

**Research Summary - Assistive Technology Device Predisposition Assessment (ATD-PA) – Assistive Technology**

<b>Author Year Research Design Setting (country)</b>	<b>Demographics and Injury Characteristics of Sample</b>	<b>Validity</b>	<b>Reliability</b>	<b>Responsiveness Interpretability</b>
<p>Poduri et al. 2017</p> <p><b>*abstract only provided</b></p> <p>Cohort prospective design; purpose to assess provision of assistive technology devices and their use/benefit</p> <p>United States; supported by the Craig H. Neilsen Foundation 01/01/14-02/19/16</p>	<p>39 adults with SCI received assistive technology via the Neilsen Foundation sent follow-up survey</p> <p>N=18 respondents Assistive devices rated: 44</p> <ul style="list-style-type: none"> <li>• 27 currently being used appropriate hours/day</li> <li>• 13 no longer being used (no longer needed or replaced)</li> <li>• 3 abandoned/discar ded</li> <li>• 4 never received</li> <li>• 2 destroyed in a fire</li> </ul>	<p>t-test of significant mean differences on each item between users and non-users showed that two items significantly differentiated the user and non-user groups: The fit with the user's accustomed routine = p&lt;0.05 Feeling secure (safe, confident) with use = p&lt;0.016</p>		

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<p>Graves et al. 2006</p> <p><b>*proportion of SCI in sample not specified</b></p> <p>Longitudinal (prospective) multi-cohort study; purpose is to address the psychometric properties and predictive validity of the ATD PA</p> <p>An acute care hospital and two rehabilitation hospitals in the greater Boston, MA region</p>	<p>N=139</p> <p>Inclusion Criteria:</p> <ul style="list-style-type: none"> <li>• Age &gt;18 years</li> <li>• Ability to speak &amp; understand English</li> <li>• Prognosis for survival &gt;1 year</li> <li>• Discharged with 1+ mobility devices</li> <li>• Neurological, lower extremity orthopaedic, or complex medical condition as reason for rehabilitation                             <ul style="list-style-type: none"> <li>◦ Neurological conditions defined as central nervous system impairments affecting mobility                                     <ul style="list-style-type: none"> <li>▪ Cerebrovascular</li> </ul> </li> </ul> </li> </ul>		<p><b>Internal consistency:</b> Marginal Reliability – having to do with the accuracy of measurement across the range of ability.</p> <ul style="list-style-type: none"> <li>• If a test has an information function that is elevated across the entire range, MR will be &gt;0.50</li> </ul> <p>Subject Well-being: 0.90 Affect/Mood: 0.62 Readiness for Change: 0.54 Program/Therapist Reliance: 0.39 Support From others: 0.47</p>	

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	<p>accident, Guillain- Barré syndrome, Parkinson's disease, multiple sclerosis, <b>SCI</b>, TBI</p> <ul style="list-style-type: none"> <li>○ Lower extremity orthopaedic conditions represented by traumatic injuries of the lower extremity/pelvis                             <ul style="list-style-type: none"> <li>▪ Hip fracture, hip replacement, femur fracture, amputation</li> </ul> </li> <li>○ Complex medical impairments defined as conditions not</li> </ul>			

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	<p>immediately life-threatening, but posed a risk for disability/functional limitations</p> <ul style="list-style-type: none"><li>▪ Chronic obstructive pulmonary disease, various cardiovascular conditions including post-myocardial infarction and heart surgery, and post-surgical disability</li></ul> <p>Exclusion Criteria:</p> <ul style="list-style-type: none"><li>• Orientation deficit</li></ul>			

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	<ul style="list-style-type: none"> <li>• Difficulty remembering the day's events</li> <li>• Receptive/expressive difficulties inhibited communicating responses reliably</li> </ul>																																							
<p><a href="#">Scherer &amp; Cushman</a> 2001</p> <p>USA</p> <p>Cross-sectional design; purpose is to assess the validity of a subset of items of the ATD-PA</p> <p>Acute medical rehabilitation unit in a general hospital</p>	<p>N=20 Age: 51.05±16.44, range 22-78 years 10 female, 10 male 13 paraplegia (4 complete), 7 tetraplegia (1 complete)</p>	<p><b>Content validity:</b> Items in the ATD-PA were developed based on experiences of technology users and non-users (including many with spinal cord injuries).</p> <p>Items on the ATD-PA QOL (quality of life) subset correlate negatively with the Brief Symptom Inventory (BSI) depression subscale and positively with Satisfaction with Life Scale (SWLS) scores.</p>	<p><b>Internal consistency:</b> <math>\alpha = 0.80</math></p>	<p>Published data for ATD-PA Section B &amp; C:</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Mean</th> <th>SD</th> </tr> </thead> <tbody> <tr><td>10</td><td>3.15</td><td>1.14</td></tr> <tr><td>11</td><td>4.10</td><td>0.85</td></tr> <tr><td>12</td><td>2.95</td><td>1.10</td></tr> <tr><td>13</td><td>3.25</td><td>1.12</td></tr> <tr><td>14</td><td>3.20</td><td>1.14</td></tr> <tr><td>15</td><td>2.50</td><td>1.32</td></tr> <tr><td>16</td><td>3.05</td><td>1.32</td></tr> <tr><td>17</td><td>3.00</td><td>1.30</td></tr> <tr><td>18</td><td>3.55</td><td>1.10</td></tr> <tr><td>19</td><td>1.75</td><td>1.21</td></tr> <tr><td>20</td><td>1.95</td><td>1.47</td></tr> </tbody> </table>	Item	Mean	SD	10	3.15	1.14	11	4.10	0.85	12	2.95	1.10	13	3.25	1.12	14	3.20	1.14	15	2.50	1.32	16	3.05	1.32	17	3.00	1.30	18	3.55	1.10	19	1.75	1.21	20	1.95	1.47
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		<p><u>Spearman correlations between the BSI, SWLS and QOL subset</u>                      QOL &amp; BSI: <math>r=-0.71</math>,                      (<math>P&lt;.01</math>)                      QOL &amp; SWLS: <math>r=0.89</math>,                      (<math>P&lt;.01</math>)</p> <p>Individual correlations between the 5 Satisfaction with Life Scale (SWLS) and 11 QOL subset items were positive and generally high, with the exception of QOL item 16.</p> <p>Of the 55 correlation coefficients among SWLS and QOL items, 69.1% were significant: 18 at <math>P&lt;.01</math> and 20 at <math>P&lt;.05</math>.</p>		

**Research Summary - Assistive Technology Device Predisposition Assessment (ATD-PA) – Assistive Technology - Cross-cultural Validation Studies**

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<p><a href="#">Koumpouros et al.</a>, 2016</p> <p><i>*only 4.35% of the sample is reported as having SCI</i></p> <p>Cross-sectional design; purpose is to provide evidence of validity and reliability of the <b>Greek ATD-PA</b> (GR-ATD PA)</p> <p>Private rehabilitation center in Greece (September 2014 – February 2015)</p>	<p>N=115, 51 males Mean age (SD): 62.45 (19.29)</p> <p>Diagnosis: Stroke: 20.00% <b>Quadriplegia: 4.35%</b> Traumatic Brain Injury: 5.22% Multiple Sclerosis: 5.22%</p> <p>Type of Assistive Device Used: 32% Cane 27% Walker 2% Rollator 3% Scooter 24% Wheelchair 10% Orthosis 1% Prostheses 2% Hearing aid device</p>	<p>Correlation between the three subscales indicates that discriminant validity exists between the subscales measuring “Adaptability,” “Fit to use” and “Socializing.”</p> <p><u>Pearson’s r:</u> 1<sup>st</sup> subscale “Adaptability” = 0.537-0.783 2<sup>nd</sup> subscale “Fit to Use” = 0.691-0.801 3<sup>rd</sup> subscale “Socializing” = 0.498-0.767</p>	<p><b>Internal consistency:</b> Cronbach’s <math>\alpha</math> was 0.701 (ranging from 0.605 to 0.701)</p> <p><b>Test-retest, Inter-rater, Intra-rater:</b> Test-Retest reliability ICC = 0.981</p>	<p>Published data for analysis of GR-ATD PA items:</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Mean</th> <th>SD</th> </tr> </thead> <tbody> <tr><td>1</td><td>4.09</td><td>1.279</td></tr> <tr><td>2</td><td>4.13</td><td>1.285</td></tr> <tr><td>3</td><td>4.71</td><td>0.893</td></tr> <tr><td>4</td><td>4.64</td><td>0.907</td></tr> <tr><td>5</td><td>4.12</td><td>1.276</td></tr> <tr><td>6</td><td>4.27</td><td>1.035</td></tr> <tr><td>7</td><td>4.86</td><td>1.401</td></tr> <tr><td>8</td><td>4.66</td><td>0.739</td></tr> <tr><td>9</td><td>4.73</td><td>0.813</td></tr> <tr><td>10</td><td>4.50</td><td>1.087</td></tr> <tr><td>11</td><td>4.50</td><td>2.334</td></tr> <tr><td>12</td><td>4.41</td><td>1.139</td></tr> </tbody> </table>	Item	Mean	SD	1	4.09	1.279	2	4.13	1.285	3	4.71	0.893	4	4.64	0.907	5	4.12	1.276	6	4.27	1.035	7	4.86	1.401	8	4.66	0.739	9	4.73	0.813	10	4.50	1.087	11	4.50	2.334	12	4.41	1.139
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