

## Defining Racial and Ethnic Disparities in Pain Management

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### Abstract

**Background** Substantial pain prevalence is as high as 40% in community populations. There is consistent evidence that racial/ethnic minority individuals are overrepresented among those who experience such pain and whose pain management is inadequate.

**Questions/purposes** The objectives of this paper are to (1) define parameters of and summarize evidence pertinent to racial/ethnic minority disparities in pain management, (2) identify factors contributing to observed disparities, and (3) identify strategies to minimize the disparities.

**Methods** Scientific literature was selectively reviewed addressing pain epidemiology, differences in pain management of non-Hispanic whites versus racial/ethnic minority groups, and patient and physician factors contributing to such differences.

**Results** Racial/ethnic minorities consistently receive less adequate treatment for acute and chronic pain than non-Hispanic whites, even after controlling for age, gender, and pain intensity. Pain intensity underreporting appears to be a major contribution of minority individuals to pain management disparities. The major contribution by physicians to such disparities appears to reflect limited awareness of their own cultural beliefs and stereotypes regarding pain, minority individuals, and use of narcotic analgesics.

**Conclusions** Racial/ethnic minority patients with pain need to be empowered to accurately report pain intensity levels, and physicians who treat such patients need to acknowledge their own belief systems regarding pain and

develop strategies to overcome unconscious, but potentially harmful, negative stereotyping of minority patients.

### Introduction

Pain has been defined by the International Association for the Study of Pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” [46]. As noted by the American Academy of Pain Medicine [29], pain is typically classified as “acute” where “a one-to-one relationship exists between injury and pain...Although such pain frequently is short lived and self-limiting, it can become persistent and intractable if the underlying disease process or injury is chronic or incurable, or if the activation of pain is unavoidable, as in the pain caused by movement or weight bearing in injuries of the spine or in diseases such as arthritis” (p 975). When persisting longer than 3 months, such pain is classified as “chronic.” Regrettably, pain is a commonly occurring human experience with prevalence estimates as high as 40% in community populations [40, 99]. Indeed, acute pain is reported as the most common reason for an emergency room visit [95] and chronic pain is reported to account for more than 20% of all physician office visits in the United States and to cost in excess of \$60 billion annually in lost productivity [29, 89]. Whether rigorously assessed or simply inferred at first visit, pain is likely to be the presenting complaint most often encountered by the orthopaedic specialist in non-trauma-related clinical practice.

The experience of pain, however, is not uniformly distributed across the population. While studies using data from the US National Health and Nutrition Study to investigate racial/ethnic differences in the prevalence of

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any pain complaint failed to detect racial/ethnic differences [59, 60], other community-based studies of nationally representative samples have shown individuals from racial/ethnic minorities are at increased risk of more serious or activity-limiting pain [59, 77, 90]. For example, results from the 2000 Health and Retirement Study [77], a cross-sectional study of 13,777 persons 51 years of age and older, indicated similar pain prevalence rates across racial/ethnic groups, but, among those reporting pain, African Americans and Hispanic whites (27%) were more likely than non-Hispanic whites (17%) to report severe pain. Analyses of data from the Wave 1 Public Use Files of the National Epidemiologic Survey of Alcohol and Related Conditions [90], a representative sample of the civilian noninstitutionalized US population of 43,093 individuals 18 years and older interviewed between 2001 and 2002, indicated African Americans were 1.40 (95% confidence interval [CI], 1.39–1.41) and Hispanics 1.25 (95% CI, 1.24–1.25) times more likely than non-Hispanic whites to report pain in the past 4 weeks that interfered with their activities “quite a bit” or “extremely” (SF-12 pain question [102]).

Despite its high prevalence and salience to patients and practitioners, pain has not received widespread attention by medical and public health practitioners until quite recently [29]. During 2000, the US Congress announced the “Decade of Pain Control and Research” would begin on January 1, 2001 [29], and the Joint Commission on the Accreditation of Health Organizations (JCAHO) mandated pain be routinely assessed in hospital settings as the fifth vital sign [49]. Moreover, in 2009, the US House of Representatives passed the National Pain Care Policy Act of 2009 (HR756). This bill is currently under consideration in the Senate [19]. These steps were designed to diminish current inadequacies in knowledge, clinical practice, and education regarding the neurobiology, psychosocial, and other dimensions of pain. Although improvements in pain management have recently been observed [10, 76], it is estimated as many as 80% of patients in some settings, including primary and tertiary care locations, receive inadequate treatment for a pain condition [53, 70]. More disturbing, however, there is consistent evidence racial/ethnic minority individuals are overrepresented among those whose pain management is inadequate or ineffective [37, 38, 77]. With the possible exception of migraine disorder, where the gender-specific age and socioeconomically adjusted prevalence rates are lower in African Americans than in white Americans [88], there are no compelling data indicating racially specific genetic differences for other pain conditions that could account for the observed discrepancies in pain management. It is suggested the disparities in the pain care provided to racial/ethnic minorities are sufficiently large that they represent

treatment inequalities violating humanitarian and ethical principles [19, 29].

Focusing on racial/ethnic minority disparities in pain management, the objectives of this paper are to address the following questions: Where are we now? Where do we need to go? How do we get there? Specific to these objectives, the review includes (1) a background discussion of goals and common challenges encountered in managing pain, (2) a presentation of the current evidence pertinent to the presence of racial/ethnic minority disparities and/or inequalities in pain management and the factors that may contribute to the observed differences, (3) a brief statement of pain management goals that may be relevant to orthopaedic practitioners, and (4) a presentation of research, education, and other strategies that may facilitate the elimination of the observed racial/ethnic inequities in pain management.

### Search Strategy and Criteria

To address the first objective of this paper, presentation of the evidence regarding racial/ethnic disparities in pain management, a systematic literature search was employed. In the initial step, MEDLINE (Ovid 1996 to the present) was searched for the combined key words: race, ethnic, disparities, and pain. This yielded 372 articles. Using the same key words, the cumulative indexes of three pain journals, *Pain* (the official journal of the International Association for the Study of Pain), *Pain Medicine* (the official journal of the American Academy of Pain Medicine, The International Spine Intervention Society, and the Australian and New Zealand College of Anaesthetists), and the *Journal of Pain* (the official journal of the American Pain Society), were also searched. This yielded 134 articles (27 from *Pain*; 57 from *Pain Medicine*; and 50 from *Journal of Pain*). Additional articles were identified from the comprehensive literature reviews on racial/ethnic disparities in pain recently published by Anderson et al. [2] (195 references) and Shavers et al. [82] (186 references), and from the reference lists associated with each article read. To be eligible for a complete reading, an article needed to (1) include non-Hispanic white and African American or Hispanic white individuals who resided in the United States, (2) focus on issues related to the pain experiences and management of at least two racial/ethnic groups, (3) report a data analysis sample of at least 50 individuals, and (4) be published in an English-language peer-reviewed journal. More than 70 articles met these selection criteria and were read. To address the remaining paper objectives, research articles and published commentaries from such diverse fields as social cognitive psychology, health disparities, social epidemiology, and medical education were reviewed.

## Where Are We Now?

### Background: Pain Management Goals and Challenges

To appreciate the importance of racial/ethnic disparities in pain management, it is helpful to first identify important dilemmas faced by those treating pain in individuals, irrespective of their racial/ethnic background. In the following, therefore, pain management goals and challenges to their achievement, even by well-trained clinicians, are presented. Pain management goals include elimination or reduction of pain; improvement in physical, social, and psychologic function; and improvement in quality of life [4]. Necessary steps to achieve these goals are (1) accurate assessment of the individual's pain level, (2) identification of a treatment approach appropriate to the patient's pain level and clinical status, (3) timely initiation of the treatment, and (4) followup evaluations and, as needed, treatment modifications. There are a number of challenges to effectively completing these steps. (1) Pain is subjective and idiosyncratic. Its presence, quality, and intensity are communicated by self report, either verbally or through facial and behavioral expressions. Despite the development and evaluation of many different approaches and scales to assess pain [63], a universally accepted, external metric for objectively quantifying the presence and severity of pain does not exist; thus, the treating clinician is confronted with potential ambiguity and uncertainty when a patient says "I am in pain." (2) From a societal and clinical perspective, all types of pain are not equal. Acute pain for which there is a proximal, obvious cause (eg, pain resulting from a visible injury or a surgical procedure) is relatively unambiguous. Typically such pain is perceived by the patient and physician as "legitimate" and treatment is easily justified. Cancer pain and pain due to a terminal illness also are seen as "legitimate" and amenable to a variety of interventions. Chronic pain, especially if a direct cause and effect connection is no longer apparent, is often viewed with suspicion. At a minimum, it may be problematic for both the patient and the physician. Being invisible, chronic pain is ambiguous; pain patients and their reported pain levels are often not taken seriously by providers, and treatments are complex, often of marginal benefit, and frequently frustrating. (3) An individual's pain experience and the way he or she reports it reflect many factors about which the clinician may have limited knowledge. Specifically, as noted by Dubois et al. [29] in summarizing the work of Melzack [65, 66], "pain is a multidimensional experience produced by characteristic "neurosignature" patterns of nerve impulses...genetically determined and modified by sensory, emotional, cognitive, and memory experience" (p 979). Even if patients could accurately describe the culturally idiosyncratic attitudes and beliefs about pain and the experiences that influence their responses to pain stimuli, few

clinicians have time during a clinical encounter to ask about them. (4) While opioid analgesics are only one of several pain treatment modalities included in the biopsychosocial model of pain management articulated by Gallagher [35] and now being recommended as the model for pain care at the Veterans' Affairs [57], the careful use of such drugs has been endorsed for relief of acute postoperative cancer and chronic nonmalignant pain by professional and public health agencies including the American Academy of Pain Medicine [22], the American Pain Foundation [1], and the World Health Organization (WHO) [106]. Assumed and empirically documented risks of abuse, dependency, or medication diversion have made many physicians fearful and reluctant, or even unwilling, to prescribe opioids [5, 8, 13]. (5) Most physicians have not had sufficient training in the neurobiology of pain or the clinical approaches to effective pain management to be comfortable providing care to a complex pain patient [13, 100].

Reflecting the preceding, it is not surprising the pain treatment for millions of Americans is reported as inadequate or unacceptable [29]. While this is exceedingly distressing, as seen in the evidence presented below, the pain care received by racial/ethnic minorities is disproportionately inadequate.

### Racial/Ethnic Minority Disparities

#### *Patient-physician Agreement in the Patient's Pain Level*

Comparisons of patient and physician pain ratings typically indicate physicians are likely to underestimate the individual's reported intensity levels for both acute and chronic pain [2, 3]. When this occurs, the extent of underestimation is greater for racial/ethnic minority patients than for non-Hispanic whites. In a carefully designed study conducted in primary care practices, Staton et al. [87] observed physicians underestimated the pain scores of African American patients by greater than 2 points on an 11-point numeric pain rating scale 47% of the time versus 33.5% for non-African Americans ( $p < 0.0005$ ). In contrast, the pain ratings for non-African Americans were twice as likely as those for African Americans to be overestimated by the physician.

#### *Acute Nonmalignant Pain*

Since the seminal studies of analgesia prescribing in the emergency room setting by Todd et al. [94–96] showed Hispanic and African American patients were two to three times as likely as whites to not receive analgesia even after controlling for pain severity and other patient characteristics, additional studies have addressed this issue with

mixed results. While no emergency room-based study has been identified showing a racial/ethnic minority advantage in terms of the quality of pain care, in several studies, no prescribing differences have been observed [10, 21]. Researchers have suggested this reflects the positive effects of assessment and treatment requirements mandated by the JCAHO [49]. Despite this, however, recent studies [68, 76, 91] suggest racial/ethnic inequalities in pain management in the emergency room persist. For example, in a retrospective cohort study [68] of 20,125 individuals 18 years of age or older seen for abdominal or back pain in an urban emergency department between 2003 and 2007, adjusted odds ratios for opioid administration were 1.10 (95% CI, 1.06–1.13) for white or Hispanic white patients versus African American or Hispanic African American patients, indicating a 10% greater likelihood that white individuals received opioids than African Americans. In another study of the National Hospital Medical Care Study, Pletcher et al. [75] examined trends from 1993 to 2005 in emergency room opioid prescribing by racial/ethnic status. They observed, while there was no racial/ethnic difference in the receipt of any analgesic, racial and ethnic minorities continued to experience lower rates of receiving opioid analgesics during a pain-related visit than their white counterparts. Multinomial logistic regression analyses in which whites served as the reference showed weighted, adjusted odds of receiving an opioid were 0.64 (95% CI, 0.62–0.70) for African American, 0.69 (95% CI, 0.65–0.73) for Hispanic, and 0.73 (95% CI, 0.65–0.82) for Asian/other. Comparable racial/ethnic inequalities in receipt of opioid analgesics for acute pain, but not non-opioid analgesics, have been observed for different presenting complaints, including musculoskeletal pain and back pain [42, 43, 55]. Examination of the literature concerning postoperative care shows, irrespective of study design, surgical procedure investigated, patient age, or whether or not patient-controlled analgesia was administered, whites received higher doses of opioid analgesics than African Americans, non-Hispanic whites, or Asian Americans [62, 72, 73] or were more likely to receive analgesic medications adequate to their pain level [64]. More distressing, Jimenez et al. [47] reported differences in perioperative analgesic prescribing between Latino and white children who had a tonsillectomy/adenoidectomy. Latino children received approximately 30% less opioid analgesic than comparably aged white children [47].

### *Chronic Nonmalignant Pain*

While studies in outpatient or long-term care settings of ethnic and racial disparities in the management of chronic pain have been less numerous than those addressing

treatment of acute pain, the findings are similar. African Americans are less likely than whites to receive opioid analgesics for chronic pain conditions and/or other treatments, such as referral to surgery [28, 93]. For example, in their study of chronic pain patients from 12 primary care practices, Chen et al. [20] observed whites were 2.67 (95% CI, 1.71–4.15) times more likely than African Americans to be using opioids for chronic pain. The odds ratio was not diminished after controlling for such other factors as age, gender, income, physician status (resident or attending), and pain severity rating. Likewise, a smaller proportion of elderly African American and Hispanic than non-Hispanic white nursing home residents have received analgesics for pain complaints [9].

### *Cancer Pain*

Despite the availability of the WHO guidelines for cancer pain care that provide a standard for pain management [106], racial/ethnic disparities in care of cancer-related pain have been observed [3, 23, 44]. For example, in one study of 1300 individuals conducted by Cleeland et al. [24], African American and Hispanic cancer patients seen in predominantly minority-serving outpatient clinics were one-third as likely to receive adequate WHO-recommended use of opioid analgesics as non-Hispanic white individuals seen in similar clinical settings focusing on care to ethnic majority individuals.

### *Contributing Factors*

The evidence presented above is quite consistent; inequities in the quality of pain care are seen for racial/ethnic minority patients versus non-Hispanic whites. The most consistent inequality, seen across different pain types and treatment locations, is the prescription of less effective analgesics to racial/ethnic minority individuals. NSAIDs, rather than opioid analgesics, or opioid preparations but at lower doses are more likely to be prescribed to African Americans, Hispanics, and Asians than to whites even though pain severity levels are comparable. That such prescribing differences are evident in the emergency room and postoperative settings and affect both children and adults is particularly disturbing since the medications are administered over a relatively short time period and in a controlled setting where there is no immediate risk of abuse or diversion. In the next sections, factors that may contribute to the observed racial/ethnic inequalities in pain management are considered from three perspectives, the individual, the physician, and the society and healthcare system.

*Individual Level Contributors*

The presence of ethnic/cultural differences in the perception of and reaction to pain has been recognized since the seminal works of Zborowski [107] and Zola [108] more than 50 years ago. In considering disparities in the present context, the four-stage model for processing pain proposed by Riley et al. [78, 79, 101] provides an organizing framework. The model stages include (1) the “initial sensory-discriminative stage” characterized by perceived pain intensity; (2) immediate emotional response to the painful stimulus in terms of appraised “unpleasantness”; (3) longer-term “reflective or cognitive” processing relating to the “meanings” pain has for the person’s life characterized by such emotions as depression, anxiety, fear, and anger; and (4) “overt behavioral expressions of pain,” such as reporting pain, change in daily activities, healthcare seeking, treatment acceptance and adherence, and coping strategies [78]. The results of studies, predominantly limited to comparisons of African Americans with non-Hispanic whites, indicate, at each stage in processing pain, compared to non-Hispanic whites, individuals who classify themselves as African American experience and react differently to pain (Table 1). Their sensitivity to painful

stimuli is higher and their pain sensations are more unpleasant. For them, comorbid depression more often accompanies persistent pain, and they suffer greater functional and activity limitations than comparable non-Hispanic whites. The greater likelihood that an individual from a racial/ethnic minority will experience considerable burden, diminished quality of life, and a complicated clinical presentation if acute pain becomes chronic should strongly motivate both the patient and the physician to ensure optimum pain management is achieved. Whether due to feelings of intimidation because of the perceived higher social status of the physician or to culturally motivated pressures to appear “stoic” [3, 23], the tendency for racial/ethnic minority individuals to underreport pain levels appears their main contribution to inadequate or inequitable pain management [37]. Efforts to encourage individuals to adopt more empowered attitudes and behaviors when seeking pain care appear warranted.

*Provider Level Contributors*

As evident from the summary statement of the recent National Pain Medicine Summit [57], it is widely

**Table 1.** Summary of evidence regarding the nature of disparities in pain processing stages

Pain processing stage [78, 79, 101]	Nature of disparities in pain processing between ethnic/racial minorities (African Americans, Hispanics, Asians) and non-Hispanic whites
Sensory discriminative; perceived intensity of pain sensation	Experimental studies: African Americans have lower pain thresholds to cold, heat, pressure, and ischemic pain stimulus [18, 30, 31, 54, 83, 103] Clinical studies: controlling for sociodemographic characteristics and medical comorbidity, most studies show no racial differences in pain intensity ratings [31, 78, 83]
Immediate response of unpleasantness; immediate affective response; limited cognitive processing	Experimental and clinical studies: African Americans describe comparable pain intensity as a more unpleasant sensation than whites [30, 61, 78] Racial disparities in pain unpleasantness differ across painful medical conditions, including AIDS [12], glaucoma [84], and arthritis [25]
Longer-term reflective cognitive processes relate to meanings pain holds for one’s life; negative emotions, eg, depression, anxiety, fear, anger	African Americans have higher levels of comorbid depression and/or anxiety, fear, and helplessness than whites [13, 41, 67, 78] African Americans are more likely to attribute pain to personal inadequacies than whites [58]
Overt behavioral expression of pain; verbal expressions; pain reporting; pain coping strategies; healthcare seeking; activity/role interference and restrictions	African Americans are more likely than whites to underreport pain unpleasantness, especially in the presence of physicians perceived as “higher social status” [52] African Americans and Hispanics are more likely than whites to believe health professionals did not believe them when they reported being in pain [74] African Americans experience greater activity interference at comparable pain level than whites or Hispanics [6, 48, 50, 51, 61] African Americans are more likely to use passive pain coping strategies (prayer, pain catastrophizing) [41, 92] African Americans and Hispanics are more afraid than whites of opioid addiction risk [3, 23]

recognized knowledge regarding pain conditions and pain management principles and strategies, especially the pharmacology and prescribing guides for pain medications, are not well covered in medical undergraduate and specialty education. Physicians' lack of such knowledge and the resultant discomfort in pain management skill level have been advanced as important contributors to the observed racial/ethnic disparities [2, 13, 100]. It makes sense that physicians with inadequate knowledge will be at high risk for providing inadequate care for pain. However, one would expect insufficient education or low competence in pain management would lead to delivery of inadequate care to all racial/ethnic groups, not just minority groups.

Possession of negative attitudes toward racial/ethnic minorities or prejudicial racial stereotyping and limited cultural competency represent more plausible physician contributions to the observed inequalities in pain care. While seeming to suggest all physicians are thoughtless and have racial prejudices, this is not the intent of the preceding. Rather, it is to focus consideration on the reality that many physicians, like others, are capable of simultaneously strongly advocating for racial/ethnic dignity and equality and maintaining stereotypic, negative racial prejudices and beliefs that exist outside of conscious awareness but still influence demeanor and behavior in the clinical setting [16, 32, 97, 98]. This phenomenon, the existence of two types of social cognitions within the same individual, has been studied extensively by social cognitive psychologists [27, 85] and, more recently, pain researchers [15, 17]. This work has yielded a scientifically grounded explanatory model of social cognitive processing characterized by "dual-system models" in which social cognitions and related behaviors are seen as a function of two mental processing systems that are interconnected but operate according to different principles and meet different cognitive needs [17, 85]. Moreover, the model suggests each aspect of the model has a unique memory system [15, 85]. The first cognitive processing mode is intentional, conscious, and effortful [85]. Alternatively referred to as "rule-based," "controlled," or "rational," it gives rise to "explicit" attitudes and behaviors and has a "fast-learning memory system" where new information is quickly stored. A second, independent cognitive processing mode is relatively effortless, exists outside of consciousness, and operates without intent [85]. Alternatively referred to as "associative," "automatic," or "experiential," it gives rise to "implicit" attitudes and behaviors and has a memory system that is "slow learning" and builds up over time through repetitious exposure to stimuli and is difficult to change [85]. The findings from several studies to investigate possible racial bias among physicians illustrate the two modes of social cognitive processing. To investigate possible racial bias, vignette studies have been conducted

in which physicians were given written scenarios of pain patients who, typically, were identical except for the patient's race. With no time limits to complete the study tasks, the physicians were asked to formulate a treatment plan that included pain management. The common finding from these studies was the absence of an association between the patient's race and the physician's planned medication prescribing patterns [71, 74, 104]. Because of the structured, impersonal nature of the task and the availability of sufficient time to carefully weigh different alternatives, vignette studies stimulate "rule-based" social cognitive processing. The result is the expression of "explicit" attitudes reflecting the individual's commitment to supporting racial equality. In another study [80], the existence of racial bias was also investigated. This study was designed to assess the "implicit" attitudes outside a person's conscious awareness. The race attitude version of the Implicit Association Test (IAT) [14, 39, 80], a well-validated assessment tool to measure such attitudes, was used. Briefly, the IAT is designed so that subjects are ignorant that their responses reveal their comparative evaluations of two groups. In this study, white Americans and African Americans were the two groups, and the preference for one group over the other was being measured. Unlike the vignette studies, administration of the race attitude version of the IAT is timed. Stimuli are presented very quickly, and subjects are asked to "categorize facial images (white or African American) and value laden words (good versus bad) as they appear on a computer screen" (p 899) [80]. Comparable to the total sample of respondents (non-Hispanic whites,  $n = 238,791$ ; African Americans,  $n = 30,478$ ), the results for a sample of 2535 respondents who reported "MD" as their highest education level showed white MDs had a "strong implicit preference for white Americans over black Americans" (p 901) [80]. African American MDs, on average, reported no increased preference for either group. In their paper on dual-process models, Smith and DeCoster [85] consider the issue of simultaneously holding conflicting attitudes exemplified by "a general negative stereotype of a social group combined with 'personal beliefs' that deny the stereotype...[They suggest]...stereotypes may be held in the slow-learning system even by people who sincerely deny those beliefs, precisely because the stereotypes take the form of associations between social group membership and various negative characteristics, built up over many years through exposure to biased and stereotypic media content, comments from other people, and so forth" (p 128). According to the dual-system model, the ability of "implicit" negative racial attitudes and stereotyping to affect clinical decision-making is due to the primacy of "associative" cognitive processing over "rule-based" processing when, as in many clinical situations, the physician is confronted with an

excess of cognitive demands such as patient overload, need to make life and death decisions, uncertainty, confusion, or fatigue [15].

Limited cultural competence represents a third way in which physicians may contribute to the observed ethnic/racial minority disparities in pain management [14, 26, 32, 69, 97]. Culturally competent care has been defined as “care delivery in a manner that is respectful of and sensitive to the patient’s [cultural] background and health beliefs” (p 2) [11]. To provide such care, it is suggested physicians need to have (1) acquired knowledge of the culturally specific beliefs and attitudes held by their patients, (2) developed an appreciation of the importance to the patient of such beliefs even if they are not scientifically grounded, and (3) acquired an understanding of how to use the knowledge of their patient’s cultural belief system to inform patient care decisions [105].

In addition to knowledge of the patient’s culture and the ability to integrate such knowledge into clinical practice, Crowley-Makota et al. [26] have suggested physicians’ ignorance of their own cultural background, the related beliefs they hold, and the influence of these on their behaviors may be the greatest impediments to their delivery of “culturally competent” and equitable pain care. Moreover, they suggest the emersion of allopathic physicians in the biomedical culture that emphasizes “mind-body dualism; a focus on disease versus illness; and a bias toward cure versus care...” (p 1312) [26] is likely to make caring for pain patients even more conflicting and frustrating. This is especially the case when the physician is not actively conscious of how much the biomedical culture influences his/her thinking and how strongly pain (a “mind-body” symptom often amenable only to palliation) violates the culture’s basic premises.

### *Societal Level Contributions*

Societal level factors that operate independently of or through the healthcare system also make important contributions to the pain care inadequacies experienced by minority subgroups. As documented in the Institute of Medicine report *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* [45], the societal level factors contributing to health and healthcare disparities include such factors as the continued disproportionate representation of ethnic/racial minorities among individuals living in poverty, contemporary racism and discrimination, and concentration of environmental hazards in the often segregated communities in which ethnic/racial minorities live. Healthcare system inadequacies are characterized by the high numbers of uninsured individuals and the uneven distribution across

the population of even basic medical services, including those directed to pain relief.

Several additional problems specifically contributing to suboptimal pain management include (1) absence of effective regulatory systems that oversee the acquisition, dispensing, and monitoring of narcotic analgesics in ways that increase availability without fear of regulatory scrutiny; (2) limited public education initiatives directed toward the general public designed to change counterproductive beliefs about pain such as “pain is an expected part of life; grin and bear it,” “pain is God’s will,” “pain is only in one’s head; it isn’t real,” “people who succumb to pain are weak”; and (3) inadequate mechanisms for disseminating to physicians scientific findings regarding patient attributes, pain response styles, and pain management options that could lead to improved pain care. For example, despite accumulating evidence that African Americans who suffer from acute or chronic pain are not at increased risk of opioid abuse or diversion [7, 34, 56], opioid underprescribing to such individuals continues to be common.

### **Where Do We Need to Go?**

Most future goals directed toward the elimination of racial/ethnic minority disparities in pain management have been stated or alluded to in the preceding description of “where we are now.” The most salient of these include achievement of (1) pain management care systems that are grounded in scientific evidence, incorporate “best practice” guidelines, and are widely and timely accessible; (2) formal and informal mechanisms through which physicians who are not pain specialists may receive more adequate education in the science of pain management and, when confronted with a pain management problem beyond their level of competence, are easily able to consult with or refer to a pain specialist; (3) physicians and other healthcare professionals who have sufficient self-awareness and personal skills to overcome or regulate their negative implicit attitudes so such attitudes do not inadvertently impact patient interactions or clinical decisions; and (4) patient populations who have higher levels of health literacy and who feel empowered to honestly communicate with physicians and other healthcare providers.

### **How Do We Get There?**

Elimination of racial/ethnic disparities in pain management will require the focused efforts of physicians and other healthcare providers; citizens, whether or not pain sufferers; educational institutions; medical professional

organizations; and legislative bodies. These efforts need to (1) empower individuals to report pain accurately, (2) encourage physicians to examine their own cultural beliefs and stereotypical perceptions, and (3) modify counterproductive beliefs and attitudes regarding pain. To address these goals, concentrated and sustained education campaigns implemented through the mass media, the Internet, and all levels of formal education would be beneficial. A large undertaking, pain medicine physicians and advocacy groups for pain patients have begun this work through such organizations as the American Academy of Pain Medicine, the American Pain Foundation, and the American Pain Society. As noted in the summary of the National Pain Medicine Summit [57], the American Academy of Pain Medicine has taken on a leadership role in addressing these and other needs. Their primary recommendations, as articulated in the recently published "Pain Medicine Position Paper" [29], include "[r]ecognizing pain medicine as a primary medical specialty by the American Board of Medical Specialties...[and p]roviding a comprehensive system of pain care delivery that excels by integrating diverse medical specialties in the research, diagnosis, and treatment of pain" (p 977).

In addition to the above, the American Academy of Pain Medicine, in concert with the American Medical Association, has established a process for the development of undergraduate, graduate, and postgraduate education in pain principles and clinical management [36].

Having addressed work being undertaken by pain management specialists, it is timely to focus more narrowly and consider the expectations of orthopaedic surgeons and other musculoskeletal specialists who are not pain medicine specialists but who treat pain. It is suggested the most important, and very likely the most difficult, work to be done is to address the implicit negative stereotypic attitudes and beliefs that, while outside of conscious awareness, influence clinical decision-making and interpersonal behaviors and so contribute to the racial/ethnic minority disparities in pain management. As noted previously, such attitudes develop through associative social cognitive processing where the memory component is characterized by slow learning and resistance to change. While the first step to overcoming implicit attitudes is to acknowledge their existence, awareness alone is not sufficient. At a minimum, commitment, perseverance, patience, encouragement, time, and proven action plans that guide the way to tackling and changing negative implicit attitudes and their detrimental response patterns are required. Existing programs, such as self-awareness [86], mindfulness [33], and stress management training [81], hold promise; as well, Burgess et al. [14] have proposed, specifically for physicians, an extensive program designed to help physicians develop new skills to reduce the presence and impact of

negative implicit attitudes. Realization of these recommendations and goals for both the pain management specialist and the orthopaedic physician will resolve many of the impediments to delivery of quality and equitable pain care.

## Discussion

Focused on racial/ethnic minority disparities in pain management, this paper has addressed the three questions: Where are we now? Where do we need to go? How do we get there? Based on an extensive review of relevant literature, the answers to these questions are both disquieting and challenging. In summary, racial/ethnic minority disparities in pain management do exist. In varied settings (eg, the emergency and recovery rooms and primary care offices) and for multiple pain conditions (eg, acute injury, nonmalignant chronic, and cancer pain), African American and Hispanic white children and adults are at higher risk for inadequate pain management than their non-Hispanic white peers. The evidence suggests there is no single culprit for this disturbing situation; the observed presence of disparities in pain management reflects patient and physician/other provider attitudes and behaviors, as well as societal and healthcare system issues. By addressing, in this paper, both goals for delivery of equitable pain management and strategies directed toward their achievement, some of the discomfort from becoming more aware of the unacceptable status quo may be replaced by an enthusiasm to overcome difficult, but not insurmountable, challenges to achieve uniformly better pain management.

Before proceeding further, there are several limitations to this paper that require mention. (1) While pain is common and accounts for a large proportion of medical care visits, the number of identified, relevant peer-reviewed articles is relatively small. With the systematic literature search conducted (eg, MEDLINE search, review of indices of major pain journals, and examination of the reference lists of all articles read), it is unlikely this finding reflects the failure to identify relevant papers. More likely, it is due to the modest attention historically given the topic by pain researchers. (2) While a strong focus on racial/ethnic disparities in emergency room pain management and prescription of opioid analgesics has resulted in a series of studies that span many years, much of the population- or site-specific evidence reported here is based on the results of only several studies and, therefore, cannot be considered "very strong evidence." (3) Of greater importance, useful evidence is missing regarding racial/ethnic minority disparities in critical components of comprehensive pain management such as psychologic/mental health services, complementary and alternative treatment programs, and

physical therapy services. It is suspected this deficiency in evidence reflects the difficulties in measuring the use of such services and the cost and complexities of collecting the longitudinal data required when services to an individual, such as physical therapy, occur over days rather than hours. (4) almost all studies cited primarily focused on individuals whose race was non-Hispanic white, Hispanic white, or African American. The limited inclusion of other racial/ethnic groups such as persons of Chinese or Indian descent should not be mistaken as evidence that they do not experience racial/ethnic minority disparities in pain management. Rather, such racial/ethnic groups have not often been the focus of research directly addressing disparities in pain management.

Despite these limitations, the importance of the evidence presented in the preceding should not be discounted. The observed racial/ethnic minority disparities in pain management are consistent with findings from the large numbers of studies focused on racial/ethnic minority disparities in health status and health care. To retain a focus on pain management, this large, complex literature was not included in this review. (Interested readers are referred to the literature review and extensive reference list included in the 2002 Institute of Medicine report *Unequal Treatments: Confronting Racial and Ethnic Disparities in Health Care* [45].)

To achieve equitable pain management across all racial/ethnic groups, there is important research to be undertaken. While the basic science, clinical, and health services research to answer questions regarding the efficacy, effectiveness, acceptability, and long-term safety of pharmacologic and other pain treatment strategies and to develop generic pain curricula for training undergraduate and graduate physicians are the purview of pain medicine specialists, orthopaedic physicians have an important role as collaborators in these research endeavors. It is suggested orthopaedic physicians could productively take the lead initiative to develop multidisciplinary research focused on (1) understanding further the explicit and implicit attitudes held by orthopaedic physicians regarding different racial groups; (2) adapting, implementing, and evaluating existing programs to facilitate change and/or management of implicit attitudes or developing new approaches tailored to orthopaedic physicians in training or practice; (3) identifying race- and gender-specific beliefs and attitudes regarding the meaning for patients of musculoskeletal pain, the preferences and trade-offs associated with alternative potential treatment options, and the individual and cultural factors that inhibit or promote a person seeking care for orthopaedic problems; and (4) designing, implementing, and evaluating a clinical data system to be embedded within the patient's medical record that includes collection of appropriate clinical process and outcome variables that

would permit the continuous, quality assurance monitoring of symptoms of racial/ethnic minority disparities.

To conclude, the following comments by Brennan et al. [13] seem particularly appropriate: "First, pain, whether acute or chronic, is inadequately addressed for a variety of cultural, attitudinal, educational, political, religious, and logistical reasons. Second, inadequately treated pain has major physiological, psychological, economic, and social ramifications for patients, their families, and society. Third, it is within the capacity of all developed...countries to significantly improve the treatment of pain...[M]edicine is at an inflection point, at which a coherent international consensus is emerging: the unreasonable failure to treat pain is poor medicine, unethical practice, and is an abrogation of a fundamental human right" (pp 205–206). While there is much work still to be done to fully eliminate racial/ethnic disparities in pain management and to ensure high-quality pain care to all afflicted individuals, there is no doubt that efforts to address the issues identified in the preceding and to overcome the challenges that may be encountered are likely to yield enormous benefits to individuals from racial/ethnic minority backgrounds and to the physicians who partner with them to achieve pain relief.

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