

Does Advancing Age Adversely Influence Outcomes following Lumbar Fusion Surgery? – A Retrospective Cohort Study

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Wentworth
Spine Clinic



Dalcross
Adventist
Hospital

Background



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The Spine Journal 8 (2007) 296–304

THE
SPINE
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2007 Outstanding Paper Award: Surgical Science

Assessment of health-related quality of life after surgical treatment of focal symptomatic spinal stenosis compared with osteoarthritis of the hip or knee

Y. Raja Rampersaud, MD^{a,b,*}, Bheesma Ravi, HBSc^c, Stephen J. Lewis, MD^{a,b},
Venessa Stas, MD^c, Ronald Barron^c, Roderick Davey, MD^c,
Nizar Mahomed, MD, MPH^c



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The Spine Journal 10 (2010) 306–312

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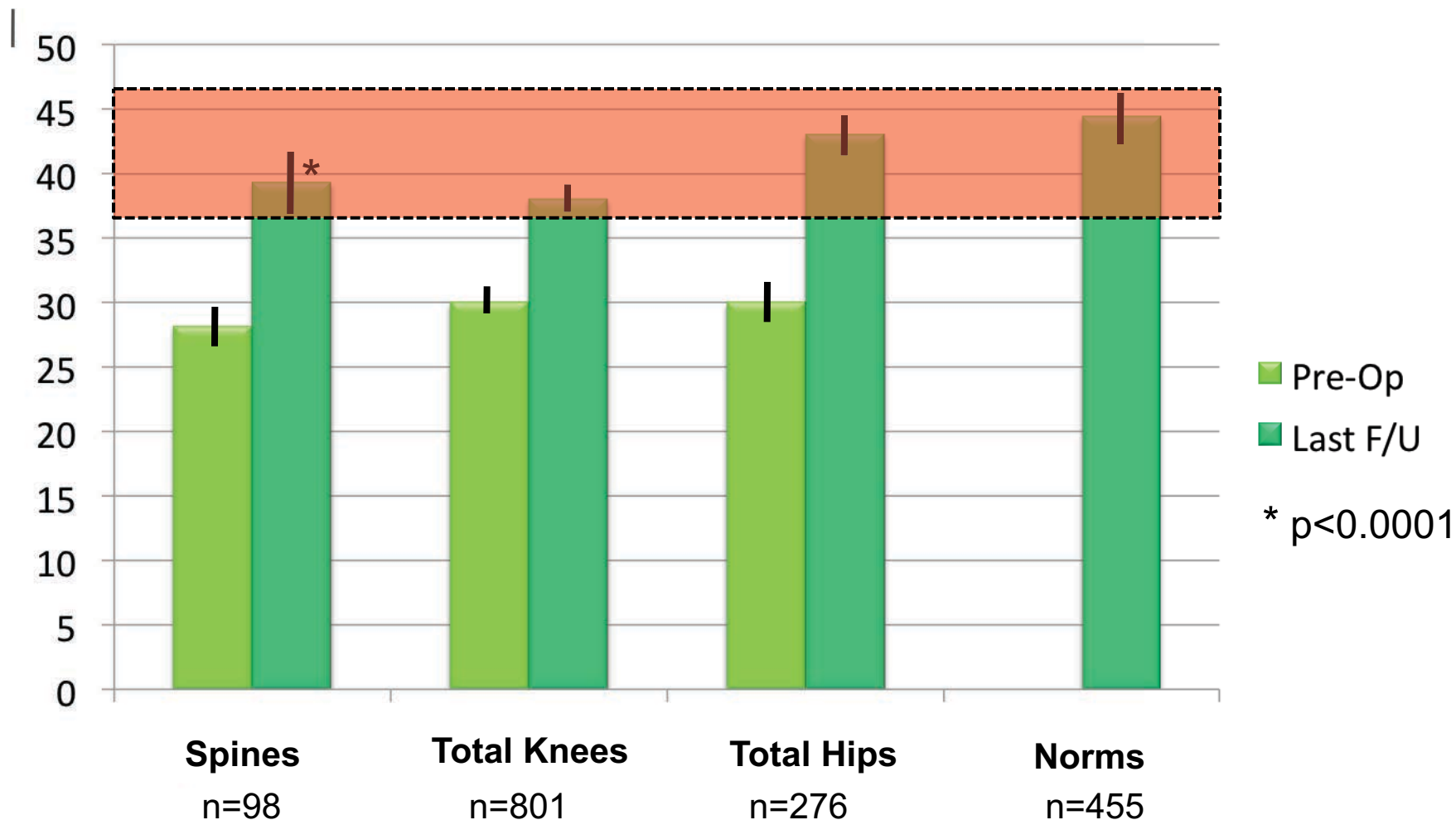
Clinical Study

Health-related quality of life: a comparison of outcomes after lumbar fusion for degenerative spondylolisthesis with large joint replacement surgery and population norms

Sabarul A. Mokhtar, MD, MS (Orth)^{a,*}, Peter F. McCombe, MBBS, FRACS^b,
Owen D. Williamson, MBBS, GradDipClinEpi, FRACS, FAOrthA^c,
Michael K. Morgan, MD, MMedEd, FRACS^d, Gavin J. White^e,
William R. Sears, MBBS, FRACS^a

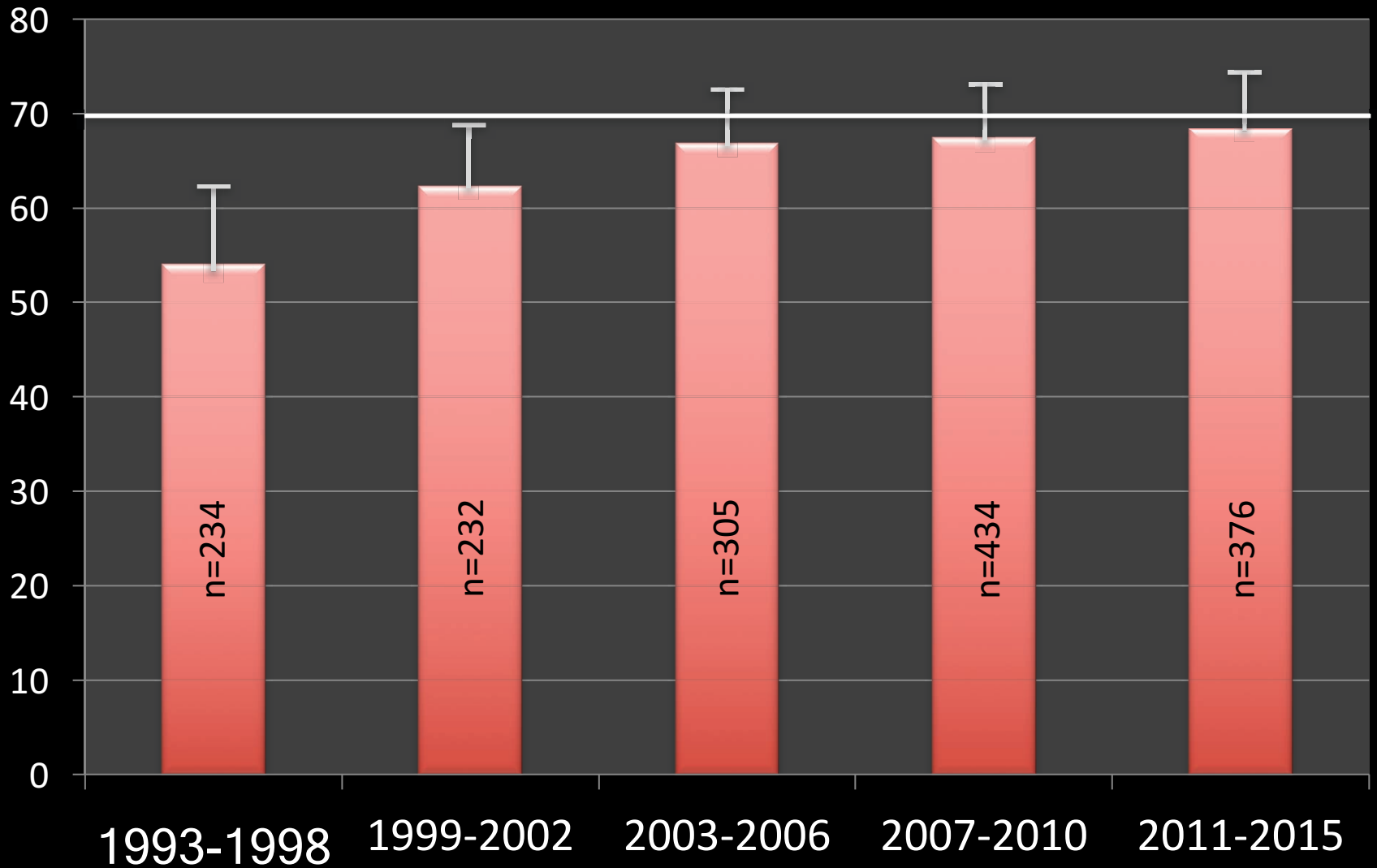
Primary Fusion for Degenerative Spondylolisthesis vs. published TKR, THR & age matched norms

Mokhtar et al. *Spine J* 2010



Patient Ages

(PLIF surgeries: 1993-2015)



Hypothesis



“Age adversely affects post-operative outcomes following lumbar fusion surgery”

Study Design

- Retrospective review (prospective surgical database)
- Matched indication
- Stratified to age groups
 - <60, 60-70, 70-80, 80+ years
- Clinical outcomes
 - HRQL and VAS pain scores
- Single surgeon, Oct 2000 – Jan 2015.
- Follow-up:
 - Minimum 12-months
 - Median 24-months

Inclusion criteria

- Single level surgery
- Previously un-operated
- Stenosis with degenerative spondylolisthesis



Patient Sample

- 163 patients
 - consecutive,
 - previously un-operated,
 - age range: 33 – 89 years
- Age groups:

– 80+years	n=22
– 70-79	n=55
– 60-69	n=54
– <60-years	n=32

Surgical technique

- Open
- Inter-laminar decompression +
- PLIF (BiTLIF)
- Restoration of sagittal balance

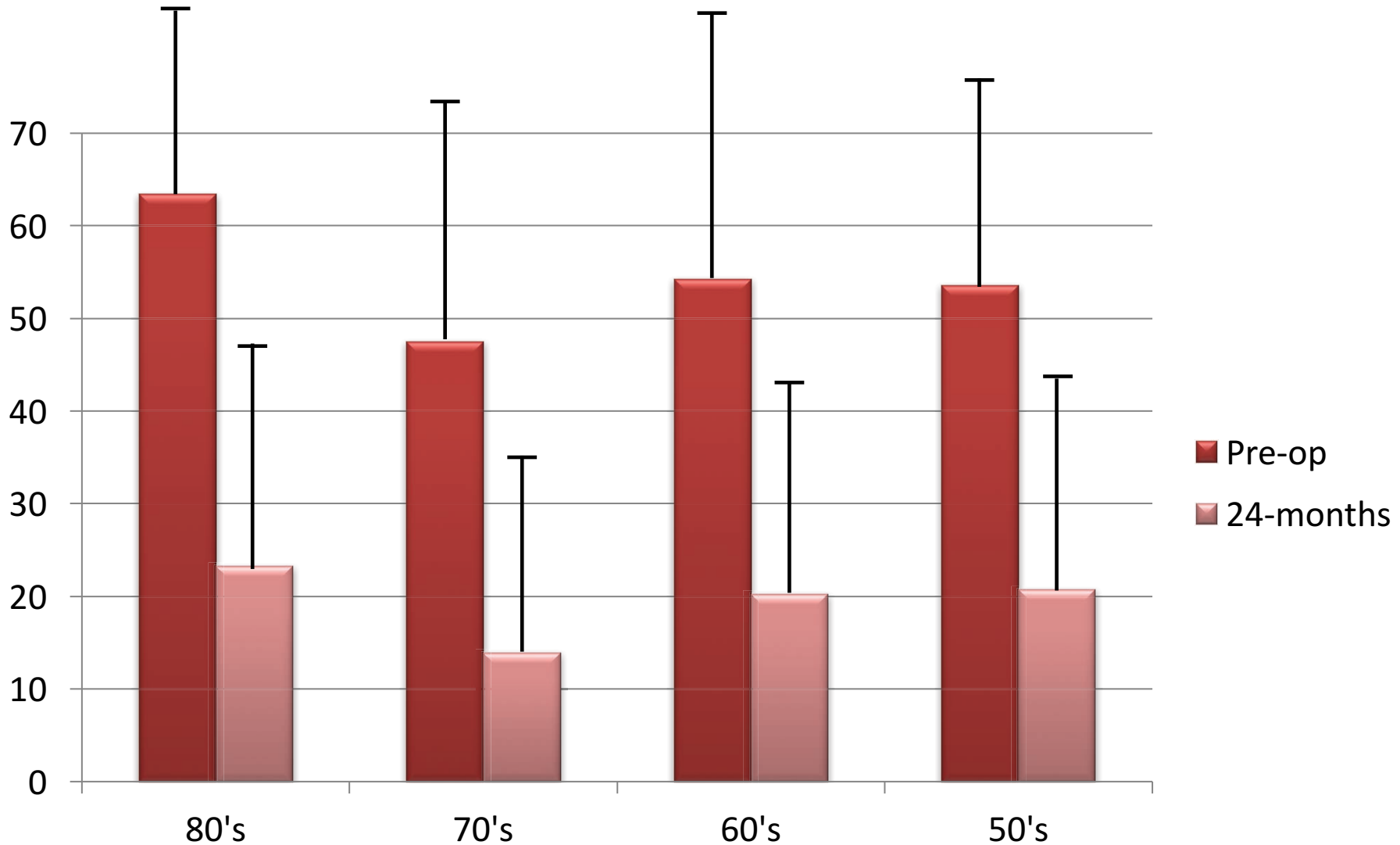


Outcome Measures

- VAS Pain scores
 - back & leg
 - MCID: 25 points
- ODI
 - MCID: 15 points
- SF-36
 - physical & mental component scores [PCS & MCS]
 - MCID: 6.2 points

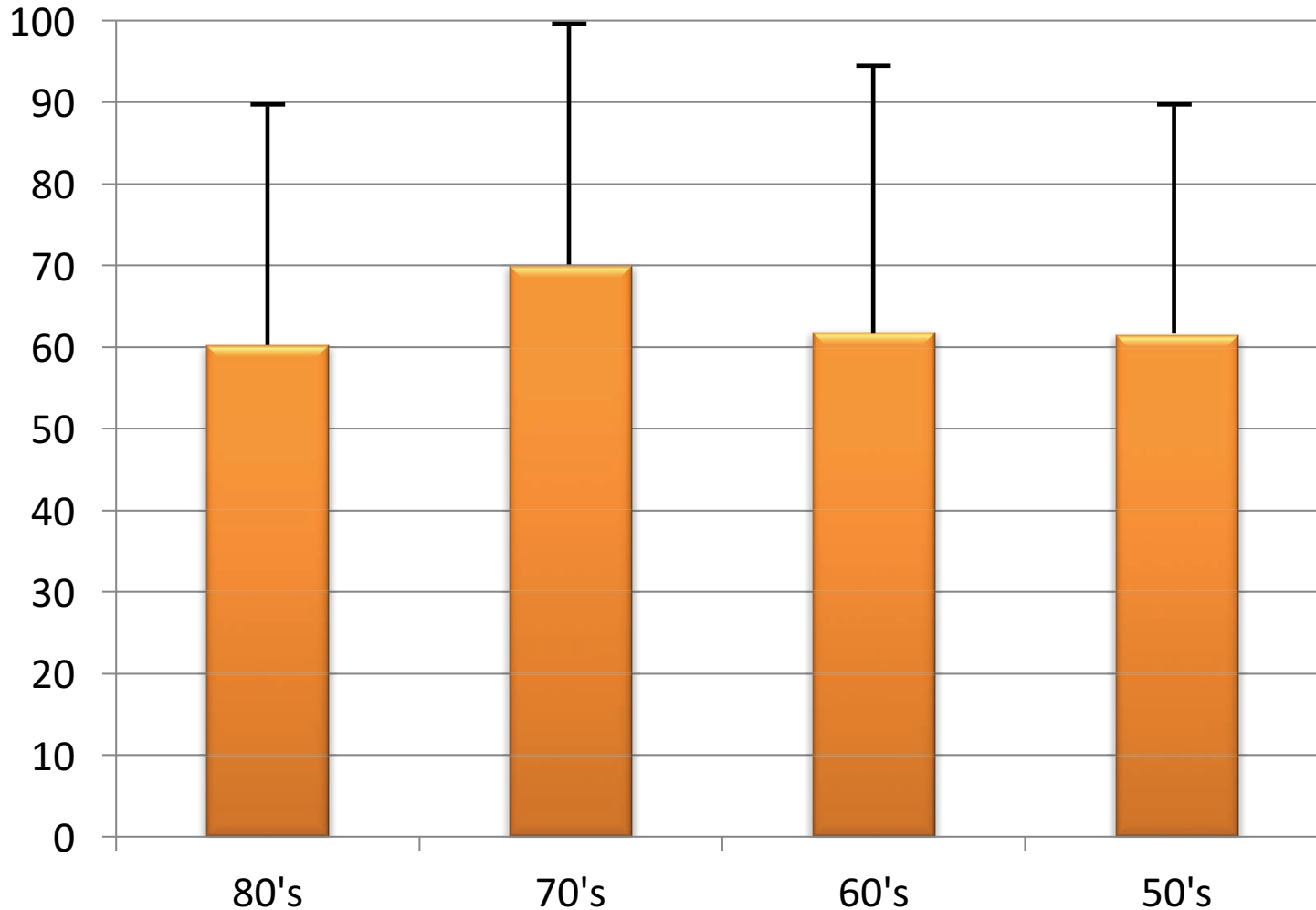
VAS Back Pain

(Pre-op *vs.* 24-months post-op scores)



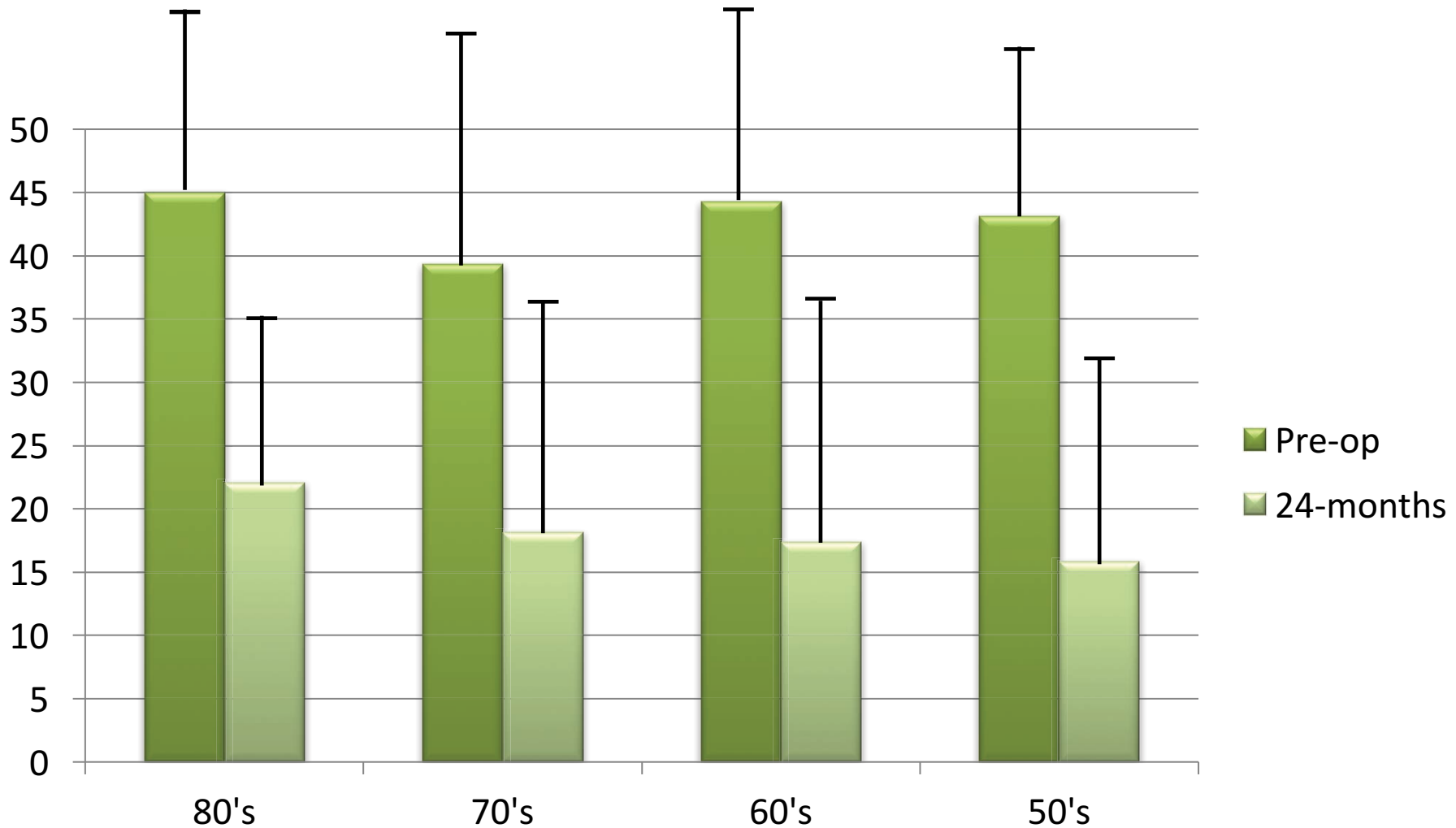
VAS Back Pain

(Percentage improvements: Pre-op – 24months)



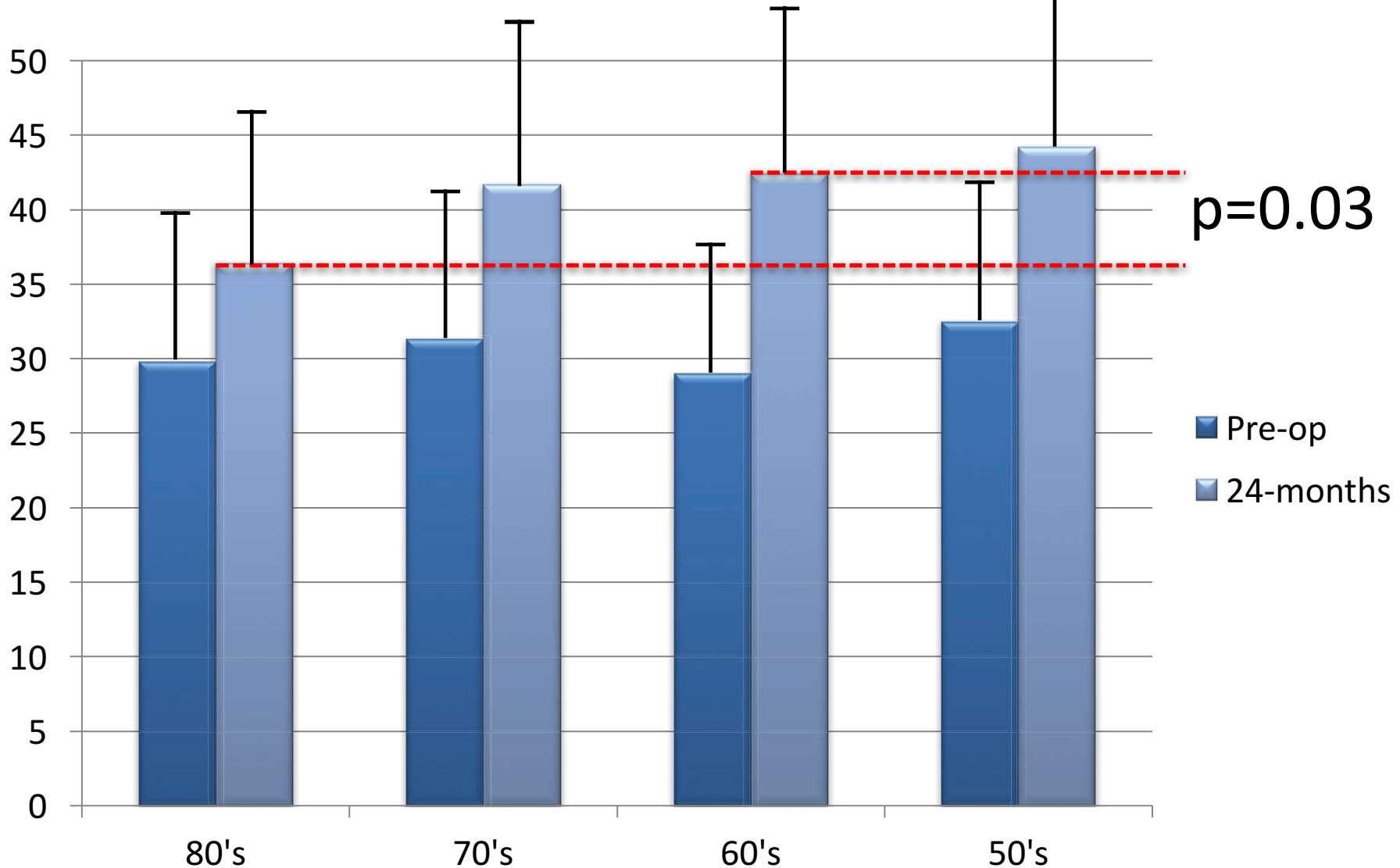
ODI

(Pre-op *vs.* 24-months post-op scores)



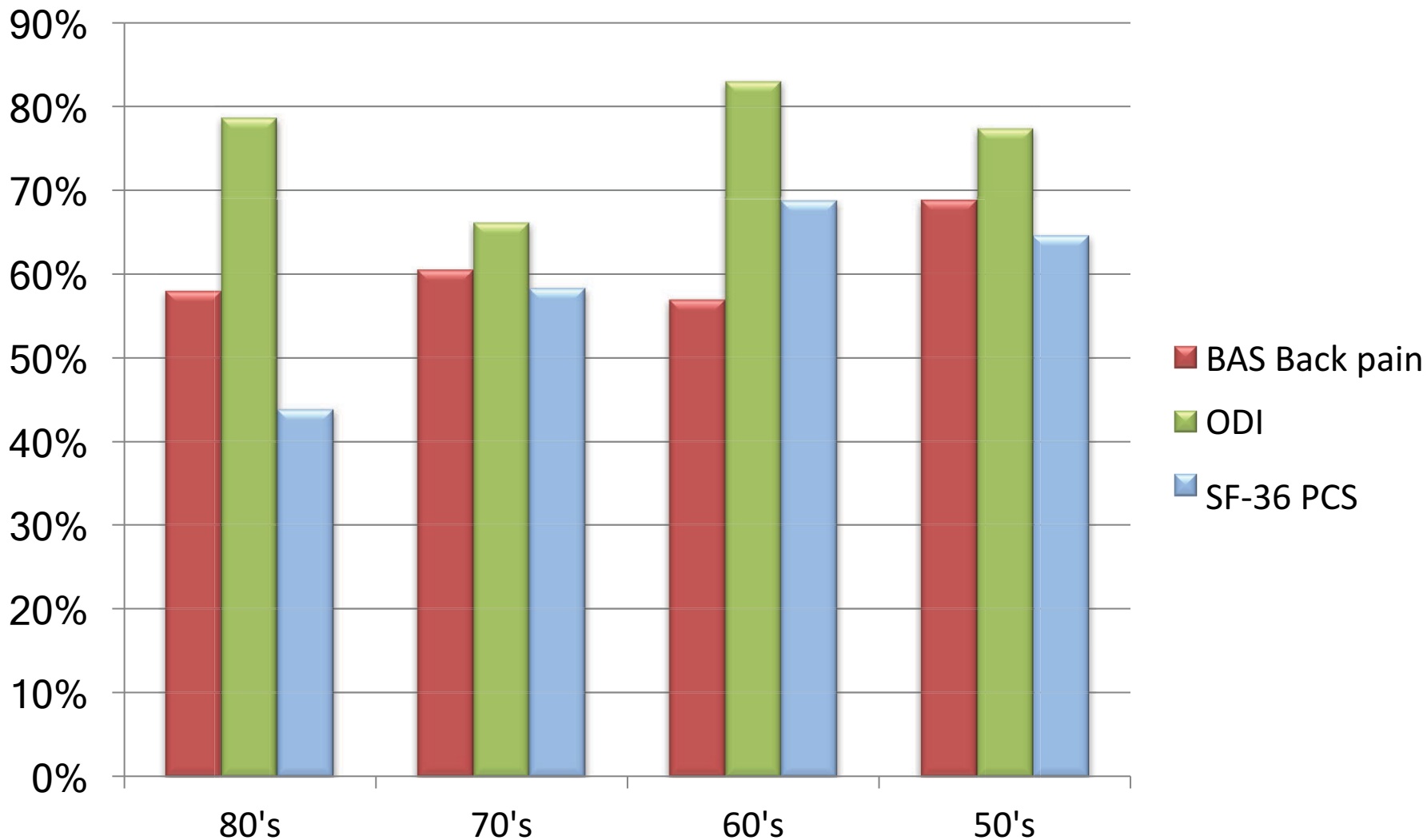
SF-36 PCS

(Pre-op *vs.* 24-months post-op scores)



Minimum Clinically Important Differences

(%age patients with Change scores > MCID)



Discussion

- Drazin *et al. Neurosurg Focus* 2011
 - The elderly population (age > 60 years) is the fastest-growing age group in the US.
 - Spinal deformity is a major problem in the elderly with increasing demand for surgery.
 - Surgical literature for adult deformity focuses on patients who are younger than 60 years
 - Limited information about the complications and outcomes of surgery in the elderly population.

Discussion

- Rihn *et al.* *JBJS(Am)* 2015
 - SPORT trial: >80's vs. <80's
 - 58/105 vs. 749/1130 had surgery for stenosis & degen. spondylolisthesis
 - Treatment outcomes similar except SF-36 bodily pain domain
 - No significant increases in complication and mortality rates following surgery ($p > 0.05$)

Post-op complications in the elderly

- Delirium
 - Kawaguchi *et al. Spine J* 2006
 - Prevalence: 12.5% in patients > 70 years.
 - 1/13 had persistent cognitive dysfunction after surgery

Conclusions

- For the spinal surgical indication studied:
 - Age does not appear to adversely affect outcomes
 - Improvements in VAS back pain and ODI were similar across age groups.
 - Poorer SF-36 PCS scores in >80's may reflect normal age-related patterns.
- Outcomes comparable with large joint arthroplasty surgery
- Caution: Approach major surgery with care, esp. in the elderly



Thank you

Acknowledgements: Lindsay Edwards R.N., Mari Smith, Gavin White