

# The Influence of Age and Gender on Treatment Outcomes in Surgically Treated Patients with Adult Spinal Deformity

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# Age



- presenting symptoms and neurological status
  - elderly
    - baseline
      - greater disability
      - greater pain intensity
      - worse health status
    - surgery
      - more complications
      - better improvement (tx outcome, health status, pain intensity)

Age: ineffective variable in ASD surgery ?

Age: cut-off point ?

Smith JS, et al. *Spine (Phila Pa 1976)*, 36, 817-24, 2011

Smith JS, et al. *J Neurosurg Spine*, 1-11, 2015

# Gender



- **Women**
  - more sensitive to pain
  - experience pain in more body parts
  - different physical symptoms
  - Pain intensity
    - high level of disability / health care pursue
  - do not differ significantly from men regarding their postoperative outcome, even though they present with a worse preoperative status in degenerative spinal conditions

Fillingim RB, et al. *J Pain*, 10, 447-85, 2009

Unruh, AM. *Pain*, 65, 123-67, 1996

Mannion AF, et al. *Spine (Phila Pa 1976)*, 38, 1016-25, 2013

Pochon L, et al. *Eur Spine J*. 2015

# Aim

- To determine the clinical impact of age and gender on treatment outcomes in ASD surgery

# Patients and Methods

- ESSG Database
  - All surgical patients with baseline parameters
  - Completed one year follow-up
  - Parameters
    - Demographical
    - Clinical
    - Radiological
    - HRQOL
      - ODI, COMI, SF-36 MCS, SF-36 PCS, SRS-22

# Results

n=186



## Age

(F: 157, M: 29)(Mean Age: 49.2±19.1)

		<i>Mean</i>	<i>Std.dev</i>	<i>p</i>
<i>ODI</i>	Un-improved	44.81	19.26	0.197
	Improved	52.91	20.15	
<i>COMI</i>	Un-improved	46.25	25.52	0.346
	Improved	55.62	19.21	
<i>SF36 MCS</i>	Un-improved	50.80	20.56	0.139
	Improved	55.40	19.35	
<i>SF36 PCS</i>	Un-improved	49.67	21.33	<b>0.034</b>
	Improved	56.24	18.34	
<i>SRS22</i>	Un-improved	51.50	21.16	0.678
	Improved	52.79	19.53	

# Results

## Age

one unit increment → increases the probability of improvement

### Predicting SF36 PCS

	B	S.E.	Wald	df	p	OR	95% C.I. for OR	
							Lower	Upper
Age	,017	,008	4,425	1	,035	1,017	1,001	1,033
Constant	-,800	,449	3,176	1	,075	,450		

# Results



## Optimum Cut-off Value for Age

- SF-36 PCS

**37.5 years (AUC=0.587; p=0.052)**



# Gender

$p=0.993$

		ODI_MCID		Total
		unimproved	improved	
Gender	female	9	136	145
	male	2	30	32
Total		11	166	177

$p=0.663$

		COMI_MCID		Total
		unimproved	improved	
Gender	female	3	85	88
	male	1	17	18
Total		4	102	106

$p=0.163$

		SF36MCS_MCID		Total
		unimproved	improved	
Gender	female	66	72	138
	male	18	11	29
Total		84	83	167

$p=0.965$

		SF36PCS_MCID		Total
		unimproved	improved	
Gender	female	66	72	138
	male	14	15	29
Total		80	87	167

$p=0.191$

		SRS22_MCID		Total
		unimproved	improved	
Gender	female	54	90	144
	male	16	16	32
Total		70	106	176

# Discussion - Summary

- Influence of age and gender
  - Age
    - one unit increase
      - SF-36 PCS improvement: 1.02
    - 37.5 years ? – clinically useful cut-off
  - Gender
    - does not seem to affect results
  - Patient counseling for the anticipated outcomes

# Disclosures



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