

Reviewer ID: Mohit Singh, Gita Manhas			
Type of Outcome Measure: Barthel Index (BI)			Total articles: 5
Author ID Year	Study Design	Setting	Population (sample size, age) and Group
Zhang et al. 2015	Retrospective chart review	China – Rehabilitation center charts from Anhui Provincial Hospital (2010-2013)	<p>N=95 SCI cases (77 males, 18 females)</p> <p>Average Age (SD): Males: 40.44 (14.98) Females: 36.83 (13.08) Total: 39.76 (14.65)</p> <p>SCI resulting from: High falls (55.79%) Traffic accidents (28.42%) Disease (8.42%) Low falls (7.37%)</p> <p>Injury type: Cervical SCI (50.49%) Thoracic SCI (24.22%) Lumbar SCI (25.29%)</p>
O'Connor et al. 2004	Data analysis of BI scores at admission and discharge.	National Hospital for Neurology and Neurosurgery, London, UK.	<p>Data available for 1418 patients (includes MS, stroke and SCI diagnostic groups); mean age = 48 years</p> <p>N=237 SCI patients (135M, 102F) Mean (SD) age: 52 (16) yrs Mean (SD) length of stay in rehab: 43 (27) days Mean (SD) admission BI score: 11.2 (5.3) Mean (SD) discharge BI score: 16.4 (4.2)</p>
Morganti et al. 2005	Retrospective Examination	Rehab Hospital in Italy	<p>Total sample: N=284 patients (184 M, 100 F) Mean age: 50.4±19.3 years</p> <p>Validity sample: N=76</p> <p>Traumatic or non traumatic SCLs admitted between 1997-2001. Non-traumatic etiology was present in the majority of the patients (177/284): inflammatory (4), vascular (36), neoplastic (39), degenerative (62); traumatic lesions (107/284): car accident (38), motorcycle accident (15), sport accident (&), act of violence (6), suicide attempts (6), and accidental falls (31).</p>
Plantinga et al. 2006	Cross-sectional study	Centre for Rehabilitation of the University Medical Center Groningen, The Netherlands	<p>N = 154 (72M, 82F; SCI participants = 17) Females: mean age = 61 Males: mean age = 54</p>

Scivoletto et al. 2003	Block design, matching procedure	Spinal Cord Unit, Fondazione Santa Lucia IRCCS, a large rehabilitation hospital of the centre-south of Italy.	<p>Total sample: N=284 patients (184 M, 100 F) Mean age: 50.4±19.3 years Mean interval from lesion to admission: 56.9±43.9 days Mean length of stay in inpatient rehabilitation centre: 98.7±68.13 days</p> <p>Traumatic or non-traumatic SCLs admitted between 1997-2001. Lesion level: Cervical (81), thoracic (148), lumbo-sacral (55)</p> <p>AIS impairment at admission: AIS A – 84 AIS B – 19 AIS C – 129 AIS D – 52</p> <p>2 groups: Group 1: Under 50 years old – N=119 Group 2: Over 50 years old – N=165</p> <table border="1"> <thead> <tr> <th>Aetiology</th> <th>Group 1:</th> <th>Group 2:</th> </tr> </thead> <tbody> <tr> <td>Traumatic</td> <td>N=79</td> <td>N=28</td> </tr> <tr> <td>Street accident</td> <td>48</td> <td>5</td> </tr> </tbody> </table>	Aetiology	Group 1:	Group 2:	Traumatic	N=79	N=28	Street accident	48	5
Aetiology	Group 1:	Group 2:										
Traumatic	N=79	N=28										
Street accident	48	5										

			Falls	12	19	
			Other	19	4	
			Non-traumatic	N=40	N=137	
			Inflammatory	10	30	
			Vascular	6	30	
			Neoplastic	13	26	
			Degenerative	11	51	

1. RELIABILITY – no data available

2. VALIDITY

Author ID	Validity
Zhang et al. 2015	<p>No correlation between: DBI, OIT, RIT and ALOS for all segments (P>0.05)</p> <p>ABI – Admission Barthel index ALOS – average length of hospital stay DBI – discharge Barthel index OIT – operation intervention RIT – rehabilitation intervention time</p>

Morganti et al. 2005	<p>Walking Index for Spinal Cord Injury (WISCI) and Rivermead Mobility Index (RMI): $\rho = 0.67$ WISCI and Barthel Index (BI) $\rho = 0.67$ WISCI and Spinal Cord Independent Measure (SCIM): $\rho = 0.97$ WISCI and Functional Independence Measure (FIM): $\rho = 0.70$ RMI and BI: $\rho = 0.6$ RMI and SCIM: $\rho = 0.75$ RMI and FIM: $\rho = 0.9$ BI and SCIM: $\rho = 0.7$ BI and FIM: $\rho = 0.7$ SCIM and FIM: $\rho = 0.8$ All $P < .001$</p>
----------------------	---

Plantinga et al. 2006	<p>Total sample Spearman rho with the Northwick Park Dependency Score: $\rho = -0.87$</p> <p>SCI sample Spearman rho with the Northwick Park Dependency Score: $\rho = -0.86$</p> <p>Total sample Pearson's r with the Care Dependency Scale: $r = 0.75$</p> <p>SCI sample Pearson's r with the Care Dependency Scale: $r = 0.76$</p>
-----------------------	---

3. RESPONSIVENESS

Author ID	Responsiveness
------------------	-----------------------

O'Connor et al. 2004	<p>Total score effect size (ES) for all participants = 0.98 (0.38 to 1.16)</p> <p>Effect sizes for BI items for SCI group:</p> <table border="1"> <thead> <tr> <th>Items</th> <th>ES</th> </tr> </thead> <tbody> <tr> <td>Bowels</td> <td>0.40</td> </tr> <tr> <td>Bladder</td> <td>0.52</td> </tr> <tr> <td>Grooming</td> <td>0.42</td> </tr> <tr> <td>Toileting</td> <td>0.72</td> </tr> <tr> <td>Feeding</td> <td>0.38</td> </tr> <tr> <td>Transfer</td> <td>0.70</td> </tr> <tr> <td>Mobility</td> <td>0.89</td> </tr> <tr> <td>Dressing</td> <td>0.84</td> </tr> <tr> <td>Stairs</td> <td>1.08</td> </tr> <tr> <td>Bathing</td> <td>1.16</td> </tr> <tr> <td>Total score</td> <td>0.98</td> </tr> </tbody> </table>	Items	ES	Bowels	0.40	Bladder	0.52	Grooming	0.42	Toileting	0.72	Feeding	0.38	Transfer	0.70	Mobility	0.89	Dressing	0.84	Stairs	1.08	Bathing	1.16	Total score	0.98
Items	ES																								
Bowels	0.40																								
Bladder	0.52																								
Grooming	0.42																								
Toileting	0.72																								
Feeding	0.38																								
Transfer	0.70																								
Mobility	0.89																								
Dressing	0.84																								
Stairs	1.08																								
Bathing	1.16																								
Total score	0.98																								

4. FLOOR/CEILING EFFECT

Author ID	Floor/Ceiling Effect
------------------	-----------------------------

O'Connor et al. 2004	<p>Item floor/ceiling effects (%) for SCI group:</p> <table border="1"> <thead> <tr> <th rowspan="2">Items</th> <th colspan="2">Floor (%) / Ceiling (%)</th> </tr> <tr> <th>Admission</th> <th>Discharge</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Items	Floor (%) / Ceiling (%)		Admission	Discharge			
Items	Floor (%) / Ceiling (%)								
	Admission	Discharge							

Bowels	17.7 / 64.6	7.6 / 85.7
Bladder	35.0 / 48.1	10.1 / 70.5
Grooming	23.6 / 76.4	5.9 / 94.1
Toileting	27.4 / 38.4	8.4 / 77.2
Feeding	5.9 / 71.3	1.7 / 89.5
Transfer	12.2 / 39.2	1.7 / 79.7
Mobility	18.6 / 23.2	1.3 / 61.6
Dressing	27.0 / 29.5	5.1 / 70.9
Stairs	73.4 / 9.7	31.2 / 38.4
Bathing	81.4 / 18.6	36.7 / 62.9
Total score	2.5 / 5.5	0.0 / 24.1

5. INTERPRETABILITY

Author ID	Interpretability						
Zhang et al. 2015		OIT	RIT	ALOS	ABI	DBI	
	CSCI	22.14 (37.65)	70.00 (96.52)	42.37 (35.11)	24.70 (29.05)	52.76 (31.84)	
	TSCI	12.48 (19.52)	38.43 (34.20)	36.57 (19.56)	19.35 (14.01)	56.30 (13.92)	
	LSCI	5.74 (9.6)	34.35 (35.91)	34.87 (26.40)	18.13 (21.81)	67.08 (22.31)	
Plantinga et al. 2006	17 SCI individuals: BI Mean (SD) = 7.3 (4.9)						
O'Connor et al. 2004	Effect sizes for each item of the BI:						
	Bowels	0.20					
	Bladder	0.33					
	Grooming	0.44					
	Toileting	0.51					
	Feeding	0.55					
	Transfer	0.59					
	Mobility	0.68					
	Dressing	0.64					
	Bathing	0.80					
Scivoletto et al. 2003	Mean (SD) Barthel Index scores for Group 1 and 2:						
		Under 50 years old:			Over 50 years old:		
	<i>Admission</i>						
	Barthel Index score	25.4 (22.6)			20.3 (20.6)		
	<i>Discharge</i>						
	Barthel Index score	69.3 (29.8)			44.3 (33.1)		
	Barthel Index change in score (increase)	43.9 (27.3)			24 (21.1)		
	Barthel Index efficiency	0.5 (0.3)			0.3 (0.3)		
	Barthel Index item mean(SD) scores:						
		Admission		Discharge		Increase	
		Under 50	Over 50	Under 50	Over 50	Under 50	Over 50
	Feeding	7.4 (4)	6.3 (4.3)	8.8 (2.9)	8.1 (3.5)	1.4 (2.9)	1.8 (3)
	Grooming	2.8 (2.5)	1.7 (2.4)	4.3 (1.7)	3.1 (2.4)	1.5 (2.3)	1.4 (2.2)
	Bathing	0.8 (0.6)	0.8 (0.6)	1.9 (2.4)	0.7 (1.7)	1.8 (2.4)	0.6 (1.6)
Dressing	1.1 (2.8)	0.8 (1.8)	6.5 (4.1)	3.2 (4)	5.4 (2.4)	2.4 (3.6)	

Bladder management	1.8 (3.7)	1.6 (3.4)	7.8 (4)	4.6 (4.8)	6 (4.7)	2.9 (4.3)
Bowel management	2.2 (4.1)	1.9 (3.7)	7.9 (4)	4.6 (4.8)	5.3 (4.8)	2.7 (4.2)
Wheelchair use	3.9 (3.7)	3.3 (3.8)	7.5 (4.2)	4.7 (4.4)	3.5 (2.9)	1.3 (1.6)
Transfers	4.2 (3.9)	3.5 (3.9)	12.5 (3.9)	8.1 (4.8)	8.3 (4.1)	4.5 (3.3)
Locomotion	2.3 (4.1)	2.2 (3.8)	9.2 (5.2)	6.2 (5.2)	6.9 (4.9)	4 (3.5)
Stair climbing	0.2 (1.1)	0.1 (0.9)	3.5 (4.2)	1.7 (3.4)	3.2 (4)	1.5 (3.2)