	Sample			Mean	Female	Spouse			
Study	size	Care-receiver	Caregiver	age (yrs)	(%)	(%)	Anal.	Model	Factor structures
Given, et al., 1992	377	267 cancer patients 64+; 110 Alzheimer's patients 55+	Family member providing most of care	Cancer 55.1; Alz. 63.1.	Cancer 81.4; Alz. 64.1	Cancer 55.4; Alz. 79.0	EFA & CFA	Original 24- item 5-factor	CE (12, 15, 19, 21, 10, 4, 6), LFS (13, 11, 3, 9, 17), IS (1, 7, 20, 14 16), IF (22, 23, 24), IH (18, 8, 5, 2)
Nijboer et al. 1999	181	Colorectal cancer surgery patients from 10 hospitals with survival estimate of 6+ months	Partner	55-65 (46), > 65 years (43)	65.0	100	EFA	Five-factor 24 items	CE (10, 19, 12, 6, 4, 15), IS (14, 20, 7, 16, 1; 8, 5, 18), LFS (13, 11, 17, 9, 3), IF (23, 24, 22; 21, 3), IH (2, 8, 5, 18)
Grov et al. 2006	85	Metastatic cancer patients with survival estimate of 4+ months	Primary caregiver	55.7	47.1	80	EFA	Five-factor 24 items	CE (12, 15, 19, 10, 4, 6, 5 , 2), LFS (11, 3, 9, 17), IF (22, 24, 23), IS (1, 7, 20, 14, 16, 18 , 8) F5 (19)
Hudson & Hayman- White, 2006	106	Cancer patients receiving home- based palliative care at one hospital in Australia		n.a.	n.a.	n.a.	EFA	Five-factor 17 items (items 3, 4, 5, 7, 10, 16, 18 excluded)	CE (6, 12, 19, 10, 4, 21), LFS (11, 17, 13, 3), IS (7, 20, 14), IF (23, 24), IH (5, 2)
Bachner O'Rourke, & Carmel, 2007	236	Cancer patients of four hospitals in Israel	Care-givers w. relative dying of cancer at 59 + yrs in past yr	55.37	77.5	45	EFA & CFA	Five-factor 17 items (substant-ial changes in items and factors)	n.a.

Misawa et al., 2009	57	Community- dwelling advanced cancer patients (> 20 years) Cancer patients	family caregiver	57	77.0	52	EFA	, ,	IS (1, 7, 14, 16, 20), CE (6, 12, 19, 10, 4), LFS (11, 17, 13, 9), IH (8, 18), IF (23, 24)
Ge et al., 2011	312	(lukemia 40.1%, gynecological 36.2%, colon 9.3%, lung 8.3%, breast 6.1%)	Primary family caregiver	46.6	51.3	50	EFA & CFA	Five-Factor 24 items	IS (1, 7, 8 , 14, 16, 18 , 20), LFS (3, 9, 11, 13, 15 , 17), IH (2, 4 , 5), IF (22, 23, 24), CE (6, 10, 12, 19, 21)
Persson, Wennman- Larsen, Sundin & Gustavsson, 2008	209	Malignancy (151 patients), dementia (12), impairment (42), unknown disease (4)		60	55.5	78	EFA & CFA	Five-Factor 23 item (item 12 excluded)	IH (18, 8, 5, 2) CE (12, 15, 19, 10, 4, 6), IF (22, 23, 24), LFS (13, 11, 3, 9, 17), IS (7, 20, 14, 1, 16)
Malhotra et al., 2012	1211	Community- dwelling Singaporeans 75 + receiving assistance for at least one ADL	Primary informal caregiver	55.6	60.2	16	CFA & EFA	Four-Factor 21 items (items 2, 15, and 22 excluded):	IFS (1, 7, 14, 16, 20, 5, 8, 18), IF (24, 23), LFS (3, 9, 11, 13, 17), CE (4, 6, 10, 12, 19, 21)

<u>al., 2012</u> <u>1211</u> least one ADL caregiver <u>55.6</u> <u>60.2</u> <u>16</u> EFA **excluded**): (4, 6, 10, 12, 19, 21) Note: Numbers after the factor name stand for item number adopted by Nijboer et al. (1999). Item numbers in boldface type stand for out-of-place loadings in the original CRA instrument.

	National			Author's		
Age of caregivers	Survey			sample		
(years)	(2010)	Male	Spouse	(2011)	Male	Spouse
Less than 40	2.9	1	0.1	20.3	8.9	0.5
40~49	8.3	2.9	0.2	29.4	13.6	1.3
50 ~ 59	26.6	6.9	1.8	32	14.1	1.7
60~69	29.3	7.5	8.8	15.7	7.5	2
70~79	20.6	6	17.2	2.4	1.7	1.5
More than 80	12.3	6.3	11.8	0.2	0.2	0.2
Total in sample	100.0	30.6	40.1	100.0	46.1	7.2

Table 2. Biases in the age distribution of family caregivers (percentage of sample)

Note: Data are from Comprehensive Survey of Living Conditions (2010).

FCRP ^a	Nijboer's	
item	item	
number	number	Items
1	12	I feel privileged to care for
2	13	Others have dumped caring for onto me.
		My financial resources are adequate to pay for things that
3	22	are required for caregiving. ^b
4	1	My activities are centered around care for
5	18	Since caring for, it seems like I'm tired all of the time.
		It is very difficult to get help from my family in taking care of
6	11	·
7	15	I resent having to take care of ^b
8	7	I have to stop in the middle of work.
9	19	I really want to care for
10	8	My health has gotten worse since I've been caring for
11	20	I visit family and friends less since I have been caring for
12	21	I will never be able to do enough caregiving to repay
13	3	My family works together at caring for ^b
		I have eliminated things from my schedule since caring for
14	14	b
15	5	I have enough physical strength to care for ^b
16	9	Since caring for, I feel my family has abandoned me.
17	10	Caring for makes me feel good.
		The constant interruptions make it difficult to find time for
18	16	relaxation.
19	2	I am healthy enough to care for ^b
20	4	Caring for is important to me.
21	24	Caring for has put a financial strain on the family.
		My family (brothers, sisters, children) left me alone to care for
22	17	·
23	6	I enjoy caring for
24	23	It's difficult to pay for 's health needs and services.
^a From the	Family Care	Research Program, Michigan State University.

 Table 3. Caregiver Reaction Assessment instrument

^a From the Family Care Research Program, Michigan State University. (<u>http://www.thecarenet.ca/docs/CaregiverReactionAssessmentForm.pdf</u>) ^b These are reverse score items.

Original		
Zarit item		
number	Factors ^a	Items
4	Р	I feel embarrassed over his/her behavior.
5	Р	I feel angry when I am around the person I care for
		I feel that he/she currently affects my relationship with other
6	R	family members or friends in a negative way.
9	Р	I feel strained when I am around the person I care for.
		I feel that my social life has suffered because I am caring for
12	R	this person.
		I feel uncomfortable about having friends over because of
13	R	him/her.
18	Р	I wish I could leave the care of this person to someone else.
19	Р	I feel uncertain about what to do about the person I care for.
^a Factor P is J	-ZBI_8 'per	sonal strain'; Factor R is J-ZBI-8 'role strain.'

 Table 4. J-ZBI_8 Items (Arai et al., 2003)

		Surve	y year	_
		2011	2012	– Total
Sample Size		1878	1183	3061
Caregivers				
Male (% of sample)		0.470	0.505	0.484
Age (years)	mean	48.90	50.70	49.60
	sd	11.10	10.95	11.10
Relationship (% of sam	ple)			
Spouse		0.081	0.072	0.077
Parents		0.597	0.643	0.615
Parents-in-law		0.092	0.076	0.086
Grandparents		0.045	0.034	0.041
Others		0.144	0.128	0.138
Primary Caregiver (% o	f sample)	0.380	0.411	0.392
Married (% of sample)		0.567	0.572	0.569
Education (% of sample	;)			
High school		0.323	0.330	0.326
College or more		0.629	0.631	0.630
Other		0.048	0.039	0.048
Care-receivers				
Male (% of sample)		0.312	0.307	0.310
Age (years)	mean	74.700	77.000	75.600
	sd	18.800	16.900	18.100
Care need (% of sample	2)			
Independent		0.022	0.015	0.019
Support 1		0.063	0.060	0.062
Support 2		0.089	0.093	0.091
Grade 1		0.156	0.141	0.150
Grade 2		0.177	0.199	0.186
Grade 3		0.158	0.158	0.158
Grade 4		0.106	0.115	0.109
Grade 5		0.096	0.111	0.102
Non-certified		0.132	0.108	0.123
Instruments				
CRA Scale	mean	68.40	68.10	68.30
	sd	10.10	10.40	10.20
JZBI_8	mean	21.90	21.40	21.70
	sd	7.00	6.90	7.00
CES_D	mean	20.00	19.10	19.70
	sd	10.80	10.70	10.80

ADL	mean	2.30	2.10	2.20
	sd	2.20	2.10	2.10
Care hours	mean	2.71	2.81	2.75
	sd	2.76	2.89	2.81
Paid by family	mean	0.42	0.38	0.41
	sd	0.49	0.49	0.49
Self-evaluated burden	mean	6.06	6.09	6.07
	sd	2.42	2.42	2.42
Self-evaluated health	mean	2.92	2.86	2.90
	sd	0.87	0.86	0.86
In_law	mean	0.16	0.14	0.15
	sd	0.37	0.35	0.36
Secondary	mean	0.30	0.33	0.31
	sd	0.46	0.47	0.46

Subscales	Cronbach's alpha
Impact on schedule	0.876
Impact on health	0.654
Impact on finance	0.805
Lack of family support	0.834
Caregiver's esteem	0.863
Overall CRA scale	0.894

Table 6. Internal consistency of original CRA scale (2121 observations)

		Mean Sd					
Subscales	Items	2011	2012	2011	2012	Corr <u>.</u> Coeff <u>.</u>	
S		16.186	16.117	4.279	4.517	0.772	
	Item 1	3.251	3.263	1.109	1.100	0.669	
	Item 7	3.109	3.202	1.040	1.122	0.584	
	Item 14	3.547	3.449	0.957	1.010	0.624	
	Item 16	3.032	3.065	1.096	1.132	0.673	
	Item 20	3.247	3.138	1.155	1.178	0.644	
F		8.223	8.332	3.003	3.129	0.794	
	Item 22	2.980	2.976	1.231	1.220	0.568	
	Item 23	2.619	2.672	1.094	1.152	0.710	
	Item 24	2.623	2.684	1.183	1.195	0.709	
FS		12.267	12.328	4.272	4.528	0.855	
	Item 3	2.741	2.733	1.122	1.141	0.702	
	Item 9	2.032	2.077	0.910	0.940	0.691	
	Item 11	2.526	2.551	1.147	1.174	0.711	
	Item 13	2.405	2.417	1.100	1.137	0.671	
	Item 17	2.563	2.551	1.153	1.167	0.730	
[11.113	11.028	2.982	30.680	0.781	
	Item 2	2.389	2.381	0.871	0.875	0.568	
	Item 5	2.729	2.668	0.943	0.977	0.639	
	Item 8	2.753	2.769	1.122	1.119	0.735	
	Item 18	3.243	3.211	1.088	1.121	0.678	
Ε		20.798	20.672	5.509	5.216	0.848	
	Item 4	3.462	3.502	0.936	0.864	0.667	
	Item 6	2.324	2.300	0.975	0.967	0.643	
	Item 10	2.672	2.696	0.912	0.865	0.553	
	Item 12	2.692	2.721	0.995	0.912	0.654	
	Item 15	3.526	3.425	1.150	1.197	0.743	
	Item 19	2.964	2.838	1.094	1.023	0.663	
	Item 21	3.158	3.190	1.124	1.055	0.752	
CRA	24 items	68.470	38.590	10.390	9.730	0.816	

Table 7. Results of test-rest by item (N = 247)

			Self-	Self-					
	Hours	ADL_	evaluated	evaluated			In_	Paid by	Secondary
	per day	score	health	burden	jZ_8	CES_D	law	family	caregiver
IS24	0.384	-0.285	-0.309	0.638	0.655	0.453	0.049	0.044	-0.083
IF24	0.099	-0.155	-0.240	0.420	0.442	0.401	0.012	0.257	0.078
LFS24	0.144	-0.082	-0.234	0.436	0.493	0.407	0.074	-0.027	-0.126
IH24	0.305	-0.243	-0.359	0.682	0.725	0.524	0.084	0.035	-0.080
CE24	0.153	-0.076	0.141	-0.314	-0.467	-0.264	-0.215	0.058	0.033

Table 8. Construct validity of original CRA: Coefficients of correlation with selected variables (N = 2121)

Note. Variables in column 1 are predicted values of the corresponding latent variables in Fig. 1. Figures in boldface type stand for the highest absolute values of coefficients of correlation in each column.

Factor analysis/correlation								
Factor	Eigenvalue	Difference	Proportion	Cumulative				
Factor 1	6.872	3.683	0.534	0.534				
Factor 2	3.189	1.706	0.248	0.782				
Factor 3	1.483	0.079	0.115	0.897				
Factor 4	1.404	0.806	0.109	1.006				
Factor 5	0.598	0.132	0.047	1.053				
Factor 6	0.466	0.302	0.036	1.089				
Factor 7	0.163	0.053	0.013	1.102				
Factor 8	0.110	0.022	0.009	1.110				
Factor 9	0.088	0.049	0.007	1.117				
Factor 10	0.039	0.033	0.003	1.120				
Factor 11	0.006	0.040	0.001	1.120				
Number of obse	rvations	937						
Number of param	meters	209						
Retained factors		11						
Rotation: unrota	ited							

 Table 9. Results of Factor Analysis of the original 24 items of CRA scale: Principal factors method

					, ,
Subscale	Variable	Factor_1	Factor_2	Factor_3	Factor_4
IS	Item 1	0.74	0.08	-0.02	-0.04
	Item 7	0.66	-0.09	0.15	0.01
	Item 14	0.78	0.08	-0.02	0.02
	Item 16	0.61	0.00	0.17	0.10
	Item 20	0.73	-0.01	0.03	0.03
IF	Item 22	0.07	-0.07	-0.06	0.63
	Item 23	0.14	0.07	0.08	0.72
	Item 24	0.11	0.15	0.04	0.72
LFS	Item 3	0.10	-0.17	0.53	-0.02
	Item 9	0.02	-0.01	0.60	0.18
	Item 11	0.11	0.02	0.80	-0.05
	Item 13	0.10	-0.17	0.64	0.02
	Item 17	0.09	0.07	0.81	-0.01
IH	Item 2	-0.15	-0.42	-0.02	0.45
	Item 5	-0.05	-0.39	-0.04	0.44
	Item 8	0.51	-0.13	0.15	0.28
	Item 18	0.70	-0.17	0.11	0.08
CE	Item 4	0.12	0.72	-0.07	-0.07
	Item 6	-0.24	0.73	-0.01	0.11
	Item 10	-0.06	0.57	0.15	0.05
	Item 12	-0.02	0.82	0.02	0.05
	Item 15	-0.17	0.42	-0.43	-0.09
	Item 19	-0.04	0.78	-0.07	0.05
	Item 21	0.04	0.67	-0.06	-0.02
Eigenvalue		4.61	4.47	4.40	3.11
Proportion		0.36	0.35	0.34	0.24
	1 • 1	0 6 11 11	1 .	C) I'''	(1 (1000) m

 Table 10. Results of EFA: Item factor loadings (rotated factor pattern; N = 937)

Note: Item numbers in column 2 follow the numbering of Nijboer et al. (1999). The figures in boldface type stand for the largest absolute values for each row (i.e. each item).

	(-)							
	Hours		Self-	Self-					
	per	ADL_	evaluated	evaluated			In_	Paid by	Secondary
	day	score	health	burden	jZ_8	CES_D	law	family	caregiver
ISH21	0.337	-0.292	-0.355	0.643	0.708	0.492	0.080	0.032	-0.071
IF21	0.156	-0.167	-0.227	0.416	0.434	0.371	0.027	0.257	0.070
LFS21	0.160	-0.098	-0.282	0.428	0.560	0.447	0.112	-0.007	-0.106
CE21	0.182	-0.080	0.156	-0.271	-0.425	-0.252	-0.228	0.058	0.028

Table 11. Construct validity of 21-item four-factor CRA: Coefficients of correlation with selected variables (N = 2121)

Note. Variables in column 1 stand for predicted values of the corresponding latent variables in Fig. 2. The figures in boldface type stand for the largest absolute values for each column.

		Natural parents		Total
Sample size		808	341	1149
Caregivers				
Age <u>(yrs)</u>	mean	50.139	51.044	50.407
	sd	9.437	8.775	9.251
Primary caregivers		0.719	0.73	0.722
Married***		0.448	0.971	0.56877
Education				
High school		0.339	0.372	0.326
Some college or	more	0.622	0.613	0.63
Other		0.039	0.015	0.048
Care-receiver				
Male		0.199	0.199	0.199
Age <u>(yrs)</u>	mean***	78.97	81.55	79.73
	sd	10.59	11.77	11.02
Care need				
Independent		0.016	0.018	0.017
Support 1		0.047	0.047	0.047
Support 2		0.093	0.1	0.095
Grade 1		0.157	0.188	0.166
Grade 2		0.211	0.235	0.219
Grade 3		0.158	0.173	0.163
Grade 4		0.113	0.111	0.112
Grade 5		0.113	0.067	0.099
Non-certified		0.092	0.062	0.083
Instruments				
CRA scale	mean***	70.06	67.3	69.25
	sd	10.25	8.92	9.95
JZBI_8	mean***	22.94	24.9	23.52
	sd	7.09	6.79	7.06
CES_D	mean***	20.57	18.36	19.91
	sd	11.36	10.61	11.18
ADL	mean	2.28	2.11	2.26
	sd	2.11	2.12	2.11
Care hours	mean	3.1	2.94	3.05
	sd	2.84	2.64	2.78
Paid by family	mean	0.365	0.482	0.356
Self-evaluated	sd	0.334	0.472	0.479
burden	mean*	6.41	6.67	6.5

Table 12. Descriptive statistics of the two groups of female caregivers

Self-evaluated	sd	2.36	2.38	2.37	
health	mean*	2.84	2.94	2.87	
	sd	0.89	0.8	0.86	
Secondary	mean	0.239	0.234	0.238	
, i i i i i i i i i i i i i i i i i i i	sd	0.427	0.424	0.426	

* Significant at 10%. ** Significant at 5%. *** Significant at 1%.

I

	~ ~ ~	Model 1: Different		Model 2: Common		Model 2	
		slopes, different		slopes, different		vs.	
	_	intercepts		intercepts		Model 1	
Subscales	18-Items	df	chi 2	df	chi 2	P-value	
	7, 14, 16, 20, 8,						
ISH	18	18	93.05	23	93.61	0.99	
IF	22, 23, 24	0	0	2	1.8	0.407	
LFS	9, 11, 13, 17	4	9.69	7	13.87	0.249	
CE^{a}	4, 6, 10, 19, 21	10	36.79	14	40.39	0.463	
	-	Model 3: Co	ommon				
		slopes, common		Model 3 vs.	Model 3 vs.		
		intercepts		Model 2	Ν	Model 1	
		df chi2		P-value	P-value		
	7, 14, 16, 20, 8,						
ISH	18	28	99.42	0.325	0.173		
IF	22, 23, 24	4	2.6	0.67	0.627		
LFS	9, 11, 13, 17	10	49.08	0		0	
CE^{a}	4, 6, 10, 19, 21	18	67.63	0		0	

Table 13. Test results of group-invariance (biological daughters vs. daughters-in-law)

^a Without item 12 from the 18-item scale.