

Psychometric Characteristics of the SCI Exercise Self-Efficacy Scale (ESES): Preliminary Findings

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Objective

To develop a psychometrically sound exercise self-efficacy measure for people with spinal cord injury

Background

Self-Efficacy is one of the most widely researched concepts in health promotion. It has found application in research on weight exercise curricula for adults with spinal cord injury (Wise, Ellis & Trunnell, 2002). While multiple fairly generic or highly specific self-efficacy measures exist, many lack sound psychometric examination. Moreover, tools are needed that assess exercise self-efficacy with regard to physical activities that people with SCI can conduct in the community, and that are not limited to one specific area of physical activity.

Method

- We developed the 10-item 4-point Likert SCI Exercise Self-Efficacy Scale (ESES) based on a review of the literature. Specifically, we examined the foundations for exercise self efficacy in the Social Cognition Theory (Bandura, 1997) and its operationalization in the form of existing instruments. We invited consumer input into the development of the scale using Internet-based Webcast technology.
- The ESES was administered as part of the first wave of a nationwide survey on exercise behavior.
- Reliability of the scale was determined by computing internal consistency (alpha) and split-half (Spearman Brown) coefficients.
- Content validity and cognitive appropriateness were determined in six cognitive interviews with individuals with SCI from diverse demographic and educational backgrounds.
- Convergent validity was obtained by correlating the ESES with the 10-item Generalized Self-Efficacy Scale (Jerusalem & Schwarzer, 1992).

ESES: Items

Initials: _____ ID: _____
SCI EXERCISE SELF-EFFICACY
 Please tell us how confident you are with regard to carrying out regular physical activities and exercise. (Please check only one box for each question)

I am confident that;	Not at All True	Rarely True	Moderately True	Always True
I can overcome barriers and challenges with regard to physical activity and exercise if I try hard enough	1	2	3	4
I can find means and ways to be physically active and exercise	1	2	3	4
I can accomplish the physical activity and exercise goals that I set when I am confronted with a barrier to physical activity or exercise I can find several solutions to overcome this barrier	1	2	3	4
I can be physically active or exercise even when I am tired	1	2	3	4
I can be physically active or exercise even when I am feeling depressed	1	2	3	4
I can be physically active or exercise even without the support of my family and friends	1	2	3	4
I can be physically active or exercise without the help of a therapist or trainer	1	2	3	4
I can motivate myself to start being physically active or exercising again after I've stopped for a while	1	2	3	4
I can be physically active or exercise even if I had no access to a gym, exercise training, or rehabilitation facility	1	2	3	4

GSE: Items

Initials: _____ ID: _____
GENERALIZED SELF-EFFICACY SCALE
 (Please check only one box for each question)

I am confident that;	Not at All True	Rarely True	Moderately True	Always True
I can always manage to solve difficult problems if I try hard enough	1	2	3	4
If someone opposes me, I can find the means and ways to get what I want	1	2	3	4
It is easy for me to stick to my aims and accomplish my goals	1	2	3	4
That I could deal efficiently with unexpected events	1	2	3	4
Thanks to my resourcefulness, I know how to handle unforeseen situations	1	2	3	4
I can solve most problems if I invest the necessary effort	1	2	3	4
I can remain calm when facing difficulties because I can rely on my coping abilities	1	2	3	4
When I am confronted with a problem, I can usually find several solutions	1	2	3	4
If I am in trouble, I can usually think of a solution	1	2	3	4
I can usually handle whatever comes my way	1	2	3	4

Results

Sample characteristics of SCI respondents

Participants (Reliability analysis; n=368)

60.1% male; M age= 46.29 (SD=12.55)
 85.9% Non-Hispanic White
 7.3% Non-Hispanic Black
 1.1% Asian/Pacific Islander
 4.1% Hispanic or other
 53.3% incomplete injuries

Participants (Convergent validity analysis; n=53)

58.5% male; M age= 45.64 (SD=13.09)
 77.4% Non-Hispanic White
 15.1% Non-Hispanic Black
 1.9% Asian/Pacific Islander
 5.7% Hispanic or other
 52.8% incomplete injuries

Reliability

ESES Internal consistency (Cronbach's alpha; n=368): .9269
 (Cronbach's alpha; n=53): .8700

ESES Split-half (Equal-Length Spearman Brown; n=368): .8849
 EL Spearman Brown (part 1): .8943
 EL Spearman Brown (part 2): .8651

ESES Split-half (EL Spearman Brown; n=53): .8750
 EL Spearman Brown (part 1): .8017
 EL Spearman Brown (part 2): .7405

ESES Item (n=368)	Alpha if Item Deleted (n=53)	Alpha if Item Deleted (n=368)
ESES1	.8625	.9234
ESES2	.8498	.9153
ESES3	.8552	.9167
ESES4	.8526	.9174
ESES5	.8556	.9192
ESES6	.8662	.9216
ESES7	.8511	.9189
ESES8	.8571	.9221
ESES9	.8567	.9162
ESES10	.8677	.9231

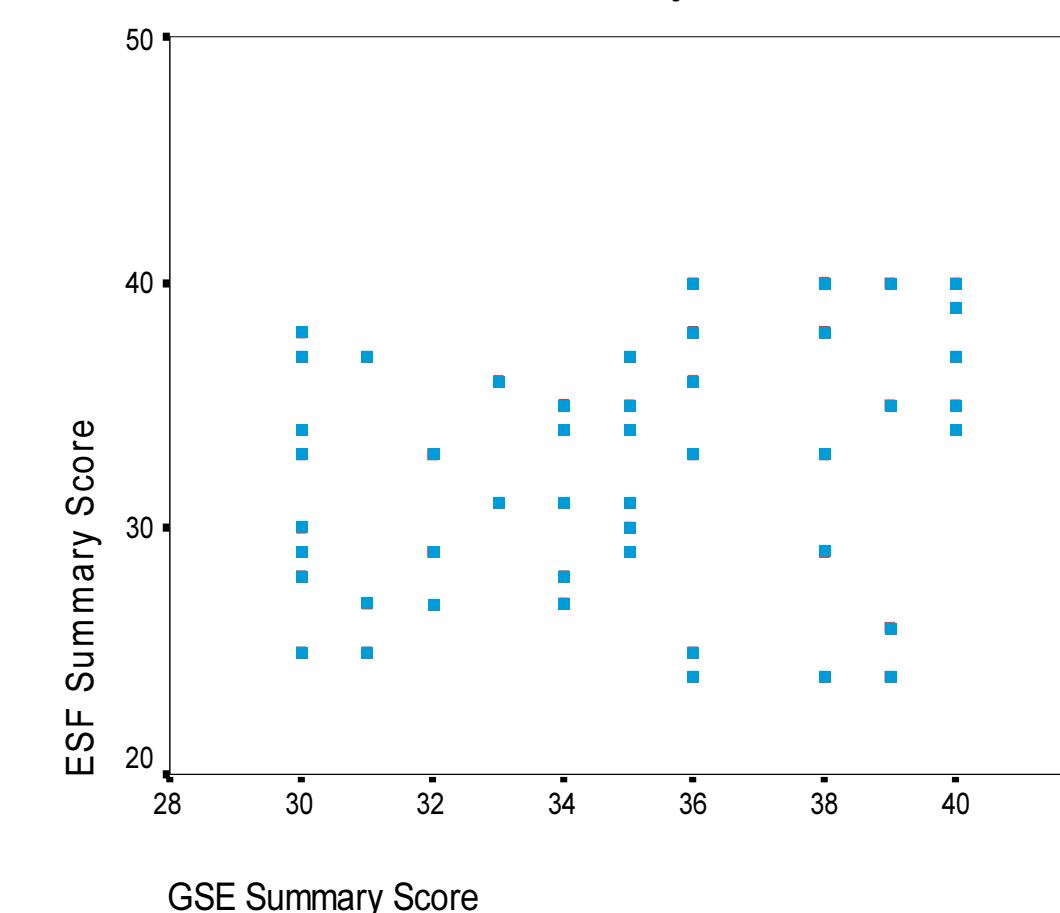
Content Validity

Content validity and cognitive appropriateness were determined in six cognitive interviews with individuals with SCI from diverse demographic and educational backgrounds.

Convergent Validity

There was a statistically significant correlation between Exercise Self-Efficacy Scale (ESES) and Generalised Self Efficacy Scale (GSE) (Spearman RHO=.316; p<.05; n=53, 2-sided)

ESES and GSE summary scores



Conclusions

Preliminary findings indicate that the ESES is a reliable instrument with high internal consistency and scale integrity. Content validity both in terms of face and convergent validity is satisfactory. As a next step, test-retest reliability will be determined.

The tool appears to be a promising alternative to more generic or highly specific instruments that have been used to assess exercise self-efficacy in people after spinal cord injury.

References

- Bandura, A. (1997). Self-efficacy: The exercise of control. New York: W.H. Freeman.
 Jerusalem, M., & Schwarzer, R. (1992). Self-efficacy as a resource factor in stress appraisal processes. In R. Schwarzer (Ed.), Self-efficacy: Thought control of action (pp. 195-213). Washington, DC: Hemisphere.
 Wise, J.B., Ellis, G.D. & Trunnell, E.P. (2002). Effects of a Curriculum Designed to Generalize Self-Efficacy From Weight-Training Exercises to Activities of Daily Living Among Adults With Spinal Injuries. Journal of Applied Social Psychology, 32(3), 500-521.

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