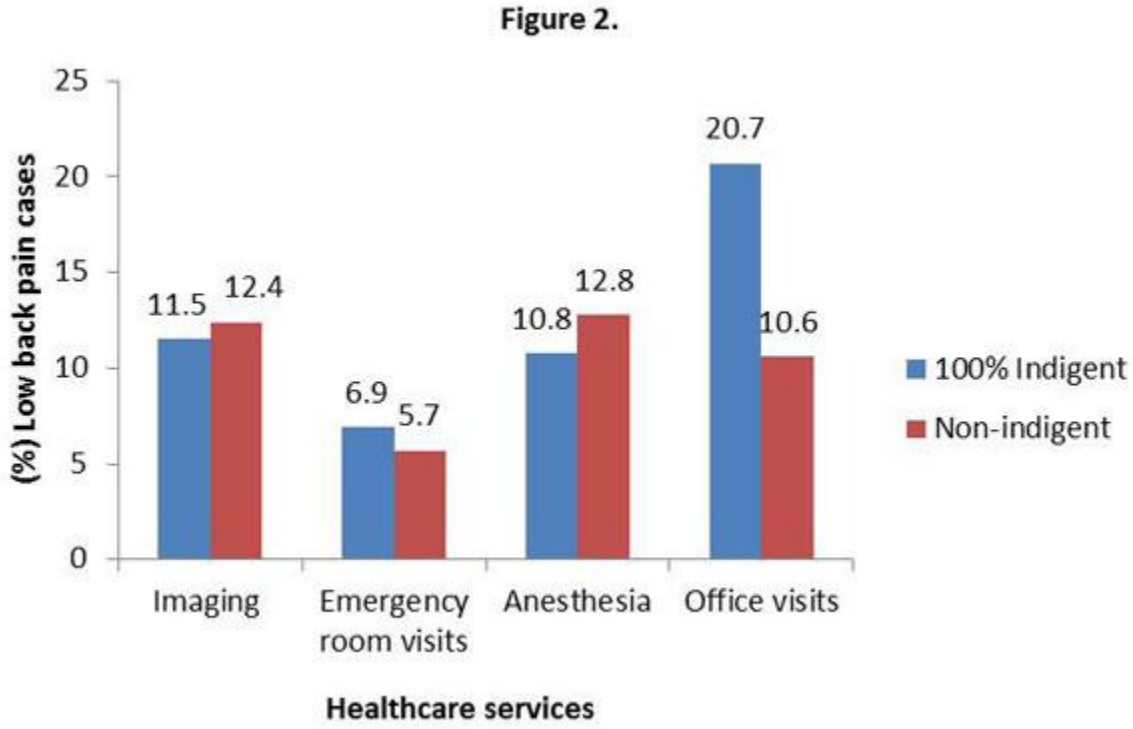
Figure 1. Type of healthcare coverage for individuals with low back pain presenting to the facility in 2009.



Low back pain management and healthcare coverage

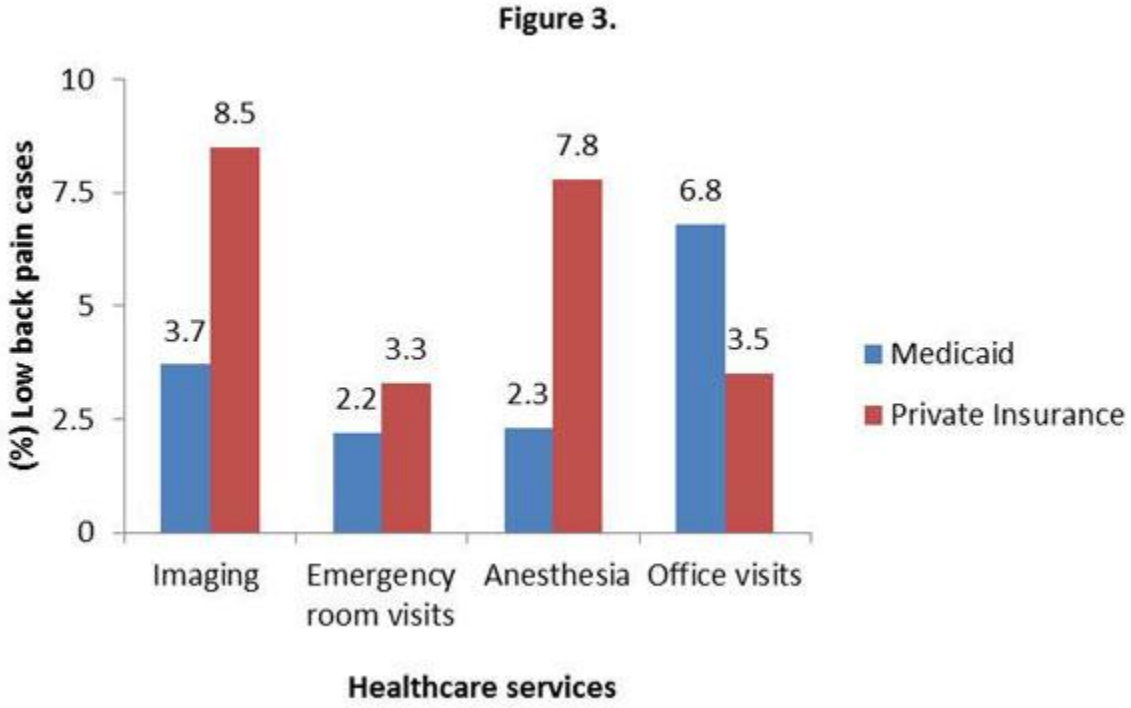
The most frequent care performed among both completely indigent and non-indigent AAs consisted of office visits and imaging services followed by anesthesia services and emergency room visits. Completely indigent AAs received less imaging and anesthesia services but recorded more emergency room and office visits than non-indigent AAs. **(Figure 2)**

Figure 2. Healthcare services received by African-Americans at the facility in 2009 with low back pain and that are also completely indigent or non-indigent.



African Americans with Medicaid coverage received less imaging and anesthesia services than those with private insurance but recorded more office visits. Emergency room visits were less for AAs insured with Medicaid than private insurance. **(Figure 3)**

Figure 3. Healthcare services received by African Americans at the facility in 2009 with low back pain and receiving Medicaid or private health insurance coverage.



In all healthcare coverage groups, less than 1% of physical medicine encounters, complementary and alternative medicine procedures (osteopathic manipulation, acupuncture) or preventive visits were recorded. Major procedures (e.g., surgery) also constituted a very small minority (< 1%) of procedures performed for AAs in all healthcare coverage groups.

Discussion

Low back pain in the developed world remains a growing, costly, and frequently debilitating condition and is especially burdensome for those of minority status and those with inadequate healthcare coverage.[9,19] In this study differences in care received by AAs with low back pain based on healthcare coverage type were observed. Consistent with other low back pain studies, the largest age group presenting to the medical center for low back pain in both the AA and general population cohorts was of working age, between 45-64 years old, with females affected at a higher rate than males.[9,20] It was also observed that AAs had a greater percentage of comorbidities than the general population in every category. The presence of comorbidities with low back pain is suggestive of general health level, and in this study would represent a state of poor health for this group.[21]

One of the more significant findings in the study was the large proportion of working age AAs with low back pain who were completely indigent, receiving Medicaid, or considered self-pay

individuals compared to those of working age in the general population. This finding suggests a much higher poverty rate in AAs with these rates almost always positively associated with poorer health status and disparities in healthcare as shown in this study.[22]

Completely indigent AAs and those on Medicaid received less imaging and anesthesia services for management of low back pain symptoms than non-indigent AAs and AAs with private insurance. Completely indigent AAs also utilized more emergency room services for management of low back pain than those who are non-indigent. This phenomenon has been described in previous studies.[23] In addition, AAs with poor healthcare coverage used more office visits than non-indigent AAs and those with private insurance likely because of poorer health status.

Within the U.S. model of healthcare, healthcare services received are for the large part determined by an individual's ability to pay with better services available for those with the best healthcare coverage.[24] Individuals with no healthcare coverage or poor healthcare coverage such as those on public assistance may lack adequate access to care for treatment of their conditions.[25] For low back pain, efforts to determine the best course of care for individuals belonging to these disadvantaged groups have focused on increasing quality and efficacy while decreasing costs involved.

In prior studies, conservative management of low back pain has been shown to be most effective at preventing chronicity and decreasing disability while also decreasing cost.[12,13] These include increased use of physical medicine procedures such as osteopathic manipulation and chiropractic, complementary and alternative medicine procedures such as acupuncture,[26-29] and less use of more invasive procedures such as anesthesia injections.[30] Although greater utilization of both imaging and anesthesia was observed in individuals with private insurance compared to those having poorer healthcare coverage, receipt of these services do not necessarily reflect best care for management of low back pain. Osteopathic manipulation and acupuncture, which are available at the facility under study, were rarely utilized by AAs with low back pain, and chiropractic, which has been demonstrated to have beneficial effects on low back pain and in overall health promotion with lower cost, was not offered at the study facility. An investigation into the reasons for underutilization of osteopathic manipulation specific to the academic medical center from which the study data were collected was not undertaken. However, given the paucity of osteopathic physicians practicing in the medical center and the lack of osteopathic manipulation training of other physicians in this practice setting, this may explain the underutilization of this therapy. Few physicians practicing in the setting are trained in acupuncture, as well. Also, the underutilization of these services for musculoskeletal conditions in an emergency department setting has been reported and attributed to time constraints, lack of research studies, reimbursement issues, patient and physician unfamiliarity, and physician disinterest or insecurity with the therapy, among others.[31]

While studies on the benefits of these conservative modalities for low back pain and other musculoskeletal conditions continue to emerge, increased awareness is required by administrators and physicians in facilities that service individuals from vulnerable communities

with poor healthcare coverage as to the benefits of these conservative modalities.

A major strength of this study was the use of a clinical data repository, which provides data in a real setting. While use of clinical databases for documenting and analyzing care is growing, there are some limitations on the information that can be extracted from these data. In the case of this study, characterization of the onset and duration of low back pain as acute, chronic, or recurrent; and severity of symptoms is an example of information that could not be obtained from the database. Also, not all outpatient encounters recorded in the database included complete information. Despite this, the use of clinical data repositories as a data source for auditing care and generating preliminary evidence in a real setting for further research has been timely and of great benefit.

Conclusions

Levels of healthcare coverage frequently determine type of care received for certain medical conditions. The purpose of this article was to characterize the management of low back pain among AAs presenting to an academic medical center and having poor or no healthcare coverage. This study noted differences in the management of low back pain in a cohort of AAs with low back pain who had poor or no healthcare coverage compared to AAs also with low back pain but with private insurance. More studies are needed that demonstrate the use of conservative modalities for vulnerable populations and the benefits and cost-effectiveness of these modalities in treatment of low back pain for individuals with inadequate healthcare coverage.

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