Racial Variation in Health Care: The Case of Joint Replacement Utilization

NADIA OGENE
LEONARD DAVIS INSTITUTE OF HEALTH ECONOMICS
Trajectory of Health Disparity Research

First Generation: Recognizing the problem

Second Generation: Identifying the root causes

Third Generation: Creating solutions to address the causes

Adapted from Kilbourne AM. AJPH, 2006.

17.5% Arthritis or rheumatism
16.5% Back or spine problem
7.8% Heart trouble/hardening of the arteries
6.5% Stroke
3.3% Blindness or vision problem
3.4% Diabetes
3.7% Mental or emotional problem
4.2% Limb/extremity stiffness
4.4% Deafness or hearing problem
4.7% Lung or respiratory problem

Percent of all disability

Osteoarthritis

- Caused by normal wear and tear of the joint from everyday usage
- Cartilage begins to wear away so that bones rub against each other
- Bone spurs caused by friction
# Recommended OA Treatment Strategies

<table>
<thead>
<tr>
<th>Non-pharmacologic Therapy</th>
<th>Pharmacologic Therapy</th>
<th>Surgical Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Patient education</td>
<td>• Oral</td>
<td>• If you still experience pain and limited activities after medical therapy, you may need to be evaluated for joint replacement</td>
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<tr>
<td>• Self-management programs</td>
<td>• Acetaminophen</td>
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<tr>
<td>• Personalized social support via telephone</td>
<td>• COX-2-specific inhibitor</td>
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<tr>
<td>• Weight loss (if overweight)</td>
<td>• Nonselective NSAID (nonsteroidal antiinflammatory drug)</td>
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<tr>
<td>• Aerobic exercise programs</td>
<td>• Nonacetylated salicylate</td>
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</tr>
<tr>
<td>• Physical therapy</td>
<td>• Other pure analgesics</td>
<td></td>
</tr>
<tr>
<td>• Range-of-motion exercises</td>
<td>• Tramadol</td>
<td></td>
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<tr>
<td>• Muscle-strengthening exercises</td>
<td>• Opioids</td>
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<tr>
<td>• Assistive devices for ambulation</td>
<td>• Intrarticular</td>
<td></td>
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<tr>
<td>• Patellar taping</td>
<td>• Glucocorticoids</td>
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<tr>
<td>• Appropriate footwear</td>
<td>• Hyaluronan</td>
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<tr>
<td>• Lateral-wedged insoles</td>
<td>• Topical</td>
<td></td>
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<tr>
<td>• Bracing</td>
<td>• Capsaicin</td>
<td></td>
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<tr>
<td>• Occupational therapy</td>
<td>• Methylsalicylate</td>
<td></td>
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<tr>
<td>• Joint protection and energy conservation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Assistive devices for activities of daily living</td>
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</tbody>
</table>
The Research Issue

Marked variation in the utilization of knee/hip joint replacement
  • Race: African-Americans
  • Ethnicity: Blacks
  • Gender
  • Geography
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Knee Replacement by Age and Race

Knee Replacement per 1000 (1996)

Age

65-69 | 70-74 | 75-79 | 80-84 | 85-99

Non-Black Male

Black Male

Jim Weinstein, Dartmouth College
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Knee Replacement by Age and Race

Knee Replacement per 1000 (1996)

Age

65-69  70-74  75-79  80-84  85-99

Non-Black Female
Black Female

Jim Weinstein, Dartmouth College
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Conceptual Framework: The Role of the System

- **Biologic severity**
  - Joint damage

- **Clinical severity**
  - Pain
  - Dysfunction

- **Diminished QOL:**
  - HRQOL
  - Global QOL

**System Factors:**
- Access to care

**Medical and/or Surgical Intervention**
Odds of Undergoing Knee Arthroplasty in the VA System

<table>
<thead>
<tr>
<th></th>
<th>Osteoarthritis cohort (n=260,856)</th>
<th>Specialty clinic sub-cohort (n=46,207)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee arthroplasty within 2 years</td>
<td>OR* 0.72  95% CI 0.65 - 0.80</td>
<td>OR* 0.72  95% CI 0.63 - 0.81</td>
</tr>
<tr>
<td>African American to White</td>
<td>1.06  0.89-1.25</td>
<td>1.13  0.93-1.39</td>
</tr>
<tr>
<td>Age</td>
<td>1.00-1.01</td>
<td>1.01  1.01-1.01</td>
</tr>
<tr>
<td>Male to Female</td>
<td>0.37  0.33-0.41</td>
<td>0.73  0.55-0.95</td>
</tr>
<tr>
<td>Comorbidity</td>
<td>0.37  0.33-0.41</td>
<td>0.73  0.55-0.95</td>
</tr>
</tbody>
</table>

*Adjusted for: age, gender, and comorbidity using Charlson Index

Biologic severity
• Joint damage

Clinical severity
• Pain
• Dysfunction

Diminished QOL:
• HRQOL
• Global QOL

Patient-Level Factors:
• Cultural/Psychosocial

System Factors:
• Access to care

Medical and/or Surgical Intervention
Patient Factors to Consider

• Attitudes toward joint replacement
• Knowledge about the treatment
• Patient preferences
• Surgical outcome expectancy
Patient Factors to Consider

- Attitudes toward joint replacement
- Knowledge about the treatment
- Patient preferences
- Surgical outcome expectancy
Perceived Usefulness of OA Treatments

The Role of the Provider

Biologic severity
• Joint damage

Clinical severity
• Pain
• Dysfunction

Diminished QOL:
• HRQOL
• Global QOL

Patient-Level Factors:
• Cultural/Psychosocial

System Factors:
• Access to care

Provider Factors:
• Treatment recommendations
• Referral

Medical and/or Surgical Intervention
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Studies

- **ACTION** = African-American Preference for Knee Replacement: A Patient-Centered Intervention
  - 1º: recommendation for joint replacement
  - 2º: surgery
- **REPAIR** = Preference for Knee Replacement: A Patient-Centered Intervention
  - 1º: referral to orthopedic specialist
  - 2º: surgery
Study 1: ACTION

- Screening
- Baseline
- Intervention
- Control
- Treatment
- 6-Month Medical Record Check
- 12-Month Follow-Up
Study 1: REPAIR

- Screening
- Baseline
- Intervention
- Control
- Treatment
- 2-Week Follow-Up
- 3-Month Follow-Up
- 12-Month Follow-Up
Intervention

• WOMAC = Western Ontarion and McMaster Universities Arthritis Index
• Video: Treatment Choices for Knee Osteoarthritis (Foundation for Informed Medical Decision Making)
• Brochures
• Motivational Interviewing
My Role

• Phone Interviews
  ✓ Screening
  ✓ Follow-Ups
• Data Entry
• Quality Assurance
• Team Collaboration
Limitations

• Medical Records
  ✔ No standard way of coding
  ✔ Patient relocation

• Recruitment
  ✔ Narrow parameters

• Accuracy: self-reported data
Lessons Learned

• Don’t be afraid to ask questions
• Step outside of comfort zone
• Constantly seek to help others
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