

Research Summary – The Craig Hospital Inventory of Environmental Factors (CHIEF) – Self Care and Daily Living

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability
<p>Whiteneck et al. 2004a</p> <p>New instrument development</p> <p>A rehabilitation hospital and community</p>	<p>Factor analysis: n= 2269 Population-based sample in Colorado of people (mean age, 44y; 57% men) with and without disabilities</p> <p>Content Validity: 4 panels consisting of 32 participants with expertise in 4 general arenas of disability: mobility, self-care, learning, and communication issues.</p> <p>Validity/Reliability: n=409 SCI=124, TBI=120, MS=55, Amputees=35, Others with auditory and visual</p>	<p>Discriminant Validity:</p> <ul style="list-style-type: none"> All CHIEF items, all subscales, and the total score produced statistically significant differences across the impairment groups People with disabilities consistently reported an overall higher level of environmental barriers on all subscales and total CHIEF score than those without disabilities (population sample) 	<p>Internal consistency: Cronbach’s α: Physical/structural subscale =.77 Attitudes/support subscale =.79 Services/assistance subscale =.76 Policies subscale =.77 Work/school subscale = .81 Total = .93</p> <p>Test-retest, inter-rater, intra-rater: 2 week interval test-retest reliability (ICC): Physical/structural subscale =.786 Attitudes/support subscale =.891 Services/assistance subscale =.857</p>	

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	<p>impairments, developmental disabilities, CP, or multiple impairments resulting in disability=75</p> <p>SCI Sample: 80% male, avg age=41 years</p>	<ul style="list-style-type: none"> People with severe disabilities generally scored higher on subscales and the total score than the full range of people reporting any disability. <p>Factory Analysis:</p> <ul style="list-style-type: none"> Principle components factor analysis created 5 factors/subscales, with 3-7 items each <p>Content Validity:</p> <ul style="list-style-type: none"> 4 separate groups of subject matter experts 	<p>Policies subscale =.770 Work/school subscale = .800 Total = .930</p>	

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		<p>produced 4 instruments representing common environmental factors</p> <ul style="list-style-type: none">• High consistency between groups allowed for authors to combine into one instrument <p>Establishing CHIEF-SF:</p> <ul style="list-style-type: none">• Criteria of items included in short form: highest scores (indicating greater barriers), highest correlations with subscale and total scores, and best differentiated		

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		<p>between people with and without disability.</p> <ul style="list-style-type: none"> • The conceptual importance of certain items also was considered in retaining items for the CHIEF-SF. • Correlations between CHIEF subscales and total score from the long form and short form ranged from .794 to .960. 		
<p>Whiteneck et al. 2004b</p> <p>Cross-sectional, follow up survey</p>	<p>n=2762 with SCI</p> <p>Age at injury: <20=19% 20–29= 35% 30–39=21% 40–49=14% 50>=11%</p>			<p>Interpretability: See table 1.</p>

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*CHIEF Short Form used Community	Gender: Male=78% Female=22% Yrs Post-Injury: 1 Year= 30% 5 Years= 20% 10 Years= 15%15 Years=13% 20 Years= 13% 25 Years=10% Neurologic group (ASIA grade) C1-4 ABC= 13% C5-8 ABC= 25% Para ABC=41% ASIA D=20%																																											
Table 1. <table border="1"> <thead> <tr> <th colspan="8">Mean CHIEF-SF Score by AIS Grade:</th> </tr> <tr> <th>Group</th> <th>n % (n = 2686)</th> <th>CHIEF Total</th> <th>Physical & Structural</th> <th>Services & Assistance</th> <th>Work & School*</th> <th>Attitudinal & Support</th> <th>Policy</th> </tr> </thead> <tbody> <tr> <td>C1-4 ABC</td> <td>13%</td> <td>.90</td> <td>1.22</td> <td>0.95</td> <td>.43</td> <td>.64</td> <td>.86</td> </tr> <tr> <td>C5-8 ABC</td> <td>25%</td> <td>.78</td> <td>1.16</td> <td>0.80</td> <td>.25</td> <td>.58</td> <td>.71</td> </tr> <tr> <td>Para ABC</td> <td>41%</td> <td>.76</td> <td>1.07</td> <td>0.80</td> <td>.26</td> <td>.56</td> <td>.67</td> </tr> </tbody> </table>					Mean CHIEF-SF Score by AIS Grade:								Group	n % (n = 2686)	CHIEF Total	Physical & Structural	Services & Assistance	Work & School*	Attitudinal & Support	Policy	C1-4 ABC	13%	.90	1.22	0.95	.43	.64	.86	C5-8 ABC	25%	.78	1.16	0.80	.25	.58	.71	Para ABC	41%	.76	1.07	0.80	.26	.56	.67
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	AIS D	20%	.63	1.09	0.65	.21	.39	.50

Research Summary – The Craig Hospital Inventory of Environmental Factors (CHIEF) – Self Care and Daily Living - Cross-cultural Validation Studies

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<p>Soni et al. 2016</p> <p>Observational case series with repeated measures</p> <p>*Validation of Hindi Translated version of the CHIEF</p> <p>Specialized rehabilitation center for Spinal Cord Injury</p>	<p>n=30, 26 males Mean age (SD) = 31.67 (10.09) Time since injury mean (SD) = 29.87 (25.68) months 16 paraplegia, 14 tetraplegia ASIA Grades: A=7, B=13, C=7, D=3</p>	<p>Content validity determined by: Content validity ratio (CVR) = $(N_e - N/2)/(N/2)$ (N_e – number of experts rated on item as essential, N – total no. of experts in the panel)</p> <p>A minimum CVR value of 0.62 was necessary for statistical significance based on 10 panelists. The rating of the scale was done by a panel of 10 experts in the field of neurological rehabilitation.</p> <p>Content validity index (CVI) was calculated as mean of CVR values of the retained items. A</p>	<p>Internal consistency: Cronbach's α: Longer version = 0.92 Shorter version = 0.731</p> <p>Test-retest, inter-rater, intra-rater: 1 week interval test-retest reliability (ICC):</p> <ul style="list-style-type: none"> - Longer version = 0.80, $p < .001$ - Shorter version = 0.63, $p < .001$ 	<p>Interpretability: Mean (SD) CHIEF scores at time 1:</p> <p>Physical and Structural (long version)= 1.51 (0.92) Services and Assistance (long version)= 0.91 (0.68) Work and School (long version)= 1.50 (0.9) Attitudinal and Support (long version)= 1.91 (0.95) Policy (long version)= 1.17 (0.70)</p> <p>Total (long): Time 1=1.44 (0.82) Total (short): Time 1=1.07 (0.66)</p>

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		<p>minimum score of 0.78 is required in CVI for the scale to be rated as having excellent content validity.</p> <p>CVR = 1 for all items except # 5, 11, 12 (CVR=0.8).</p> <p>CVI Long version = 0.97</p> <p>CVI Short version = 0.98</p> <p>*The Beaton translation guidelines were used for the translation of the CHIEF into Hindi.</p>		<p>MDC: Longer version = 0.99 Shorter version = 0.66</p> <p>SEM: Longer version = 0.36 Shorter version = 0.24</p>