Health Impact Comparison of Different Disease States and Population Norms to Adult Spinal Deformity (ASD): A Call for Medical Attention

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Introduction

Health care scrutiny

Demonstrate
- Disability treated disease states
- Cost effectiveness treatment

Disability & Adult Spinal Deformity (ASD)= Multiple reports

Misconception
- Medical community
- Third party payers

ASD
- Little physical impairment
- Back pain
- Cosmetic concerns

Short Form-36 (Standard Form Version 2; SF-36)
- General health survey
- Disease burden
- Comparison
  - Normative population
  - Between disease states

Minimally important clinical difference (MCID)
- Context HRQOL differences
- Differentiate
  - Important score differences
  - Trivial differences

SF-36 for ASD
- Little data comparing disease impact ASD vs. other disease states

Purpose

- Collect SF-36 in a consecutive cohort of ASD patients
- Compare ASD in United States within:
  - General population
  - Generational norms
  - Disease specific norms
- Compare disease impact using MCID values

Methods

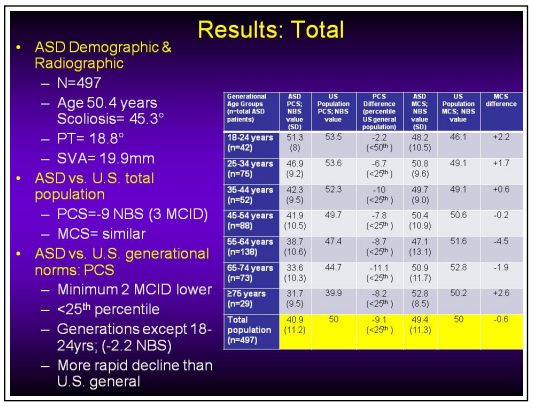
Data source:
- ISSG database
- Multi-center, prospective, consecutive collection of ASD patients

Inclusion criteria:
- Age >18 years
- Minimum one
  - Adult scoliosis >20°
  - Sagittal vertical axis (SVA) >5cm
  - Pelvic tilt (PT) >25°
  - Thoracic kyphosis (TK) >60°

Data collection:
- Demographic, radiographic, HRQOL

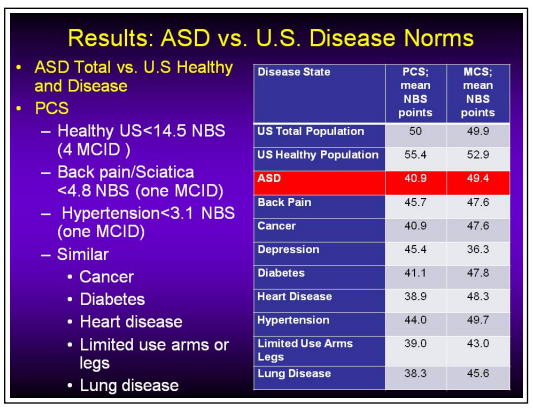
ASD SF-36
- Physical component score (PCS)
- Mental component score (MCS)
- Compared to United States (US)
  - Total population norms
  - Age generational norms
  - Disease specific norms
- Norm based scoring (NBS)

MCID values
- PCS= 3 NBS points
- MCS= 3 NBS points



Generational Age Groups (n=total ASD patients)	ASD PCS; NBS value (SD)	US Population PCS; NBS value	PCS Difference (percentile US general population)	ASD MCS; NBS value (SD)	US Population MCS; NBS value	MCS difference
18-24 years (n=42)	51.3 (8)	53.5	-2.2 (<50th)	48.2 (10.5)	46.1	+2.2
25-34 years (n=75)	46.9 (9.2)	53.6	-6.7 (<25th)	50.8 (9.6)	49.1	+1.7
35-44 years (n=52)	42.3 (9.5)	52.3	-10 (<25th)	49.7 (9.0)	49.1	+0.6
45-54 years (n=88)	41.9 (10.5)	49.7	-7.8 (<25th)	50.4 (10.9)	50.6	-0.2
55-64 years (n=136)	38.7 (10.6)	47.4	-8.7 (<25th)	47.1 (13.1)	51.6	-4.5
65-74 years (n=73)	33.6 (10.3)	44.7	-11.1 (<25th)	50.9 (11.7)	52.8	-1.9
≥75 years (n=29)	31.7 (9.5)	39.9	-8.2 (<25th)	52.8 (8.5)	50.2	+2.6
Total population (n=497)	40.9 (11.2)	50	-9.1 (<25th)	49.4 (11.3)	50	-0.6

Generational Age Groups (n=total ASD patients)	ASD PCS; NBS value (SD)	US General Population PCS; NBS value	PCS Difference (percentile US general population)	ASD MCS; NBS value (SD)	US General Population MCS; NBS value
18-24 years (n=30)	52.7 (7.3)	53.5	-0.8 (<50th)	48.8 (10.7)	46.1
25-34 years (n=58)	46.8 (9.6)	53.6	-6.5 (<25th)	51.2 (8.9)	49.1
35-44 years (n=34)	43.2 (10.3)	52.3	-9.1 (<25th)	50.2 (9.6)	49.1
45-54 years (n=47)	43.2 (10.8)	49.7	-6.5 (<25th)	49.9 (11.3)	50.6
55-64 years (n=57)	42.4 (9.7)	47.4	-5.0 (<25th)	48.9 (11.4)	51.6
65-74 years (n=14)	35.8 (11.1)	44.7	-8.9 (<25th)	51.9 (12.2)	52.8
≥75 years (n=6)	36.8 (10.8)	39.9	-3.1 (<25th)	51.4 (9.3)	50.2
Total population (n=246)	44.4 (10.5)	50	-5.6 (<25th)	50.2 (10.5)	50



Disease State	PCS; mean NBS points	MCS; mean NBS points
US Total Population	50	49.9
US Healthy Population	55.4	52.9
ASD	40.9	49.4
Back Pain	45.7	47.6
Cancer	40.9	47.6
Depression	45.4	36.3
Diabetes	41.1	47.8
Heart Disease	38.9	48.3
Hypertension	44.0	49.7
Limited Use Arms Legs	39.0	43.0
Lung Disease	38.3	45.6

Conclusions

1) ASD has a similar health impact to cancer, diabetes, heart and lung disease.

2) ASD patients are 3 MCID values below the US population mean.

3) In the future, funding sources should recognize the major impact of ASD on heatlh status.

Learning Objectives

By the conclusion of this presentation, participants should:

1) appreciate that adult spinal deformity (ASD) can be a debilitating disease that impacts physical function to a similar degree as diabetes and heart disease,

2) appreciate that ASD worsens with age and warrants similar research and health policy attention as other diseases such as cancer and diabetes.