

Preface: Musculoskeletal Healthcare

Since the beginning of 2000, there has been increasing recognition of musculoskeletal healthcare disparities regarding under-represented minorities.^{1,2} Disparate musculoskeletal healthcare is a complex issue ranging from differences in the biosocial aspects of human disease to variable treatment strategies and outcome assessments. In order to overcome barriers, we need to continue to explore all factors that may contribute to these disparities. The aim of this special section of the *Journal of Long-Term Effects of Medical Implants* is to stimulate discussion between clinicians, scientists, and engineers.

There are relatively few published studies that have evaluated differences in musculoskeletal healthcare based on sex, race, and ethnicity. Utilizing a data set from the US Nationwide Inpatient Sample, Maurer and Jones investigated whether there were national trends in healthcare utilization regarding under-represented minorities and total joint arthroplasty. They identified racial and ethnic disparities for total knee arthroplasty, total hip arthroplasty, and total shoulder arthroplasty. Furthermore, women had higher rates of utilization, although not reflective of their rates of arthritis.

Understanding what contributes to under- and/or over-utilization is important. Utilization is influenced by incidence and prevalence of disease. For example, rates of arthritis and osteoporosis are reported to be higher in women.^{3,4} However, there is evidence that rates of arthritis in under-represented minorities are at least equivalent to rates in majorities.⁵ Therefore, one would expect that utilization rates should be similar.

Access to musculoskeletal healthcare—especially for the elective surgery of total joint arthroplasty—is likely to have a significant impact on utilization. Yet even when patients have adequate access to healthcare, a disparity in utilization still exists.⁶ Although not specifically addressed herein, it is plausible that access may influence outcomes in specific patient cohorts.

Factors that influence the decision-making process will also influence the rate of utilization. Traditionally, decision making was primarily physician based. Therefore, under-utilization could be influenced by the physician's conscious and unconscious biases. The call for culturally competent care has been raised simultaneously with the call for shared decision making. McClellan et al. address the need for culturally competent care. While organizations such as the Association of American Medical Colleges provide guidance documents for teaching culturally competent care, we need to determine what content each program should include and which programs are the most effective.¹ The Patient Protection and Affordable Care Act, passed in 2010, also recognizes the importance of culturally competent care, stressing that information regarding healthcare should be provided in a “culturally and linguistically appropriate manner.”⁷

While laws recognize the right of patients to decide their treatment in accordance with their own values, this requires that patients have sufficient health literacy to fully comprehend their health condition as well as the risks and benefits of potential treatment strategies. Therefore, a logical evolution of physician-based and patient-based decision making is shared decision making between patients and their healthcare providers. The issues regarding shared decision making are complex and are well described by McClellan et al.

In addition to health literacy, Parks et al. observed several psychosocial factors that could impact utilization among African Americans and Latinos. The patients' perspective on their health condition and the various treatment options influences their decision as to if and when they should undergo surgical intervention for their musculoskeletal disease.

There is a critical need to better understand how sex, race, and ethnicity influence musculoskeletal disease (e.g., epidemiology, natural history) and the response to treatment (e.g., long-term outcome of total joint arthroplasty and other orthopedic procedures). Because the prevalence of arthritis is higher in women, it is not surprising that this corresponds to higher numbers of total joint procedures. There has been some debate as to whether women present with more severe disease than men. Pichard-Encina et al. found similar preoperative and postoperative outcomes for women and men regarding Harris hip scores and radiographic assessments. However, women scored lower on the Physical Functioning subcomponent of the SF-36 before and after total hip replacement. Longer-term studies are needed. The incidence of certain comorbidities may also be higher in certain patient cohorts. Sickle cell anemia is an autosomal recessive hemoglobinopathy. While this genotype may provide some advantage over malaria in many countries in Africa and Asia, the focus is primarily on the comorbidities in countries without a present major malaria concern such as the United States. For example, there is a notable incidence of osteonecrosis of the femoral head in sickle cell patients.^{8,9} In order to address the potential complications with respect to intraoperative bleeding and deep venous thrombosis, Patel and colleagues stress the importance of perioperative medical optimization including proper preoperative assessment for anemia and the establishment of blood management protocols. Another comorbidity, obesity, may influence the natural history of arthritis as well as the ultimate outcome of the surgical procedure. There is a high prevalence of obesity in African-American and Latino women^{10,11}; this group is also at risk of developing poor outcomes with respect to osteoarthritis.¹² In a study of morbidly obese patients, Lawyer et al. found a 66% prevalence of post-traumatic osteoarthritis approximately 4–5 years after surgery, which is notably higher than previously reported rates in the general population.¹³ While there continues to be debate on the effect of obesity on the long-term results of total joint arthroplasty, there appears to be an increase in the postoperative complication rate.¹⁴

We need a team approach if we are to make any inroads into breaking down musculoskeletal healthcare disparities. The resolution of musculoskeletal healthcare disparities is complex and will involve several strategies and input from a diverse group of individuals with different expertise and perspectives. The solution will need to include improved healthcare literacy of patients, culturally competent provision of care, as well as outcomes research that includes sufficient numbers of under-represented minorities to make meaningful determinations of the effects of race, ethnicity, and sex. And this is only the beginning.

REFERENCES

1. O'Connor MI, Lavernia CJ, Nelson CL. AAOS/ORS/ABJS Musculoskeletal Healthcare Disparities Research Symposium: Editorial comment: A call to arms: eliminating musculoskeletal healthcare disparities. *Clin Orthop Relat Res.* 2011;469:1805–8.
2. Lurie JD, Bell JE, Weinstein J. What rate of utilization is appropriate in musculoskeletal care? *Clin Orthop Relat Res.* 2009;467:2506–11.
3. Theis KA, Helmick CG, Hootman JM. Arthritis burden and impact are greater among U.S. women than men: intervention opportunities. *J Womens Health (Larchmt).* 2007;16:441–53.
4. Cawthon PM. Gender differences in osteoporosis and fractures. *Clin Orthop Relat Res.* 2011;469:1900–5.
5. Dominick KL, Baker TA. Racial and ethnic differences in osteoarthritis: prevalence, outcomes, and medical care. *Ethn Dis.* 2004;14:558–66.
6. Ibrahim SA. Racial and ethnic disparities in hip and knee joint replacement: a review of research in the Veterans Affairs Health Care System. *J Am Acad Orthop Surg.* 2007(15 Suppl 1):S87–94.
7. The Patient Protection and Affordable Care Act of 2010 (P.L. 111-148), as amended by the Health Care and Education Reconciliation Act of 2010 (P.L. 111-152), together referred to as the Affordable Care Act.

8. Matos MA1, dos Santos Silva LL, Brito Fernandes R, Dias Malheiros C, Pinto da Silva BV. Avascular necrosis of the femoral head in sickle cell disease patients. *Ortop Traumatol Rehabil*. 2012;14:155–60.
9. Bahebeck J, Atangana R, Techa A, Monny-Lobe M, Sosso M, Hoffmeyer P. Relative rates and features of musculoskeletal complications in adult sicklers. *Acta Orthop Belg*. 2004;70:107–11.
10. Brennen M, Williams CL. Lifestyle management of cardiovascular risk factors in African American women. *ABNF J*. 2013;24:92–7.
11. Wanat KA, Kovarik CL, Shuman S, Whitaker RC, Foster GD, O'Brien MJ. The association between obesity and health-related quality of life among urban Latinos. *Ethn Dis*. 2014;24:14–8.
12. Colbert CJ, Almagor O, Chmiel JS, Song J, Dunlop D, Hayes KW, Sharma L. Excess body weight and four-year function outcomes: comparison of African Americans and whites in a prospective study of osteoarthritis. *Arthritis Care Res (Hoboken)*. 2013;65:5–14.
13. Petsatodis G, Antonarakos P, Chalidis B, Papadopoulos P, Christoforidis J, Pournaras J. Surgically treated acetabular fractures via a single posterior approach with a follow-up of 2–10 years. *Injury*. 2007;38:334–43.
14. Vasarhelyi EM, MacDonald SJ. The influence of obesity on total joint arthroplasty. *J Bone Joint Surg Br*. 2012;94 (11 Suppl A):100–2.

Guest Editor:

Lynne Jones

Department of Orthopedic Surgery

Johns Hopkins University, School of Medicine, Baltimore, MD

