

Validation of the Swedish translation of the general self-efficacy scale

Jesper Löve · Crystal Dea Moore · Gunnel Hensing

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Abstract

Purpose To study the internal consistency, factorial structure, and convergent validity of the Swedish translation of the General Self-Efficacy scale (S-GSE).

Methods The S-GSE and two items on mental and physical work capacity were completed by a randomized population cohort ($n = 4,027$) and two cohorts ($n = 3,310$ and $n = 498$) of incident cases of sick-leave (>14 days).

Results S-GSE means were higher among men than women in two of the cohorts and higher in the randomized population cohort than in the two sick-leave cohorts. Internal consistency was high with $\alpha = .90$. Unidimensionality was indicated and factor loadings ranged between .64 and .80. Moderate correlations (.35–.38) between the S-GSE and mental work capacity were found in all cohorts. Yet, the correlation between S-GSE and physical work capacity was weaker in the sick-leave cohorts. The psychometric properties showed similar patterns across gender.

Conclusions Across three cohorts, additionally stratified by gender, the S-GSE comprised one single latent factor and showed high internal consistency. However, since S-GSE was more strongly related to self-assessments of mental work capacity than physical work capacity regardless of sick-leave status, the S-GSE may not be a strong predictor of beliefs about physical work capacity across all populations.

Keywords General self-efficacy · Work capacity · Sick leave · Psychometric analysis

Abbreviations

S-GSE	General Self-Efficacy scale
RP	Cohort of a random sample of the general population
ER	Cohort of sick-listed participants (>14 days) reported by the employer
SR	Cohort of self-certified sick-listed participants

Introduction

Perceived self-efficacy refers to people's beliefs in their abilities to produce certain behavioral outcomes and is integral to human motivation, perseverance, resiliency, and adaptation and is central to Bandura's Social Cognitive Theory [1, 2] which emphasizes the role of forethought in motivation and behavior. Such beliefs are "the key factor of human agency" (Bandura [1], p. 3) and influence an individual's behavioral goals, intentions, and outcome expectancies and predict a variety of behavioral outcomes [1]. Bandura argues that self-efficacy measurement should be domain specific; the content of the scale items should be directly related to the construct that is being measured [1, 2]. While acknowledging the predictive power of domain-specific self-efficacy measures, others maintain that measuring generalized self-efficacy has utility for explaining behavior in less specific contexts [3–6]. In response, Schwarzer (1995) and colleagues developed a General Self-Efficacy (GSE) scale "that assesses the strength of an individual's belief in his/her own ability to respond to novel or difficult situations and to deal with any associated obstacles or setbacks" [4] (p. 35).

Subsequently, GSE has been translated into many languages. In their psychometric analysis of the GSE in 25 countries, Scholz et al. argue that GSE is both a

J. Löve (✉) · G. Hensing
University of Gothenburg, Gothenburg, Sweden
e-mail: jesper.love@socmed.gu.se

C. D. Moore
Skidmore College, Saratoga Springs, NY, USA

unidimensional and universal construct [3]. Perceived self-efficacy has been demonstrated to be correlated with a variety of behavioral outcomes related to health. One review indicated that most self-efficacy research demonstrates that it is directly related to positively valued characteristics such as self-esteem, self-control, and improved coping and is indirectly related to negatively valued states and traits such as depression, anxiety, and helplessness; in addition, self-efficacy conceptualized as a domain-specific measure is more likely to be a stronger predictor of specific behaviors and motivation than GSE. Bubany and Hansen [7] compared the correlations between GSE scores and ability estimates in specific self-assessed vocational ability domains with correlations between domain-specific self-efficacy measures and the same variables. They found that the correlations between GSE and the specific domains were statistically significant but moderately correlated at best [7]. Although GSE has been related to a multitude of variables, no work could be identified that examines GSE in relationship to self-assessed physical and mental work capacity. This variable taps the extent to which people believe they have the current capacity to work given the physical and psychological demands of the job. Work capacity is becoming an increasingly important variable for research given the shift in demographics toward an older population and the need for such workers to be employed longer [8].

To add to the growing number of languages in which the GSE has been translated and validated, this study explores the psychometric properties of a Swedish translation of the GSE (S-GSE) and relates it to physical and mental work capacity. The following hypotheses are offered: (1) S-GSE will be unidimensional and (2) S-GSE will be positively and moderately correlated with work capacity.

Methods

Sample

The sample consists of baseline data from three ongoing Swedish cohort studies included in the “The Health Assets Project” (HAP) performed in the region of Västra Götaland in western Sweden. The “2008 sample” ranges in age from 19 to 64 years and is comprised of a randomized general population (RP) cohort ($n = 4,027$, 50% response rate) and two cohorts of all incident cases of sickness absence in a period of 2 months identified by the Swedish Social Insurance Agency. One of the cohorts consists of sick-listed reported by the employer ($n = 3,310$, 54% response rate) (ER) and one cohort of self-certified sick-listed (SR) individuals ($n = 498$, 50% response rate). In the ER, only sick-leave spells longer than 14 days were included. The RP was randomly selected by Statistics Sweden.

All consecutive cases from the 18th of February to the 15th of April were included in the ER while a random sample of every fourth case was included in the SR.

Instruments

The GSE scale [4] consists of 10 items rated on a four-point Likert scale (“not at all true” to “exactly true”). Means were calculated as the sum of all answers divided by ten (i.e., the total number of items). S-GSE was translated by Koskinen et al. [9]. Cross-cultural validation utilizing samples from 25 countries indicates that the scale is unidimensional with Cronbach’s alpha ranging from $\alpha = .75$ –.91 [3]. Self-assessed work capacity was measured with two items from the Work Ability Index (WAI): “How do you rate your current work ability with respect to the mental demands of your work?” and “How do you rate your current work ability with respect to the physical demands of your work?” Items are rated on a five-point Likert scale (“very good” to “very poor”). According to the psychometric evaluation of the WAI, these two items most highly correlate with the total index when compared with the other scale items [10].

Statistical analyses

All calculations were run using SAS version 9.2 (SAS Institute, Cary, NC). To examine the dimensionality of the S-GSE, principal component analysis was conducted using PROC FACTOR on all three cohorts separately and for the total sample. Kaiser’s criterion [11] and a visual examination of a scree plot were used to determine the number of factors to retain. To investigate internal consistency, Cronbach’s alpha and corrected item-total correlations were calculated, for the total sample and for the three cohorts separately. Convergent validity was examined by calculating the correlation between S-GSE and mental and physical work capacity. Mean differences in S-GSE scores (i.e., ANOVA) and descriptive statistics (see Table 1) were calculated for the three different cohorts.

Results

Men had a higher ($P < .05$) S-GSE mean than women in the RP and in the ER. No difference was found in the SR (Table 1). The S-GSE mean was also higher ($P < .05$) in the RP than in the ER and in the SR samples. No differences were found between the ER and the SR samples. Socio-demographic characteristics of each sample are presented in Table 2.

Cronbach’s alpha for the total sample was .91 and for the three sub-samples: $\alpha = .91$ for the RP, $\alpha = .91$ for the

Table 1 Means and standard deviation of S-GSE for women and men across the three cohorts

	RP ^a		ER ^b		SR ^c	
	Mean	SD	Mean	SD	Mean	SD
Women	2.90*	0.47	2.87*	0.46	2.82	0.52
Men	3.03*	0.45	2.95*	0.47	2.91	0.53

Degrees of freedom (*df*) and *F* value is presented in footnotes

* Statistically significant difference ($P < .05$) between women and men

^a *df* = 1, *F* value = 68.9

^b *df* = 1, *F* value = 18.4

^c *df* = 1, *F* value = 2.6

Table 2 Socio-demographic characteristics of the three cohorts

Socio-demographic characteristics		RP (<i>n</i> = 4027), <i>n</i> (%)	ER (<i>n</i> = 3310), <i>n</i> (%)	SR (<i>n</i> = 498), <i>n</i> (%)
Sex	Women	2234 (55)	2196 (66.3)	325 (65)
	Men	1793 (45)	1114 (33.7)	173 (35)
Marital status	Single	1678 (41.7)	1049 (31.7)	208 (41.8)
	Married	1881 (46.7)	1704 (51.5)	219 (44.0)
	Divorced	426 (10.6)	509 (15.4)	67 (13.5)
	Widowed	42 (1.0)	48 (1.5)	4 (1.0)
Education	University	1499 (37.6)	1104 (33.9)	175 (35.4)
	Higher secondary	1752 (44.0)	1407 (43.2)	228 (46.2)
	Primary	732 (18.4)	749 (23.0)	91 (18.4)
Occupation	Higher non-manual	843 (22.6)	399 (12.3)	111 (24.8)
	Intermediate/low non-manual	1386 (37.1)	1139 (35.0)	133 (29.7)
	Skilled/non-skilled manual	1504 (40.3)	1717 (52.8)	204 (45.5)
Income	Mean/year, €	25538	26736	20186
Age	Mean (standard deviation)	43 (13.1)	47 (11.8)	41 (11.0)
GSE	Mean (standard deviation)	2.96 (0.46)	2.90 (0.47)	2.85 (0.53)

Dispersed numbers of participants due to internal missing

* Income as mean per year before tax

ER, and $\alpha = .92$ for the SR. The corrected item-total correlations of the total sample ranged from .63 to .73. Item-total correlations did not indicate the removal of any of the items for the entire sample and the three sub-samples. The lowest item-total correlation was found in the ER for item “It is easy for me to stick to my aims...” with .59.

Communalities ranged from .39 to .59. According to Kaiser’s criterion and a visual examination of the scree plot, only one factor was retained in the factor analyses. The first two eigenvalues were 5.13 and 0.34. Due to unidimensionality of the construct, rotation was not possible. See Table 3 for details. The same pattern of factor loadings was for women and men, respectively (figures not shown).

Convergent validity was examined by calculating the correlations between S-GSE and mental and physical work capacity. For the total sample, the correlations between S-GSE and mental work capacity were $r = .38$, and for

S-GSE and physical work capacity $r = .24$. For the subsamples, the correlations between S-GSE and mental work capacity were as follows: RP (.38), ER (.36), and SR (.35). The correlations between S-GSE and physical work capacity for the three subsamples were as follows: RP (.30), ER (.18), and SR (.19). All correlations were statistically significant ($P > .0001$). The same pattern of correlations was visible when conducting the same analysis for women and men, respectively (figures not shown).

Discussion

This research provides further evidence that perceived self-efficacy as measured by the S-GSE scale is a unidimensional and universal construct. Across three population cohorts that were additionally stratified by gender, principal component analyses revealed a single latent factor and

Table 3 Factor loadings of each item in the total sample and in the three sub-samples

Item/factor	Factor 1 Total sample	Factor 1 RP	Factor 1 ER	Factor 1 SR
Item 1	.66	.66	.65	.70
Item 2	.71	.70	.72	.74
Item 3	.63	.64	.62	.64
Item 4	.72	.72	.72	.69
Item 5	.75	.74	.76	.74
Item 6	.76	.76	.76	.76
Item 7	.69	.68	.68	.72
Item 8	.77	.77	.76	.80
Item 9	.76	.76	.77	.79
Item 10	.70	.69	.71	.72

reliability analyses demonstrated high internal consistency. Although the GSE means were slightly higher among men, the psychometric properties showed the same patterns across gender. Observed gender differences in GSE means is inconsistent across studies [12] and warrants further investigation.

The hypothesis regarding the strength and direction of the relationship between the S-GSE and self-assessed work capacity was partially supported. The observed correlations for S-GSE and mental work capacity for all three cohorts were moderate and positive; for S-GSE and physical work capacity, the correlations were weaker for the ER and SR cohorts. The moderate correlations are in line with a recent study focusing on the relation between GSE and more specific dimensions of capacity [7]. However, the present results indicate that the S-GSE may not be a strong predictor of beliefs about physical work capacity among individuals on sick-leave suggesting that mental work capacity may capture a broader construct than the measure of physical work capacity and therefore be more strongly related to GSE. In conclusion, this research corroborates other cross-cultural work on the GSE in terms of the scale's factor structure and internal consistency. The Swedish translation of the scale can be confidently added to the other translated GSE versions as a reliable indicator of perceived GSE ([Appendix](#)).

Appendix

See Table 4.

Table 4 The Swedish translation of the General Self-Efficacy scale. English wordings in italics

	1	2	3	4
	Stämmer inte alls	Stämmer inte särskilt bra	Stämmer ganska bra	Stämmer helt och hållet
	<i>Not at all true</i>	<i>Hardly true</i>	<i>Moderately true</i>	<i>Exactly true</i>
1	<i>Jag lyckas alltid lösa svåra problem om jag bara anstränger mig tillräckligt</i> <i>I can always manage to solve difficult problems if I try hard enough</i>			
2	<i>Även om någon motarbetar mig hittar jag ändå utvägar att nå mina mål</i> <i>If someone opposes me, I can find the means and ways to get what I want</i>			
3	<i>Jag har inga svårigheter att hålla fast vid mina målsättningar och förverkliga mina mål</i> <i>It is easy for me to stick to my aims and accomplish my goals</i>			
4	<i>I oväntade situationer vet jag alltid hur jag skall agera</i> <i>I am confident that I could deal efficiently with unexpected events</i>			
5	<i>Till och med överraskande situationer tror jag mig klara av bra</i> <i>Thanks to my resourcefulness, I know how to handle unforeseen situations</i>			
6	<i>Tack vare min egen förmåga känner jag mig lugn även när jag ställs inför svårigheter</i> <i>I can solve most problems if I invest the necessary effort</i>			

Table 4 continued

	1	2	3	4
	Stämmer inte alls <i>Not at all true</i>	Stämmer inte särskilt bra <i>Hardly true</i>	Stämmer ganska bra <i>Moderately true</i>	Stämmer helt och hållet <i>Exactly true</i>
7	Vad som än händer klarar jag mig alltid <i>I can remain calm when facing difficulties because I can rely on my coping abilities</i>			
8	Vilket problem jag än ställs inför kan jag hitta en lösning <i>When I am confronted with a problem, I can usually find several solutions</i>			
9	Om jag ställs inför nya utmaningar vet jag hur jag ska ta mig an dem <i>If I am in trouble, I can usually think of a solution</i>			
10	När problem uppstår kan jag vanligtvis hantera dem av egen kraft <i>I can usually handle whatever comes my way</i>			

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