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Pain in Community-Dwelling Elderly African Americans

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Abstract

Objective—This study examines the type, severity, and correlates of pain among underserved elderly African Americans.

Method—This cross-sectional study includes 400 non-institutionalized underserved aged African Americans, recruited from 16 African American churches located in South Los Angeles.

Results—Two thirds of our participants reported a level of pain of 5 or higher (on a scale of 0–10) for at least one of the pain items. Participants with severe level of pain showed a higher level of insomnia, depression, and deficiency in activity of daily living as well as a lower level of memory function and quality of physical and mental health. Also, level of pain is a statistically significant correlate of office-based physician visits and emergency department admission.

Conclusion—Our findings encourage multidisciplinary and interdisciplinary interventions to include pharmacotherapy, psychological support, and physical rehabilitation, specifically on neuropathic pain among aged African Americans with multiple chronic conditions.

Keywords

African Americans; health services; well-being; pain

Introduction

Disparities in pain care continue to be missing from public health agendas and health care reform plans (Anderson, Green, & Payne, 2009). The longitudinal population-based survey, conducted by the Institute of Social Research at the University of Michigan, shows that one in three middle- to late-aged adults often are troubled with pain (Reyes-Gibby, Aday, Todd,

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Authors' Note

The statements contained in this report are solely those of the authors and do not necessarily reflect the views or policies of the Center for Medicare and Medicaid Services (CMS).

Declaration of Conflicting Interests

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Cleeland, & Anderson, 2007). Furthermore, this study documented racial and ethnic differences for pain prevalence, pain severity, and activity limitation as a result of pain, with the greatest magnitude of racial/ethnic difference observed for pain severity. Of older adults with pain, a greater proportion of minorities report severe pain. Also, this study provides empirical evidence that racial/ ethnic differences in pain severity among aging community adults in the United States can be accounted for by differential vulnerability in terms of chronic disease, socio-economic conditions, and access to care (Reyes-Gibby et al., 2007).

A recent study that recruited 641 participants with 75% African American shows that 18% of participants reported ever borrowing a prescription medication (Ward et al., 2011). The most commonly obtained medications were for pain (74%), usually in the form of opioids, and were obtained from a family member or friend (Ward et al., 2011). African Americans, compared with Whites, are disproportionally affected by many chronic medical conditions for which multiple prescriptions and treatment are required (Rosamond et al., 2008). A cross-sectional telephone survey conducted in a nationally representative probability sample of non-Hispanic White participants, non-Hispanic African American participants, and Hispanic participants shows that African Americans were more likely than White or Hispanic participants to have ever used a prescription medication for pain (Portenoy, Ugarte, Fuller, & Haas, 2004).

Literature review, performed by experts in pain, suggests that the sources of pain disparities among racial and ethnic minorities are complex, involving many factors (Green et al., 2003). Race and ethnicity influence the presentation and treatment of chronic pain (Portenoy et al., 2004). Previous studies have highlighted an underrecognized disparity, which provides the basis for developing targeted interventions aimed at improving the clinical outcomes of African Americans with chronic pain (Hooten, Knight-Brown, Townsend, & Laures, 2012).

A recent review of the literature of characterization of pain in racially and ethnically diverse older adults published from 1900 to 2011 clearly shows that there are only limited findings focusing on pain and pain treatment in minority elders (Lavin & Park, 2014). However, this study documents that minority older adults report a higher prevalence of pain and higher pain intensity compared with non-Hispanic White older adults (Lavin & Park, 2014). Although elderly African Americans have high-risk profiles for increased morbidity and disability, they receive less aggressive treatment and are less likely to be prescribed new medications for treating their chronic conditions compared with other elderly populations (Farley, Cline, & Gupta, 2006; Mark, Axelsen, Mucha, & Sadkova, 2007; Schauer, Johnston, Moomaw, Wess, & Eckman, 2007; Wang et al., 2006; Wang et al., 2007).

Although a large number of studies have focused on chronic pain management among elderly populations, only a handful of the research focuses specifically on pain-related issues among non-institutionalized African American elderly. To the best of our knowledge, no research has focused on correlates, consequences, and patterns of pain among aged African Americans. The objective of our study was to examine the type and severity of pain among underserved community-dwelling aged African Americans. In addition, this study examines correlates of pain, including demographic, socio-psychological, mental and physical health conditions, and health care utilization among this segment of our population.

Method

This cross-sectional study includes a convenience sample of 400 non-institutionalized underserved African Americans, aged 65 years and older recruited from 16 predominantly African American churches located in South Los Angeles. Details of the study design have been previously described (Bazargan, Yazdanshenas, Han, & Orum, in Press; Yazdanshenas et al., 2014). In brief, the potential participants were screened for eligibility based on their age (65 years and older) and ethnicity (self-identified as African American). Potential participants were excluded if they were enrolled in other clinical trials. In addition, potential participants were excluded from the study if they resided in a care home. This investigation was approved by the Charles R. Drew University of Medicine and Science Institutional Review Board (IRB). A written informed consent was collected from all participants.

Measurement

The study used structured, face-to-face survey interviews. The survey instrument was a collection of validated instruments from various sources (Bazargan, Baker, & Bazargan, 1998; Bazargan, Bazargan, Calderon, Husaini, & Baker, 2003; Bazargan, Bazargan-Hejazi, & Baker, 2005; Bazargan, Norris, et al., 2005; Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963; Lovejoy, Turk, & Morasco, 2012; Melzack, 1987; Odedosu, Schoenthaler, Vieira, Agyemang, & Ogedegbe, 2012; Sheikh & Yesavage, 1986). The survey instrument was pilot tested with 12 elderly African Americans, and modifications were made based on the results and cognitive interviews. In addition to standard items measuring demographic characteristics, our study collected data on medical co-payment. Other data collected in our study include the following:

Intensity of pain—The intensity of pain was measured using four subscales of the Short-Form McGill Pain Questionnaire–2 (SF-MPQ-2; Dworkin et al., 2009; Melzack, 1987). Conducting face-to-face interviews, participants were asked to rate the extent to which they experienced each of 22 pain items in the past week using an 11-point numeric rating scale (0 = *none* to 10 = *worst possible*). The SF-MPQ-2 is composed of four subscales: (a) Continuous Descriptors (throbbing, cramping, gnawing, aching, heavy, and tender pain), (b) Intermittent Descriptors (shooting, stabbing, sharp, splitting, electric-shock, and piercing pain), (c) Predominately Neuropathic Descriptors (hot-burning, cold-freezing, itching, tingling or “pins and needles,” light touch, and numbness pain), and (d) Affective Descriptors (tiring-exhausting, sickening, fearful, and punishing-cruel pain). A total pain score was computed by averaging participant ratings across all questions (Lovejoy et al., 2012; Melzack, 1987). A high score indicates greater pain intensity (α = .945).

In addition, the WHO (1990) has published a validated three-step approach to pain management for cancer patients. The three-step approach has guided clinicians in treating cancer as well as non-cancer pain. The basic principles behind the three steps of the guideline include selecting the appropriate analgesic for the pain intensity and individualizing the dose by titration of opioid analgesics. On the 0-to-10 pain intensity scale, 4 to 6 and 7 to 10 defined as moderate and severe pain, respectively (WHO, 1990).

Moreover, it is also a common practice that patients who rate their pain as mild (0–4 on the 10-point scale) are usually treated with the over-the-counter (OTC) medications including aspirin, acetaminophen, nonsteroidal anti-inflammatory drugs such as ibuprofen, and other medications depending on the cause of pain. If the patient rates the pain as moderate (5–6), physicians will usually prescribe Rx medications including acetaminophen with codeine, acetaminophen with hydrocodone, acetaminophen with oxycodone, or tramadol. If the patient describes the pain as severe (7–10), doctors may prescribe stronger pain medications such as morphine, hydromorphone, methadone, fentanyl, and oxycodone (West Virginia Center for End-of-Life Care, 2015).

Psychological measures and self-reported memory function—The Short Geriatric Depression Scale (GDS) was used to measure depressive symptoms via 15 items (Sheikh & Yesavage, 1986) with a "yes" or "no" response. The scale varies from 0 to 15 with a higher score indicating a higher level of depression. This assessment tool has excellent reliability and validity as an index for measuring depressive symptoms among older adults and has been extensively used in community, acute and long-term care settings (Greenberg, 2007).

Self-appraisal of memory capability was measured using the Meta-Memory Questionnaire–Ability (MMQ-Ability) instrument. The MMQ-Ability contains 20 everyday memory situations, such as remembering appointments, names, and telephone numbers. For each item, respondents indicated the frequency with which each mistake occurred on a 5-point scale (*all the time* = 0, *often*, *sometimes*, *rarely*, *never* = 4) with higher scores indicating better subjective memory ability ($\alpha = .908$). This instrument has excellent validity and reliability among healthy older adults and has been recommended for both clinical and research settings (Troyer & Rich, 2002).

Quality of life—The SF-12 instrument was used to measure functional health and well-being of participants (Ware, Kosinski, & Keller, 1995, 1996). The SF-12v2 health survey is a widely used screening device for measuring physical and mental health to assess quality of life. The SF-12 has been proven to be a valid and reliable measure to be used as a screening device among elderly African Americans (Cernin, Cresci, Jankowski, & Lichtenberg, 2010). Physical and mental health composite scores are computed using the scores of 12 questions and range from 0 to 100, where a score of 0 indicates the lowest level of health measured by the scales, and 100 indicates the highest level of health.

Sleep patterns—Problems with sleep and sleep patterns were measured using the Insomnia Severity Index (ISI; Bastien, Vallieres, & Morin, 2001; Morin & Espie, 2003). This index is designed to be both a brief screening measure of insomnia and an outcomes measure for use in treatment and research settings (Smith & Wegener, 2003). This instrument includes questions to determine difficulty falling sleep, difficulty staying asleep, and problems with waking up too early. Additional items measure satisfaction with current sleep pattern, interference with daily functioning, appearance of impairment attributed to the sleep problem, and concern caused by sleeping problems (Smith & Wegener, 2003). The ISI composite score is computed using the scores of seven questions and range from 0 to 28, where a higher score indicates more severe sleeping disorder.

Self-rated health status and self-reported medication used for pain—Self-rated health status was measured by a single question asking, “In general, would you say your health is (1) Excellent, (2) Very good, (3) Good, (4) Fair, and (5) Poor?” This item has been often used in health research and large-scale national surveys (Fayers, 2005). In addition, two questions were asked to measure OTC and Rx used for pain; they are, “Do you take prescribed medication to relieve pain?” and “Do you frequently take Aspirin, Tylenol, Advil or other non-prescription pills for pain?” (*yes* = 1, *no* = 0).

Activity of daily living—Activities of daily living was assessed using the index of Activities of Daily Living (ADL), a standardized measure of biological and psychosocial function (Katz et al., 1963). The Index ranks adequacy of performance in the six functions of bathing, dressing, toileting, transfer, continence, and feeding. Participants are scored yes/no for independence in each of the six functions. A score of zero indicates full function, while a score of six indicates full functional impairment.

Statistical Analysis

Both bivariate and multivariate statistical methods were used to examine correlates of pain among our sample. At the bivariate level, *t* test, Pearson’s correlation coefficient, and ANOVA were used to measure correlation between level of pain and other variables including depressive symptoms, sleep disorder, ADL, SF-12, and so on. Controlling for demographic variables, multinomial logistic regression techniques were used to document relationships between health care utilization and level of pain. All statistical analyses were performed with the SPSS Version 21.

Results

This sample included 400 African American individuals who were between the ages of 65 and 94 years (*M* 73.5 ± 7). More than 39% were 75 years of age or older. In addition, almost 65% of the participants were women. Furthermore, nearly 42% need to provide a co-payment when visiting the doctor. Moreover, whereas more than 35% of our sample reported having a high school diploma, 7% and 18% reported 1 to 8 and 9 to 11 years of education, respectively. Similar to our sample, the California Health Interview Survey (CHIS) data (2011–2012) report that 37% of African Americans aged 65 years and older residing in South Los Angeles reported having a high school diploma (CHIS, 2015). The CHIS is the nation’s largest state health survey and a critical source of data on Californians as well as on the state’s various racial and ethnic groups (CHIS, 2015).

Regarding the health status of our sample, the CHIS data support the representativeness of our sample. Our sample shows that one out of three participants reported their health status as fair or poor (Table 1); similarly, data from CHIS show that 38% of African Americans aged 65 years and older who live in South Los Angeles report their health as fair or poor (CHIS, 2015). In addition, 85% and 37% of our sample reported that they have been diagnosed with hypertension and diabetes mellitus, respectively. Comparable with our sample, reports from CHIS indicated that 77% and 30% of elderly African Americans in South Los Angeles reported being diagnosed with hypertension and diabetes, respectively. However, our data show higher Emergency room (ER) and hospital admission than the

CHIS data. Our sample shows that 38% of the participants were treated at ER and 28% admitted to hospital at least 1 time within last 12 months. The CHIS (2015) reports 22% and 21% hospital admission and ER use among elderly African Americans residing in South Los Angeles, respectively.

Pain Severity

The intensity of pain using four subscales of the SF-MPQ-2 is reported in Table 2. Two thirds of our participants reported a level of pain of 5 or higher (on a scale of 0–10) for at least 1 of the pain items. In addition, one out of two participants had intensity of pain of 7 or higher for at least one pain item. Therefore, it is important to notice that according to the WHO, these participants are suffering from severe pain that requires stronger pain medications (http://www.wvend-oflife.org/Public/Information-for-dealing-with-pain/Frequently-Asked-Questions-About-Pain). Indeed, 14% of the participants described their level of pain as 5 or more, and 8% described their level of pain as 7 or more for at least 11 of the 22 pain items, respectively, which no doubt needs urgent clinical attention. Specifically, 42% described their level of pain as 7 or more (on a scale of 0–10) for at least 1 of the 6 continuous pain items. In addition, 27% described their level of pain as 7 or more for at least 1 of the 6 intermittent pain items. Furthermore, 28% described their level of pain as 7 or more for at least 1 of the 6 predominantly neuropathic pain items. Moreover, 22% described their level of pain as 7 or more for at least 1 of the 4 affective descriptor pain items.

Correlates of Pain

Table 1 reveals that women report only a higher level of affective descriptive pain compared with men. Interestingly, participants 65 to 75 years of age reported higher levels of pain in comparison with those 75 years of age and older. Participants with poor/fair self-rated health status suffer from higher levels of pain. In addition, Table 1 shows that participants with a higher number of chronic conditions (hypertension, diabetes, etc.), who take Rx and OTC pain medications, are more likely to report a higher level of pain.

A one-way between-participants ANOVA was conducted to compare the effect of pain on socio-psychological indices, quality of life, and memory functions. Table 3 reports the average level of insomnia, depressive symptoms, SF-12 Physical Health Index, SF-12 Mental Health Index, ADL, and memory function for (a) none or mild pain, (b) moderate pain, and (c) severe pain (overall and subscale). For example, the post hoc comparisons using the Tukeys' *b* test indicated that the mean scores of insomnia index (ISI) for the participants with severe or moderate pain (7.21 and 6.45) are statistically higher than individuals with no or mild pain (3.39). In addition, the differences between mean scores of the depressive symptoms among participants with severe pain (4.12), moderate pain (2.34), and no or mild pain (1.37) are statistically significant. Furthermore, the mean scores of the SF-12 Physical Health Index and memory functions for severe and moderate pain are different from the mean score for no or mild pain. Taken together, these results suggest that higher level of pain is associated with a higher level of depression, insomnia, and memory problem, and lower level of quality of physical and mental health.

Interestingly enough, our data show that when all four subscales of pain are compared, individuals who reported severe level of predominantly neuropathic pain are more likely to suffer from a higher level of insomnia, depression, and memory deficit, and a lower level of quality of mental health than their counterpart with similar level (severe) of continuous, intermittent, or affective descriptors pain.

Pain and Health Care Utilization

Table 4 reports odds ratios (ORs) and 95% confidence intervals (CIs) for multinomial logistic regression models examining correlates between level of pain and health service utilization (ER, hospitalization, and office-based physician visits) adjusting for demographic variables and self-rated health status. Table 4 indicates that controlling for demographic variables, level of pain is a statistically significant correlate of office-based physician visits and ER admission. However, a hospital admission was not related to the level of pain. In general, a higher level of overall pain leads to higher frequency of office-based physician visits and ER admissions. Table 4 shows that the highest ORs were found for the relationship between level of pain and office-based physician visits (ORs = 2.63 [1/0.38] and 1.81 [1/0.55]) and the relationship between level of pain and ER visits (OR = 2.17 [1/0.46]). Respondents who suffer from a higher level of (overall) pain were 2.63 and 1.81 times more likely to be in the group of survey respondents who reported more than five office-based and four to five visits within the last 12 months, rather than the group of survey respondents who had three or less office-based physician visits, respectively. The odds of being in the group of survey respondents who had two or more ER visits (compared with no ER visit) increase 2.17 (OR = 2.17 [1/.46]) times when the participant reports a higher level of pain.

Discussion

Previous studies on presentation and management of pain among racial and ethnic groups among U.S. population point to additional research that provides the basis for developing targeted interventions aimed at improving the clinical outcomes of African Americans with chronic pain. A recent review of the literature supports the existence of differences in the presentation of pain and its effect on health status based on demographic characteristics (August & Sorkin, 2010; Edwards et al., 2005; Green, Ndao-Brumblay, Nagrant, Baker, & Rothman, 2004; Portenoy et al., 2004). Cintron and Morrison (2006) conducted a systematic review examining pain and ethnicity in the United States (Cintron & Morrison, 2006). They documented that African Americans are more likely to have their pain untreated compared with White patients. This systematic review reveals that racial and ethnic disparities in access to effective pain treatment are similar to disparities found in other medical services (Cintron & Morrison, 2006). Another systematic review of the literature conducted by Shavers, Bakos, and Sheppard (2010) using published data from 1990 to 2008 among U.S. adults suggests that racial/ethnic disparities in pain management may operate through limited access to health care, appropriate analgesic use, and access to or utilization of pain specialists (Shavers et al., 2010). Using a large racially and ethnically diverse community sample, Reyes-Gibby and colleagues (2007) provided empirical evidence that non-Hispanic aged African Americans had higher risk of severe pain compared with non-Hispanic Whites. They documented that having chronic diseases, psychological distress, being a Medicaid recipient, and lower educational levels were significant predictors of severe pain and helped to explain racial/ethnic differences in pain severity (Reyes-Gibby et al., 2007).

Seventy-eight percent of our study population reported pain in comparison with 33% in a similar study among a general older adult population (Reyes-Gibby, Aday, & Cleeland, 2002). Furthermore, two out of three individuals in our study population reported arthritis. Interestingly, in a recent study, respondents with arthritis had the highest proportion reporting pain (Reyes-Gibby et al., 2002). With regard to health status, 34% of our participants reported fair/poor health. In a similar study, it was found that individuals who have pain were more likely to perceive their health status to be poor (Reyes-Gibby et al., 2002).

In our study population, the range of reported moderate and severe levels of pain for all four subscales was 31% to 62%. The mean for severe pain was found to be 12% and for moderate pain was 32%. Among all subscales, continuous pain was reported as the highest level of pain, which is consistent with the findings in a previous study (Dworkin et al., 2009). Nineteen percent of our participants reported suffering from severe continuous pain, and almost two thirds reported moderate to severe pain.

Pain and health care utilization: Controlling for demographic variables, our study shows that an increase in the level of pain has a significant effect on participants' number of office-based physician visits (ORs = 2.63 [1/0.38] and 1.81 [1/0.55]). However, a hospital admission was not related to the level of pain. In addition, we documented that a higher level of pain is directly associated with a higher number of ED visits (OR = 2.17 [1/.46]). A recent study examining the ER visits by elderly from 2001 to 2009 reported that annual ER visits had increased from 15.9 to 19.8 million, a 24.5% increase. The top complaints for visits were chest pain, dyspnea, and abdominal pain (Pines, Mullins, Cooper, Feng, & Roth, 2013). Other studies have documented that being African American, having a low income, and not having a primary care physician were associated with a higher level of ER visits (Oster & Bindman, 2003). In addition, it is well documented that minority patients are often underevaluated and undertreated for their painful conditions in the ER (Anderson et al., 2009; Iyer, 2011). Another study also revealed that elderly people with pain are at a higher risk group for ER re-presentation (Howard, Hannaford, & Weiland, 2014).

Effective management of pain at primary care setting may lead to reduction in health care utilization, particularly, ER utilization. A previous study among a sample of 998 low-income elderly African Americans documented that a lower level of accessibility to office-based physicians' services leads to a higher use of ER services (Bazargan, Bazargan, & Baker, 1998).

Although a relationship between a higher level of pain and health care utilization was expected, it is quite interesting to note that one out of two individuals who reported severe pain did not visit an ER and had less than two office-based physician visits within the last 12 months prior to the interviews. In addition, 9% and 27% of participants with severe pain do not use any Rx or OTC medication for pain, respectively.

In addition to functional impairment, reduced quality of life, and greater health care costs (American Geriatrics Society Panel on the Pharmacological Management of Persistent Pain in Older Persons, 2009), inadequate pain management in geriatric populations may predispose geriatric patients to self-medicate inappropriately with available OTC agents, particularly with acetaminophen and nonsteroidal anti-inflammatory agents. Many of the narcotic analgesics already contain acetaminophen, and the patient who attempts to manage pain with the OTC formulation may risk over-dosage and the resulting hepatic problems. Nonsteroidal anti-inflammatory agents may also be duplicative with prescription agents, but also carry an additional risk of interacting with prescription anticoagulants and antiplatelet agents, potentially causing bleeding abnormalities, without the knowledge and care of the health provider.

Our findings echo previous research that calls for a robust translational research program on disparities in pain that must be specifically designed to reduce and eliminate disparities in care (Anderson et al., 2009). It is important to note that the patient–provider partnership is of great importance in management of chronic pain (Hadjistavropoulos et al., 2011).

However, a review of the literature showed that minority patients have been found to be less active in their communications when the encounter is between individuals of different races, more active with same race, and likely to report more distressing pain to same race providers (Tait & Chibnall, 2014). Successful pain management among elderly persons with multiple morbidities and cognitive decline not only depends on accurate diagnosis and an assessment of psychosocial functioning but also requires a multidisciplinary approach with pharmacotherapy, psychological support, physical rehabilitation, and interventional procedures (Kress et al., 2014).

Another interesting result of this study is that controlling for all other variables, Table 4 shows that both office-based physician and ER visits are associated with medical co-payment. A recent national study shows that the effects of increases in co-payments for ambulatory care among elderly population are magnified among enrollees living in areas of lower income and education and among enrollees who had hypertension, diabetes, or a history of myocardial infarction. This study shows that rising cost sharing for ambulatory care among underserved minority elderly patients may have adverse health consequences and may increase total spending on health care (Trivedi, Moloo, & Mor, 2010).

Socio-Psychological Correlates of Pain

Our study showed that higher levels of pain increased the risk of decreasing levels of quality of life, ADL, mental health, and physical health. Other study shows that quality of life, sleep problems, depression, and pain associated with multiple chronic conditions among African Americans are highly interrelated (Bazargan, 1996; Stepnowsky, Johnson, Dimsdale, & Ancoli-Israel, 2000). Clinical studies clearly show that higher levels of pain among elderly persons are associated with lower physical function, social role, mental health, vitality, and general health, and with higher disability and sleep quality (Cheng & Lee, 2011; Gungor Tavsanli, Ocelik, & Karadakovan, 2013; Herrero-Sanchez, Garcia-Inigo Mdel, Nuno-Beato-Redondo, Fernandez-de-Las-Penas, & Alburquerque-Sendin, 2014; Kauppila, Pesonen, Tarkkila, & Rosenberg, 2007).

Although pain and depression levels both affect quality of life and physical performance, depressive symptoms rather than pain appear the more influential factor (Kauppila et al., 2007; Mossey, Gallagher, & Tirumalasetti, 2000). Yet elderly individuals with insomnia who also have chronic pain or depression are particularly difficult to treat; however, there is evidence that appropriate management of pain and insomnia may alleviate other symptoms related to the associated condition and help interrupt this vicious cycle (Benca, Ancoli-Israel, & Moldofsky, 2004). Although our data show that severe continuous pain was the highest reported subscale among our population, severe neuropathic pain was found to have the strongest correlation on increasing the level of insomnia, depression, and memory as well as reducing the quality of mental health.

Our findings suggest that more studies should focus specifically on neuropathic pain. Special attention to neuropathic pain is very important knowing that a large number of underserved elderly African Americans suffer from comorbidities including diabetes (37%) that may cause neuropathic pain. It is well established that neuropathic pain makes it difficult to fall asleep or stay asleep; abnormal sensations or hypersensitivity to touch, particularly in the lower extremities, contribute to this issue (Mai & Buysse, 2008).

Limitations of the Study

It is imperative to mention several limitations of this study. First, the research team did not have access to the participants' medical records. Second, information regarding the participants' health services utilization prior to the survey was limited. Third, the study uses a convenience sample that limits the generalizability of our findings. Finally, we used a cross-sectional study design, which allowed us to collect data at a single point in time. Nevertheless, this study provides vital information that has not been carefully studied among underserved African American older adults and used a community-based sample and face-to-face interviews that included several validated instruments.

In conclusion, effective pain management in geriatric underserved populations involves appropriate medication use and monitoring. An interdisciplinary team approach to medication use, monitoring, and patient education, similar to that used in this study, may improve patient outcomes through more efficient and effective utilization of the various disciplines (medicine, nursing, pharmacy, and public health) represented by health care providers.

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Table 1

Demographic, Health Status, and Pain Characteristics of Underserved African Americans Aged 65 Years and Older (N = 400).

		Type of pain				
		M ± *SD*				
Characteristics of sample	**Total (N = 400) n (%)**	**Total**	**Continuous**	**Intermittent**	**Predominately neuropathic**	**Affective descriptors**
M ± *SD*	400 (100)	1.61 ± 1.99	2.28 ± 2.48	1.46 ± 2.12	1.41 ± 1.91	1.29 ± 2.21
Gender						
Male	141 (35)	1.36 ± 1.90	1.87 ± 2.37	1.24 ± 2.03	1.30 ± 1.93	1.04 ± 1.97*
Female	258 (65)	1.75 ± 2.03	2.50 ± 2.51	1.58 ± 2.17	1.47 ± 1.90	1.43 ± 2.32
Age						
<75 years	242 (61)	**1.82 ± 2.12***	**2.51 ± 2.57***	**1.68 ± 2.26***	**1.56 ± 2.04****	**1.51 ± 2.36***
≥ 75 years	157 (39)	**1.30 ± 1.73**	**1.92 ± 2.29**	**1.11 ± 1.84**	**1.17 ± 1.68**	**0.96 ± 1.91**
Education						
No high school diploma	99 (25)	1.88 ± 2.32	2.55 ± 2.75	1.75 ± 2.47	1.69 ± 2.20	1.50 ± 2.49
High school diploma	300 (75)	1.52 ± 1.86	2.19 ± 2.38	1.36 ± 1.99	1.31 ± 1.80	1.22 ± 2.11
Co-payment						
Yes	167 (42)	1.56 ± 2.00	2.22 ± 2.50	1.35 ± 2.04	1.36 ± 1.83	1.27 ± 2.34
No	232 (58)	1.65 ± 1.98	2.32 ± 2.47	1.54 ± 2.18	1.44 ± 1.98	1.31 ±2.12
Self-rated health status						
Fair/poor	134 (34)	**2.57 ± 2.41*****	**3.33 ± 2.81*****	**2.39 ± 2.55*****	**2.27 ± 2.32*****	**2.28 ± 2.77*****
Good	148 (37)	**1.37 ± 1.70**	**1.95 ± 2.14**	**1.23 ± 1.90**	**1.17 ± 1.69**	**1.12 ± 1.95**
Excellent/very good	117 (29)	**0.82 ± 1.21**	**1.49 ± 2.05**	**0.69 ± 1.32**	**0.72 ± 1.15**	**0.39 ± 1.09**
Number of chronic conditions						
≤ 3	126 (32)	**0.68 ± 1.24*****	**1.12 ± 1.85*****	**0.63 ± 1.38*****	**0.62 ± 1.15*****	**0.37 ± 1.09*****
4–7	195 (49)	**1.68 ± 1.83**	**2.49 ± 2.42**	**1.53 ± 2.03**	**1.39 ± 1.77**	**1.32 ± 2.14**
≥ 8	76 (19)	**2.98 ± 2.52**	**3.66 ± 2.73**	**2.67 ± 2.74**	**2.77 ± 2.47**	**2.77 ± 2.91**
Taking Rx for pain						
Yes	229 (58)	**2.34 ± 2.20*****	**3.25 ± 2.62** ***	**2.18 ± 2.40** ***	**2.00 ± 2.18*****	**1.90 ± 2.58*****
No	169 (42)	**0.64 ± 1.04**	**0.97 ± 1.49**	**0.49 ± 1.09**	**0.62 ± 1.05**	**0.47 ± 1.16**
Taking OTC for pain						

		Type of pain *M* ± *SD*				
Characteristics of sample	**Total (N = 400) n (%)**	**Total**	**Continuous**	**Intermittent**	**Predominately neuropathic**	**Affective descriptors**
Yes	189 (47)	**2.11 ± 2.24*****	**2.96 ± 2.68*****	**1.91 ± 2.38*****	**1.80 ± 2.14*****	**1.76 ± 2.64*****
No	209 (53)	**1.17 ± 1.61**	**1.67 ± 2.11**	**1.06 ± 1.78**	**1.06 ± 1.61**	**0.87 ± 1.64**

Note. All boldfaced values are statistically significant. OTC = over the counter.

[*] $p < .05$.

[**] $p < .01$.

[***] $p < .001$.

Table 2

Characteristic and Type of Pain Among Underserved African Americans Aged 65 Years and Older (*N* = 400).

	Type of pain				
Characteristics of pain[a]	**Overall pain**	**Continuous**	**Intermittent**	**Predominately neuropathic**	**Affective descriptors**
Percentage of participants reporting their level of pain > 4 (on scale of 1–10) with at least 1 of the 22 items of McGill Pain Questionnaire	67.5	59.8	41.0	42.0	30.7
Percentage of participants reporting their level of pain ≥ 7 (on scale of 1–10) with at least 1 of the 22 items of McGill Pain Questionnaire	50.5	42.0	27.0	28.2	21.5
Percentage of participants reporting their level of pain > 4 (on scale of 1–10) with at least 11 of the 22 items of McGill Pain Questionnaire	13.7	27.7	17.2	14.0	14.5
Percentage of participants reporting their level of pain ≥ 7 (on scale of 1–10) with at least 11 of the 22 items of McGill Pain Questionnaire	8.2	17.7	11.0	8.0	10.2

[a] The Short-Form McGill Pain Questionnaire–2 (SF-MPQ-2) includes 22 items.

Table 3

Association (ANOVA) Between Physical, Mental, and Socio-Psychological Indices and the Level of Pain Among Underserved African Americans Aged 65 Years and Older (*N* = 400). The Average Level of Insomnia, Depressive Symptoms, Physical and Mental Health Index (SF-12), ADL, and Memory Function for (a) None/Mild Pain, (b) Moderate Pain, and (c) Severe Pain.

Pain McGill pain (SF-MPQ-2)		Physical, mental, and socio-psychological indices					
Type	**Severity**	**ISI**	**Depressive symptoms (GDS)**	**SF-12 Physical Health Index**	**SF-12 Mental Health Index**	**ADL**	**Memory Function MMQ-A Index**
Continuous	(a) None or mild	2.68$^{(b,c)}$	1.20$^{(c)}$	48.6$^{(b,c)}$	55.2$^{(c)}$	0.08$^{(c)}$	54.5$^{(c)}$
	(b) Moderate	4.26$^{(a,c)}$	1.66$^{(c)}$	42.5$^{(a,c)}$	54.6$^{(c)}$	0.06$^{(c)}$	52.0$^{(c)}$
	(c) Severe	6.61$^{(a,b)}$	2.96$^{(a,b)}$	35.5$^{(a,b)}$	49.8$^{(a,b)}$	0.51$^{(a,b)}$	47.0$^{(a,b)}$
Intermittent	(a) None or mild	3.12$^{(c)}$	1.22$^{(b,c)}$	47.6$^{(b,c)}$	54.5$^{(c)}$	0.08$^{(c)}$	54.2$^{(b,c)}$
	(b) Moderate	4.47$^{(c)}$	2.08$^{(a,c)}$	40.1$^{(a,c)}$	54.2$^{(c)}$	0.19	50.0$^{(a)}$
	(c) Severe	7.46$^{(a,b)}$	3.18$^{(a,b)}$	33.3$^{(a,b)}$	50.4$^{(a,b)}$	0.42$^{(a)}$	46.8$^{(b)}$
Predominantly neuropathic	(a) None or mild	2.85$^{(b,c)}$	1.28$^{(c)}$	46.9$^{(b,c)}$	55.2$^{(c)}$	0.09	54.0$^{(c)}$
	(b) Moderate	5.36$^{(a,c)}$	1.90$^{(c)}$	40.2$^{(a,c)}$	53.2$^{(c)}$	0.22	50.8$^{(c)}$
	(c) Severe	7.64$^{(a,b)}$	4.64$^{(a,b)}$	33.8$^{(a,b)}$	46.1$^{(a,b)}$	0.32	41.8$^{(a,b)}$
Affective descriptors	(a) None or mild	2.94$^{(b,c)}$	1.32$^{(b,c)}$	46.9$^{(b,c)}$	54.8$^{(c)}$	0.09	54.1$^{(b,c)}$
	(b) Moderate	6.10$^{(a)}$	2.19$^{(a,c)}$	37.3$^{(a)}$	53.7$^{(c)}$	0.29	48.8$^{(a)}$
	(c) Severe	7.81$^{(a)}$	3.78$^{(a,b)}$	33.6$^{(a)}$	47.4$^{(a,b)}$	0.34	44.4$^{(a)}$
Total pain	(a) None or mild	3.39$^{(b,c)}$	1.37$^{(b,c)}$	46.0$^{(b,c)}$	54.8$^{(c)}$	0.08$^{(b)}$	43.4$^{(c)}$
	(b) Moderate	6.45$^{(a)}$	2.34$^{(a,c)}$	34.4$^{(a)}$	53.3$^{(c)}$	0.61$^{(a,c)}$	49.9$^{(c)}$
	(c) Severe	7.21$^{(a)}$	4.12$^{(a,b)}$	33.5$^{(a)}$	46.8$^{(a,b)}$	0.24$^{(b)}$	53.3$^{(a,b)}$

Note. Superscript a, b, and c in the parentheses indicate the difference between three levels of pain (none or mild; moderate; severe). For example, 2.68$^{(b,c)}$ (Column 3, first row) indicates that participants with “none or mild” pain reported an average of ISI of 2.68 that is statistically different from 4.26 and 6.61 for moderate (b) and severe (c) pain, respectively. SF-12 = the 12-Item Short-Form Health Survey; ADL = Activities of Daily Living; SF-MPQ = Short-Form McGill Pain Questionnaire; ISI = Insomnia Severity Index; GDS = the Geriatric Depression Scale; MMQ-A = the Multifactorial Memory Questionnaire.

Table 4

Odds Ratio for Multinomial Logistic Regression Models Examining Correlates Between Level of Pain and Health Service Utilization Adjusting for Demographic Variables Among Underserved African Americans Aged 65 Years and Older ($N = 400$).

	Emergency room (ER) admission[a]		Hospital admission[b]		Physician visits[c]	
	OR [95% CI]					
Independent variables	**No visit**	**One visit**	**No admission**	**One admission**	**≤3 visits**	**4 to 5 visits**
Gender						
Female	**0.38 [0.25, 0.86]**	**0.45 [0.22, 0. 94]**	1.49 [0.86, 2.58]	0.55 [0.24, 1.26]	1.56 [0.84, 2.89]	0.99 [0.61, 1.60]
Male	1.00	1.00	1.00	1.00	1.00	1.00
Age						
65–74	1.70 [0.84, 3.44]	1.46 [0.68, 3.13]	0.67 [0.38, 1.17]	0.69 [0.33, 1.46]	0.72 [0.38, 1.36]	0.62 [0.38, 1.00]
≥75	1.00	1.00	1.00	1.00	1.00	1.00
Education						
No high school diploma	1.72 [0.77, 3.84]	1.83 [0.78, 4.32]	1.03 [0.55, 1.91]	1.72 [0.78, 3.70]	**0.42 [0.19, 0.91]**	**0.59 [0.34, 1.00]**
High school diploma	1.00	1.00	1.00	1.00	**1.00**	**1.00**
Co-payment						
No	0.49 [0.24, 1.01]	**0.46 [0.22, 0.98]**	1.15 [0.67, 1.98]	1.89 [0.88, 4.05]	**0.34 [0.19, 0.62]**	**0.46 [0.29, 0.74]**
Yes	1.00	**1.00**	1.00	1.00	**1.00**	**1.00**
Self-rated health status						
Fair/poor	**0.35 [0.15, 0.82]**	0.48 [0.19, 1.22]	1.72 [0.87, 3.42]	**3.44 [1.24, 9.54]**	0.71 [0.33, 1.56]	0.83 [0.46, 1.52]
Good	1.29 [0.51, 3.28]	0.93 [0.34, 2.56]	0.87 [0.44, 1.72]	1.54 [0.55, 4.36]	1.08 [0.53, 2.23]	1.37 [0.77, 2.41]
Excellent/very						
good	1.00	1.00	1.00	1.00	1.00	1.00
Level of pain	**0.46 [0.35, 0.86]**	0.54 [0.27, 1.05]	1.30 [0.78, 2.14]	1.45 [0.74, 2.85]	**0.38 [0.21, 0.67]**	**0.55 [0.35, 0.86]**
Model fitting criteria-2 log likelihood	**340.463**		**292.101**		**351.282**	
Nagelkerke R^2	**.099**		**.083**		**.147**	
p Value	**<.02**		**<.002**		**<.001**	

Note. OR = odds ratio; CI = confidence intervals.

[a] Reference: At least 2 emergency room (ER) admissions within 12 months

[b] Reference: At least 2 hospital admissions within 12 months

[c] Reference: *At least 6 office*-based physician visits with last 12 months