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ORIGINAL ARTICLE

Life Satisfaction in Older Women in Latvia and Sweden—Relations to Standard of Living, Aspects of Health and Coping Behaviour

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Abstract To study and compare associations between life satisfaction and standard of living, health, and coping behaviour in older single-living women in two countries with different political, economical and cultural situations: Latvia and Sweden. Cross sectional data included 260 Latvian and 288 Swedish women, aged 75–84 and 80–89, from the ENABLE-AGE Survey Study. Life satisfaction was assessed by the question: All in all, how satisfied are you with your life? Standard of living was assessed by economic and housing conditions, and health by perceived and objective health and activities in daily living. Three factors, Fight, Helplessness, and Distraction, were obtained from the Coping Patterns Schedule. Correlations between Life satisfaction and standard of living, health, and coping were calculated. The variance in Life satisfaction explained by these variables was obtained in each sample by ordinal regression models. Life satisfaction was significantly lower in the Latvian sample than in the Swedish. Standard of living was lower and health poorer in the younger Latvian sample than in the Swedish, but more of the variance in Life satisfaction was explained in the Latvian sample by standard of living (18 % vs 2 %) and less by health (6 % vs 15 %). Coping factors explained 29 % of the variation in Life satisfaction in the Latvian sample as opposed to 15 % in the Swedish. For single-living older women low standard of living seems to be a more serious obstacle than poor health, making it difficult to obtain a reasonable life satisfaction.

Keywords Coping · Health · Life satisfaction · Older women · Standard of living

Introduction

Life satisfaction is a concept that is related to the way in which an individual experiences and evaluates his/her own circumstances. One definition is formulated by Veenhoven: “The

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degree to which a person positively evaluates the overall quality of his/her life as-a-whole; in other words, how much the person likes the life he/she leads" (Veenhoven 1996, p. 6). The degree of life satisfaction will then be related to the difference between the expectations and ambitions of a person and the possibility to reach these goals (Veenhoven 1996).

Obviously, satisfaction with life cannot be possible when basic standard of living required for survival is lacking. However, what could be considered a reasonable standard of living has changed with time and cultural settings (Marmot, 2004). The cultural and political framework of a country seems to have implications for which factors that are important and to what extent they relate to life satisfaction (Easterlin 2008; Gagliardi *et al.* 2010; Silverman *et al.* 2000).

Cross-national studies have demonstrated that financial resources are related to life satisfaction (Easterlin 2008; Fagerström *et al.* 2007; Ferring *et al.* 2004; Silverman *et al.* 2000). Other studies have reported that aspects of health, in particular self-rated health and feeling hindered by health problems, are related to life satisfaction (Berg *et al.* 2006; Chappel 2003; Edwards & Klemmack; 1973; Fagerström *et al.* 2007). It has been shown that in societies with inequalities in standard of living there is an elevated level of stress, most pronounced in those with the lowest socio-economic status, leading to poorer health and even lower life satisfaction (Marmot 2004).

According to two German studies, life satisfaction is relatively stable across the life span (Fujita & Diener 2005; Schilling 2006). However, other studies have shown that changing life circumstances may influence life satisfaction in a shorter or longer perspective. With increasing age there is not only a decline in economic standard and in health status; the loss of a spouse often contributes to a decline in life satisfaction for older people (Berg *et al.* 2009; Chipperfield and Havens 2001).

There are different ways of coping with the transitions and changes in life. In a study, based on samples of white people, mostly married, living in the San Francisco Bay-area and with a family income above marginal, there was some evidence that people had higher ability to reassess changed situations positively with increasing age (Folkman *et al.* 1987); this maturation was seen especially regarding changing health. A follow-up study over 7 years assessing coping mechanisms as the reaction to one stressful event found only minor changes in coping, indicating that coping behaviour is a part of the personality (McCrae 1989). However, the same study showed differences in coping mechanisms between age cohorts, now suggesting that life events form the coping behaviour. Thus, there are diverging and conflicting results. More studies incorporating coping behaviour are needed, especially including older people in societies that have gone through radical changes, either political or economical.

According to Pinquart & Sörensen (2001), women tend to report lower levels of both life satisfaction and other aspects of subjective well-being than men, at least in older ages. Older women are more likely to be widowed, due to the sex segregation in the labour market they generally have a poorer economy, and as their morbidity and disability rates are higher, they tend to require more care in later life than older men. Thus, single-living elderly women constitute a particular frail group vulnerable to unfavourable changes in health and economy, factors that are important for life satisfaction. It has not been possible to find studies comparing relations to life satisfaction in older women living in such diverse settings as Eastern and Western Europe.

The ENABLE-AGE Survey Study (Iwarsson *et al.* 2005) included samples from five European countries. Two of the countries—Latvia and Sweden—are located on each side of the Baltic Sea, Latvia on the Eastern side and Sweden on the Western; thus Sweden and Latvia have similar geographical position and climate. For several centuries the two countries had political, economical and cultural relations. The territory of Latvia has been

divided between different countries several times; a part of Latvia was occupied by Swedish military forces from 1629 to 1721. Latvia became independent for the first time in 1918. During World War II the Soviet Union occupied the country in 1940, and a German occupation followed from 1941 until 1944. After the war Latvia experienced Soviet repressions, but with economic growth. In 1991 Latvia regained independence and the political and economical situation changed rapidly from planned economy to market economy and the situation has not stabilised. In contrast, Sweden has been engaged in many wars, but has never been occupied and was directly involved neither in World War I nor in World War II. During the last century Sweden has been an evolving democracy, from being a poor rural country Sweden has developed since World War II into a well fare state with a comparatively stable increasing economy.

In 2002 the gross domestic product (GDP per capita) was approximately one tenth in Latvia compared to that in Sweden, $3,984.08 and $27,293.13, respectively (Nationmaster —World Statistics, Country Comparisons, 2011). Concerning important indicators of health, infant mortality was higher and life expectancy lower in Latvia (WHO 2004).

As economy, health and coping have been shown to be important for life satisfaction (DeNeve & Cooper 1998) the question arises to which degree these factors are related to life satisfaction and, furthermore, if they are equally important under different circumstances. Hence, the aim of the present study was to investigate how standard of living, health, and coping related to life satisfaction in older single-living women in two European countries: one country in a turbulent economic and political situation with inequalities and one with comparatively stable and rather equal conditions.

Materials and Methods

The ENABLE-AGE project context

This study is based on Swedish and Latvian data from the European project "Enabling Autonomy, Participation, and Well-Being in Old Age: The Home Environment as a Determinant for Healthy Ageing" (ENABLE-AGE). The project design was explicitly explorative, with the main objective to examine the home environment and its importance for major components of healthy ageing (Iwarsson *et al.* 2005). Data were collected by trained interviewers in 2002–2003.

Samples

Following a sampling flowchart agreed upon by the ENABLE-AGE Consortium, project assistants phoned potential participants to verify that they fulfilled all inclusion criteria and asked them for informed consent; the desired sample size was 400 single-living persons in urban areas from each country. At the time of data collection the average life expectancy in Latvia was 75.8 years for women and 64.6 years for men while in Sweden it was 82.6 years for women and 78.0 for men (WHO 2004). Due to these differences in life expectancy the aim of the sampling strategy was to obtain ages of the participants that were evenly distributed between 75 and 84 years in Latvia and between 80 and 89 years in Sweden. Geographically, participants were located in urban areas, in the central part of Latvia (Riga, Jurmala) and in the southern part of Sweden (Halmstad, Helsingborg, Lund).

The initial ambition was to draw participants at random from official national registers, but this was possible only in Sweden. In Latvia, official national registers were not available

for researchers; the participants were recruited partly from social care centers client lists from where they were selected randomly and partly from older people's voluntary organizations ("snowball principle"). Of 690 persons contacted in Latvia 44 % accepted to participate, in Sweden 41 % out of 970 persons accepted to participate; the final samples consisted in Latvia of 303 persons (268 women) and in Sweden of 397 persons (296 women). The most common reasons for not participating were poor health (26 % in Latvia and 27 % in Sweden) and lack of time and interest. Further details regarding the procedure of the data collection and the instruments used in the ENABLE-AGE Survey Study can be found in previous publications, see e.g. (Iwarsson *et al.* 2007).

In the present study we focus exclusively on the women that answered a question about life satisfaction; 260 in Latvia and 288 in Sweden. Most of the women were widows (71.2 % in the Latvian sample and 79.2 % in the Swedish); a small percentage of the participants had a partner living somewhere else (2–3 % in both samples).

Formal ethical approval was granted by the authorities concerned in Sweden as well as in Latvia. Furthermore, professional discussions and agreements were undertaken between the researchers involved, including production of joint information sheets and consent forms (Iwarsson *et al.* 2005).

Instruments

The comprehensive ENABLE-AGE Survey Study Questionnaire incorporated a wide range of questions on demographics, self-report scales and observational assessments. The demographic information included data on age and education. Data on life satisfaction, aspects of health, standard of living, and coping pattern were included in the analyses in the current study; the instruments used are described below.

Life satisfaction

Life satisfaction (LS) was assessed by a single question: All in all, how satisfied are you with your life? Answers ranged from 0 "very unsatisfied" to 10 "very satisfied".

Standard of living

Study specific variables indicating economic standard and housing standard were used. Economic standard was estimated in two different ways, namely by self-reported monthly income (euro) and income satisfaction, the latter assessed on a scale from 0 "very unsatisfied" to 10 "very satisfied". Indicators of housing standard were Housing type ("Multi-dwelling block", "One- or two-family house"), number of rooms in the dwelling, and presence/absence of indoor toilet and bath.

Aspects of health

Several variables representing aspects of health were obtained from the database. Self-ratings of perceived health were collected by means of the well-established question from the SF-36 questionnaire "In general would you say your health is?", rated on a scale with five response alternatives, ranging from 1"excellent" to 5 "poor" (Ware 1992). From a list of 44 diagnoses based on 16 ICD-10 classes, relevant for the age groups targeted, each participant selected diagnoses that were present during the last year and the total number of self reported diagnoses was calculated (Iwarsson *et al.* 2005). Similarly, the total number

of self-reported symptoms present during the last month out of 30 listed (Tibblin *et al.* 1990) was calculated for each participant. Activities of daily living (ADL) were assessed using the ADL Staircase (Sonn & Hulter-Åsberg 1991), which is administered by a combination of interview and observation. The ADL Staircase comprises five personal activities of daily living (P-ADL) items (feeding, transferring, going to the toilet, dressing, and bathing) and four instrumental ADL (I-ADL) items (cooking, shopping, cleaning, and transportation). Each item was assessed on a three-graded scale: independent, partly dependent, and dependent; a person was rated as partly dependent/dependent when the person actually received assistance from another person. For the current study, the participants were divided into two categories: *Independent,* including those who were assessed as independent in all of the 9 activities, and *Dependent,* including those who were partly dependent or dependent, i.e. received assistance, in at least one activity. Number of diagnoses, number of symptoms and ADL dependence were taken as indicators of objective health.

Coping

Coping factors were obtained from the Coping Pattern Schedule (Staudinger *et al.* 1995) consisting of 13 items describing how people tend to act in problematic situations. Each item was assessed on a fifth-graded scale from 1 “strongly disagree”, 2 “disagree”, 3 “neutral”, 4 “agree”, 5 “strongly agree”. Factor analysis was applied to the items using varimax rotation after a principal component analysis. Based on a Spree-plot, a three-factor solution was decided upon; the variance explained was 42 %. The resulting factors were named “Fight”, “Helplessness”, and “Distraction”; Cronbach’s Alpha was 0.612, 0.455, and 0.429, respectively. Factor scores were computed by adding the item-specific scores, reversing when there were negative correlations.

Statistics

Categorical variables were described by frequencies; variables on at least ordinal scale were described by medians and quartiles; the distribution of LS was also illustrated with a histogram. Each sample was described separately and the differences between the two national samples were tested by means of Chi-square tests for the categorical variables and Mann-Whitney’s *U*-test for the variables on at least ordinal scale. The relation between LS and age was illustrated with a scatterplot and a fitted curve for each national sample. Spearman’s correlations coefficients for the relations between LS on the one hand and the variables representing age, education, standard of living, aspects of health, and coping factors on the other were calculated separately for the two national samples. Differences between the correlations were tested using Fisher transformation (Fisher 1915).

For both national samples, each of the three groups of variables was entered in separate ordinal regression models with LS as the dependent variable; the probit function was used as link function. The explained variance was assessed by the Nagelkerke pseudo R-Square (Armstrong & Sloan 1989; Lall *et al.* 2002; McCullagh 1980) for each model. Furthermore, for each specific variable the equality of the regression coefficients in the two samples was tested using a regression model for the combined sample. Hereby, the set of explanatory variables was extended with a sample indicator and its interaction with the specific variable in question. A statistical significance of the interaction term indicated a statistically significant difference between the regression coefficients in the two samples.

Finally, for each of the two samples all variables from the three groups as well as interaction terms between Income satisfaction and Perceived health on one hand and the

three coping factors on the other, were entered together in one model; thereafter, the variables that were the least significant in both samples were removed one by one in a backward procedure, until only variables that were significantly related to LS in at least one of the samples remained. Statistically significant difference between the regression coefficients in the two final models were tested as described above. As a last control, age and education were considered as possible confounders.

P-values below 0.05 were taken as indicating statistical significance.

Results

The difference between older women in the Latvian and the Swedish samples with regard to LS was highly significant, with a much higher satisfaction in the Swedish sample ($p<0.001$); see Fig. 1.

The descriptive characteristics of the two national samples are further presented in Table 1. The differences between the samples with regard to the variables representing demography, standard of living (except housing type), and aspects of health were all highly significant ($p<0.0005$). The median age was 6 years lower in the Latvian sample, due to the sampling strategy. It is noteworthy that the level of education was much higher in Latvia where 26.5 % of the women had a university degree as opposed to only 6.3 % in the Swedish sample. There was a small variation in the income in Latvia, most women had about 100 euro's per month; the median income for the Swedish women was almost ten times higher and showed a larger variation. The income satisfaction was very low in the Latvian sample, high in the Swedish. The distribution on type of housing was almost the same in the two samples, whereas the dwellings were larger with more rooms in the Swedish sample. Everybody in the Swedish sample had toilet and bath indoor, in the Latvian sample this was the case for only 81.4 % (toilet) and 83.8 % (bath). The variables indicating health, both subjective and objective, showed a worse situation among the younger Latvian women. Of the self- reported diagnoses in particular cardiovascular diseases were much more prevalent in the Latvian sample; only stroke and urinary infections were more prevalent in the Swedish sample. All self-reported symptoms, except impaired hearing, were more prevalent in the Latvian sample. In particular, the prevalence of the following symptoms was much higher in

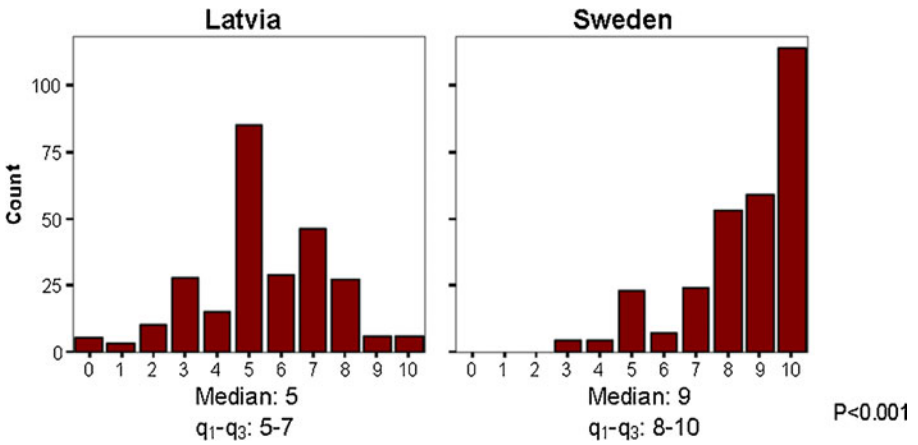

Fig. 1 Life Satisfaction

Table 1 Descriptive characteristics for the Latvian (n=260) and the Swedish (n=288) sample

Variable	Latvia (n=260)	Sweden (n=288)
Demography		
Age (years), median (q1–q3)	79 (77–81)	85 (82–87)
Education, n (%)		
Elementary school or less	59 (22.7)	113 (39.5)
Secondary school/college	132 (50.8)	155 (54.2)
University	69 (26.5)	18 (6.3)
Standard of living		
Financial income (euro), median (q1–q3)	100 (100–100)	850 (750–1000)
Satisfaction with income[a], median (q1–q3)	2 (0–3)	8 (6–9)
Housing type, n (%)		
Multi-dwelling block	226 (86.9)	248 (86.1)
One- or two-family house	34 (13.2)	40 (13.9)
No of rooms, median (q1–q3)	1 (1–2)	3 (2–3)
Toilet indoor, n (%)	229 (81.4)	288 (100)
Bath indoor, n (%)	217 (83.8)	288 (100)
Aspects of Health		
Perceived health[b], median (q1–q3)	4 (4–5)	3 (2–3)
No of diagnoses[c], median (q1–q3)	8 (6–10)	5 (3–7)
No of symptoms[d], median (q1–q3)	14 (10–17)	7 (4–11)
ADL, n (%)		
Independent in all 9 activities	179 (69.1)	125 (43.6)
Dependent in at least 1 activity	80 (30.9)	162 (56.4)

[a] Ranging from 0 "very unsatisfied" to 10 "very satisfied"

[b] From the SF-36 questionnaire, ranging from 1"excellent" to 5 "poor" (Ware 1992)

[c] The total number of self-reported diagnoses among forty-four ICD-10 diagnoses present during the last year (Iwarsson *et al.* 2005)

[d] The total number of self-reported symptoms present during the last month out of 30 listed (Tibblin *et al.* 1990)

The differences between the two national samples were highly significant (p<0.0005) for all variables except housing type

the Latvian sample than in the Swedish: Exhaustion (69 % vs 9 %); Fatigue (76 % vs 42 %); Nervousness (69 % vs 17 %); Slepp disorder (69 % vs 48 %), pain in various parts of the body ranged from 71 % to 82 % in the Latvian sample vs 47 % to 55 % in the Swedish. However, despite poorer health, the Latvian women received less assistance, demonstrated by their lower proportion of ADL dependents (30.9 % in Latvia vs 56.4 % in Sweden).

Regarding the 3-factor solution of coping behaviour (Table 2), the factor Fight itself did not differ significantly between the two samples. The items included in the two factors Helplessness and Distraction indicated a higher degree of helplessness and distraction behaviour in the Latvian women; the differences between the samples were highly significant (p<0.0005).

As illustrated in Fig. 2, LS was consistently higher in Swedish sample for all ages; however, LS was not positively related to age in any of the two samples.

Table 3 presents the correlations between Life satisfaction and variables representing demography, standard of living, aspects of health, and coping factors in the two national

Table 2 Factor analysis of coping factors from the Coping Pattern Schedule

Items in the Coping Pattern Schedule	Factor		
	Fight	Helplessness	Distraction
I try to find out about all sides of a problem.	.670		
I try to adapt to difficult situations rather than fight against them.	−.665		
I tend to give in when there is a problem and to let things take their own course.	−.652		
I never give up, even when the odds are stacked against me.	.557		
I find that I can better face up to dealing with a difficult situation if I remind myself that I have already solved many other problems in my life.	.547		
It is often the case that I can't solve the problems that I have. Then I become depressed and can't see any point to my life.		.693	
I find it easier to deal with any problems I have by remembering that there are always others who are far worse off than me.		−.631	
I often wish that someone else would solve my problems for me.		.519	
If I have any problems, I look to others for help and support.		.490	
I react in different ways to problems: Sometimes I am down and then I am up and full of energy again.			.654
If I have a problem, I try to find something else to do to help take my mind off it.			.589
In difficult situations I seek support in my faith.			.573
If I have any problems I try to take it with a sense of humour.			.454
Cronbach's Alpha	0.612	0.455	0.429
Factor scores for Latvia, median (q1–q3)	3.4 (3.0–3.8)	3.0 (2.5–3.5)	3.8 (3.3–4.0)
Factor scores for Sweden, median (q1–q3)	3.4 (3.0–3.8)	2.5 (2.3–3.0)	3.3 (3.0–3.8)
P-value[b]	0.318	<0.0005	<0.0005

Extraction method: principal component analysis. Variance explained: 42 %

Rotation method: varimax with Kaiser normalization

[a] (Staudinger, Freund, Smith, 1995)

[b] Differences between the two samples were tested with Mann-Whitney's *U*-test

samples and the results from the comparisons of the correlations. Neither age nor education was significantly correlated to LS in any of the samples. Among the variables indicating standard of living, Financial income (euro) was positively significantly related to LS in the Latvian sample ($p=0.041$), but far from being significant in the Swedish ($p=0.640$). On the other hand, Satisfaction with income was highly significantly positively related to LS in both samples ($p<0.0005$). The only variable representing housing standard that related significantly to LS was presence of in-door toilet that was positively related to LS in the Latvian sample ($p=0.026$). In the Swedish sample everybody had access to both toilet and bath indoor; hence these variables could not be related to LS in this sample. All variables indicating aspects of health were negatively related to LS; thus the poorer health the lower LS. Perceived health and number of diagnoses were significantly correlated to LS in the Swedish sample ($p<0.0005$ and $p=0.005$, respectively) but not in the Latvian ($p=0.058$ and $p=0.214$,

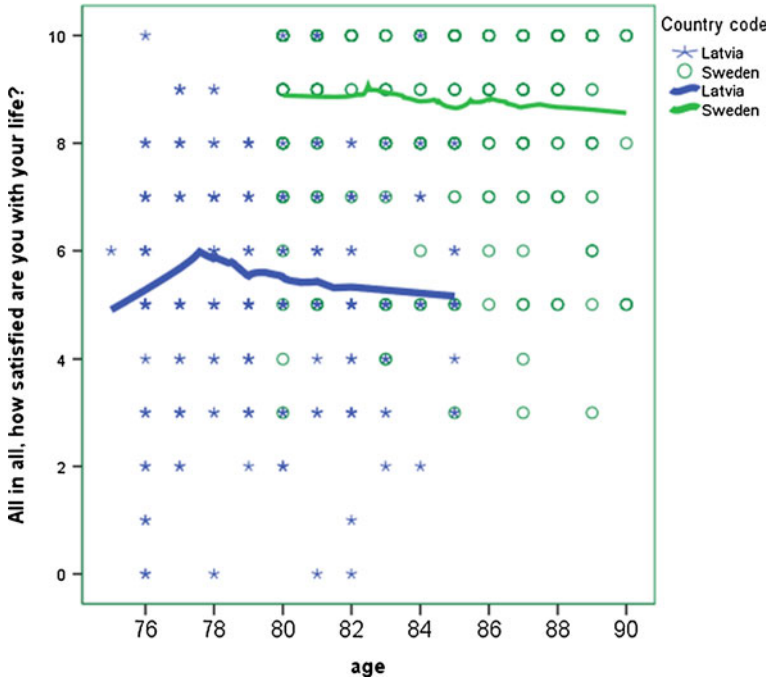

Fig. 2 Life Satisfaction by age

respectively). Number of symptoms was significantly related to LS in both samples (p= 0.002 in the Latvian; p<0.0005 in the Swedish). ADL was not significantly correlated to LS in any of the national samples. The three coping factors correlated significantly to LS in both samples; Helplessness correlated negatively, while Fight and Distraction were positively related.

When the correlations in the two samples were compared, Satisfaction with income was significantly stronger correlated to LS in the Latvian sample, while Perceived health was stronger correlated to LS in the Swedish. Two coping factors, Helplessness and Distraction, showed significantly stronger correlations to LS in the Latvian sample. Fight was stronger related to LS in the Swedish sample, although not significantly.

Table 4 shows the results of the ordinal regressions models explaining LS. As toilet and bath in-door could not be related to LS in the Swedish sample, these variables were excluded from the regression analyses.

When all the variables representing standard of living were included in regression models for the two national samples, Income satisfaction turned out to be significantly related to LS in both samples. However, the Nagelkerke quantity determining the variance explained by these variables was higher (0.186) in the Latvian sample than in the Swedish (0.042), indicating that standard of living had a higher impact on Life satisfaction in the Latvian sample.

In the models with explanatory variables representing the various aspects of health, Number of symptoms was significant in the Latvian sample; in the Swedish sample Perceived health was significant. The variance of LS explained by the health variables was 0.066 in the Latvian sample, 0.135 in the Swedish indicating that aspects of health were of more importance for Life satisfaction in the Swedish sample.

Table 3 Relations between Life satisfaction[a] and the variables representing demography, standard of living, aspects of health, and coping factors in the Latvian (n=260) and Swedish sample (n=288) (Spearman's correlation coefficients)

Variable	Correlation to LS, Latvia (n=260)		Correlation to LS, Sweden (n=288)	
	Spearman's correlation	p-value	Spearman's correlation	p-value
Demography				
Age (years)	−0.054	(0.386)	−0.003	(0.959)
Education	0.035	(0.570)	−0.086	(0.146)
Standard of living				
Financial income (euro)	**0.127**	**(0.041)**	0.030	(0.640)
*Satisfaction with income[b]	**0.398**	**(<0.0005)**	**0.234**	**(<0.0005)**
Housing type	0.073	(0.243)	−0.055	(0.354)
No of rooms	0.020	(0.755)	0.067	(0.261)
Toilet indoor	**0.138**	**(0.026)**	—	—
Bath indoor	0.118	(0.058)	—	—
Aspects of Health				
*Perceived health[c]	−0.118	(0.058)	**−0.358**	**(<0.0005)**
No of diagnoses[d]	−0.078	(0.214)	**−0.167**	**(0.005)**
No of symptoms[e]	**−0.197**	**(0.002)**	**−0.252**	**(<0.0005)**
ADL	−0.113	(0.070)	−0.075	(0.206)
Coping factors				
Fight	**0.154**	**(0.017)**	**0.175**	**(0.005)**
*Helplessness	**−0.430**	**(<0.0005)**	**−0.223**	**(<0.0005)**
*Distraction	**0.352**	**(<0.0005)**	**0.149**	**(0.017)**

[a] Ranging from 0 "very unsatisfied" to 10 "very satisfied"

[b] Ranging from 0 "very unsatisfied" to 10 "very satisfied"

[c] From the SF-36 questionnaire, ranging from 1"excellent" to 5 "poor" (Ware 1992)

[d] The total number of self-reported diagnoses among forty-four ICD-10 diagnoses present during the last year (Iwarsson *et al.* 2005)

[e] The total number of self-reported symptoms present during the last month out of 30 listed (Tibblin *et al.* 1990)

Correlations significantly different from zero are marked with bold

Significant differences **between correlations in the two samples** between LS and other variables are marked with *

In the models with coping factors explaining LS Helplessness and Distraction were significant in both samples, and Fight was significant in the Swedish sample; the explained variance from the coping factors was larger in the Latvian sample than in the Swedish, with Nagelkerke 0.259 and 0.092, respectively.

When all explanatory variables and interaction terms were considered together, the significant variables in the Latvian sample were Income satisfaction, Perceived health, Helplessness, and the interaction term between Distraction and Perceived health. In the Swedish sample the significant variables were Income satisfaction, Perceived health, the interaction between Fight and Perceived health, and Helplessness. The total explained variance was larger in the Latvian sample than in the Swedish, with Nagelkerke 0.369 and 0.250, respectively. Income satisfaction did thus not interact with any of the coping

Table 4 Four ordinal regression analyses in two national samples having Life satisfaction[a] as the dependent variable

Explanatory variables	Latvia (n=260)			Sweden (n=288)		
	Regression coefficient	p-value	Explained variance	Regression coefficient	p-value	Explained variance
Standard of living						
Financial income (euro)	−0.001	(0.825)	0.186	<0.001	(0.972)	0.042
¤Satisfaction with income[b]	0.252	(<0.001)		0.079	(0.014)	
Housing type	−0.026	(0.921)		−0.311	(0.196)	
No of rooms	0.045	(0.701)		0.062	(0.378)	
Aspects of health						
¤Perceived health[c]	−0.128	(0.293)	0.066	−0.402	(<0.001)	0.135
No of diagnoses[d]	0.018	(0.452)		0.024	(0.391)	
No of symptoms[e]	−0.051	(0.002)		−0.025	(0.234)	
ADL	0.191	(0.190)		−0.072	(0.643)	
Coping factors						
¤Fight	0.105	(0.354)	0.259	0.320	(0.010)	0.092
¤Helplessness	0.492	(<0.001)		0.241	(0.023)	
¤Distraction	−0.682	(<0.001)		−0.327	(0.004)	
Final model						
¤Satisfaction with income	0.198	(<0.001)	0.369	0.088	(0.005)	0.250
¤Perceived health	−1.742	(0.053)		−1.536	(<0.014)	
¤Fight	0.203	(0.795)		−0.785	(0.052)	
¤Fight*perceived health	−0.018	(0.923)		0.333	(0.011)	
¤Helplessness	−0.564	(<0.001)		−0.290	(0.011)	
¤Distraction	−1.523	(0.115)		0.252	(0.464)	
¤Distraction*perceived health	0.496	(<0.032)		0.014	(0.896)	

[a] Ranging from 0 “very unsatisfied” to 10 “very satisfied”

[b] Ranging from 0 “very unsatisfied” to 10 “very satisfied”

[c] From the SF-36 questionnaire, ranging from 1”excellent” to 5 “poor” (Ware 1992)

[d] The total number of self-reported diagnoses among forty-four ICD-10 diagnoses present during the last year (Iwarsson *et al.* 2005)

[e] The total number of self-reported symptoms present during the last month out of 30 listed (Tibblin *et al.* 1990)

The first three models contain the explanatory variables that represent aspects of health, standard of living, and coping factors. In the final model all explanatory variables, including interaction terms, were inserted in a regression model; thereafter non-significant variables were excluded one by one in a backward manner. Variance explained is assessed by the Nagelkerke quantity

Note: Coefficients significantly different from zero are marked with bold. Explanatory variables with significant differences **between the regression coefficients in the two samples** are marked with ¤. Explained variance is assessed by Nagelkerke’s R

behaviours in any of the samples. All relations to LS found in the regression analyses had the same direction as the corresponding correlations presented in Table 3. Neither Age nor Education was a confounder.

In the models with explanatory variables representing standard of living, the coefficient for Income satisfaction was significantly larger in the model for the Latvian sample. In the

models with aspects of health as explanatory variables, the coefficient for Perceived health was significantly larger in the model for the Swedish sample. Further, all coping variables differed significantly between the two samples in the model with all three coping factors. In the last models containing explanatory variables from standard of living, health, and coping, all coefficients differed significantly between the two samples.

Discussion

The present study was based on samples of elderly single-living women in two European countries; Latvia, experiencing political, economic, and cultural transitions and Sweden having relatively stable conditions. The aim was to study associations between LS and aspects of standard of living, health, and coping behaviour. In particular, we aimed at comparing the associations and the impact of these various aspects on LS.

LS was lower among the Latvian women than among the Swedish; in particular, this was also the case for the common age span 80–85 years. Blanchflower & Oswald (2008) found that well-being was u-shaped over the life cycle; in the narrow age spans analysed in present study there was no such tendency for LS. Standard of living was lower and health was poorer in the younger Latvian sample. The coping behaviour Fight was equally strong in the two samples, while Helplessness and Distraction was much stronger in the Latvian sample.

For the Latvian sample coping factors seemed most important for LS, followed by standard of living; least important were aspects of health. There was another picture in the Swedish sample where aspects of health explained most of the variation in LS followed by coping; standard of living was least important. In both samples aspects of financial situation and of health were associated to LS; the results from both samples showed that the better the financial situation and the better the health conditions the higher was the life satisfaction, thus supporting findings from earlier studies (Berg *et al.* 2009; Edwards & Klemmack 1973; Fagerström *et al.* 2007; Spreitzer & Snyder 1974). However, standard of living explained more of the variance in LS among the Latvian women than among the Swedish who had higher economic standard. Aspects of health explained less of the variation among the younger and unhealthier Latvian women. Coping was important for LS in both samples but more for the Latvian women.

It is important to keep in mind that life in Latvia during the Soviet time was more or less free from economic problems on the individual level: most social services were state granted and people did not need to worry neither about economy nor about issues concerning health care. The transition from the Soviet regime to the independence brought many changes, not always for the better (Easterlin 2008). At the time of the study (2002–2003) it was clear that expectations for a better life were not met in reality: the financial situation for older persons worsened and there were restrictions in the free health care. In accordance with the definition of life satisfaction used in the present study these unmet expectations could be one explanation why the Latvian women reported lower LS (Veenhoven 1996).

The break-up from the Soviet Union first led to a considerable reduction of GDP during 1990–1993 but the economy later recovered (Welfare Ministry of Latvia 2002). Since the pension is the main income for older people, one of the most important changes was the reform of the retirement pension system in the middle of the 1990ties. In this reform, the amount of pension depended on the average salary in the Latvian economy, no longer on the individual income during the life course as it did before. At the time of data collection the average pension in Latvia was considerably lower than before the regained independence. Thus it is to be expected that many of the women in the present Latvian sample experienced

a reduced income during the last years and the question arises whether basic needs were actually met. There were not such dramatic changes in the Swedish society. In 2000 a new national retirement pension system was introduced also in Sweden, but the women in the Swedish sample were all too old to be influenced by these changes. The old system had two parts; basic and supplementary pension. The basic pension, which at the time of the data collection in 2002–2003, was approximately 300 Euros (Pensionsmyndigheten 2012) provided basic security independently of previous income, while the supplementary pension was based on previous income. The inflation in Sweden had been modest during the last 10 years and basic needs could be met to a large extent, reflected in the higher living standard in the Swedish sample. Even though housing standard is an important part of standard of living neither the type nor the size of the dwelling was related to LS in any of the two samples. However, the presence of toilet and bath indoor was positively related to LS in Latvia; the women included in this study often lived in houses built during past centuries, and toilet and bath could be situated outside the apartment. In the Swedish sample everybody had both toilet and bath in-door; thus it was not possible to relate these variables to LS in both samples.

The fact that ADL dependence was higher in the Swedish sample may seem contradictory with regard to the better health in Sweden. However, in the present study dependence in ADL indicates that the person actually receives assistance from another person and in some cases assistance could simply be bought. Those in need in Sweden would often receive necessary assistance; in Latvia, on the other side, the social care system was under development at the time of data collection and could not always provide proper and necessary assistance. The Latvian women were in average 5 years younger than the Swedish, but actually suffered from poorer health; both perceived and objective health. The poorer health among the Latvian women may reflect a life with more negative stress; they experienced World War II, German and Soviet occupations and later political changes. There are studies presenting strong evidence that a stressful life can lead to higher morbidity and mortality (Kristenson *et al.* 1998; Marmot 2004; Sparén *et al.* 2004). Since the regained independence in 1991 the health care system went through major changes based on centralization of financial resources. All Latvian citizens were then entitled to state-funded health care for life-threatening conditions. Conditions such as hip replacement and rehabilitation targeting certain conditions were provided only at the patient's own expense (Karaskevica 2003; Latvia Human Development Report 2002/2003). As a consequence the general health of the Latvian population has become worse (Karaskevica 2004). Other studies have found that health and satisfaction with life are positively related (Deaton 2010; Markides & Martin 1979). Considering the poor health in the present Latvian sample it is therefore astonishing that health is not stronger related to LS. One explanation could be that with a problematic and poor economy, most urgent basic needs become a major concern, and medical care, that has to be paid for, must be put aside. The Swedish state-funded healthcare system covered almost all expenses at the time of the study. The older Swedish women in the sample had better health than their younger sisters in Latvia and yet health explained comparatively more of the variation in LS. According to Camfield and Skevington (2008) people move to a post-materialistic phase aiming at self-fulfilment once basic needs are met; in the present Swedish context this indicates that health becomes the matter of concern once the economy is satisfactory.

Turning to coping behaviour, the tendency to deal with problems in life with a fighting behaviour was more or less the same in the two national samples. Helplessness, which was stronger associated with LS in the Latvian sample, can indicate loss of perceived control, loss of optimism, and loss of a positive self-picture; all factors associated with low life satisfaction in old age across countries (Berg *et al.* 2009; Fagerström *et al.* 2007; Ingelhart & Klingemann 2000; Minkov 2009). The Latvian women's higher degree of helplessness and tendency to distract can be interpreted as coping behaviours that developed under the past

years under the Soviet regime in combination with the disappointment that the liberation actually decreased the economic standard for older people (Easterlin 2008). This interpretation is in accordance with a study of age cohorts (McCrae 1989) where differences in coping behaviour could be taken as reactions to different life circumstances. The fact that the coping behaviours explained more of the variation of LS for the woman in the Latvian sample suggests that for them it was more important for satisfaction with life how they handled various experiences in life. Income satisfaction did not interact significantly with any of the coping factors in the two samples, indicating that a lower satisfaction with income will be associated with a lower life satisfaction no matter how a person copes with the situation. In the Latvian sample there was a significant interaction between Perceived health and Distraction, such that the poorer the health the larger the benefit for life satisfaction if the woman succeeded to distract herself by taking her mind off the problems. Perceived health interacted significantly with Fight in the Swedish sample, here indicating that a higher life satisfaction could be achieved with a fighting attitude for the Swedish women. Thus it seems difficult for persons with both low standard of living and poor health to cope successfully in order to obtain a reasonable degree of life satisfaction. A cross-national study by Helliwell *et al.* 2009 suggests that low life evaluations is associated to poor social and economical conditions, rather than personal approaches to life.

Concerning methodological aspects, it should be mentioned that the samples were obtained from geographically different urban regions: the capital of Latvia and comparatively smaller cities in Sweden. The selection of the Latvian participants was not completely random; even though the Latvian sample cannot be considered totally representative for their country, this study is still the very first of its kind elucidating the situation of older women in Latvia. The participants in the present study constituted a healthier group of older people as they managed to live alone and also had the energy to participate in this study; however, due to their high age they still constitute a frail group and as such sensitive to changing life conditions. Sampling criteria was developed based on the notion of "fourth age", i.e. when the incidence and prevalence of somatic and psychiatric diseases tend to rise rapidly, leading to consequences in terms of functional limitations and disability (Settersten & Trauten 2009). LS was assessed by one single question; the assessments in the lowest categories were not present in the Swedish sample and thus the variation in LS was smaller than that in the Latvian sample. Accordingly, the correlations to the studied factors are probably smaller and less significant than they would have been if a more differentiated scale had been used. The possibility that the women in the two samples have interpreted the questionnaire systematically differently can never be ruled out; in such case it is difficult to say how this may have affected the results. The relations between LS and the considered explanatory variables are all in the expected directions supporting that the women in the two samples understood the questions in similar ways. There were large differences between the two samples regarding the educational level. These differences could be explained by the fact that persons with higher education in Latvia had a particular positive attitude to participate in the study that received some attention in the Latvian media. However, education was not significantly correlated to LS in any of the two national samples. This is in accordance with the findings of Huisman *et al.* 2003, who concluded that the relation between education and health indicators decreases with age for elderly women and does not persist above the age of 80.

Social network, social contacts and social participation have been found to impact on life satisfaction, both in studies from Western Europe (Berg *et al.* 2006; Berg *et al.* 2009; Edwards & Klemmack 1973; Fagerström *et al.* 2007; Gagliardi *et al.* 2010) as well as from other parts of the world (Silverman, *et al.* 2000). Social ties are important in old age. It would therefore be interesting to include possible confounders such as information about

how long time formerly married women had been widows and whether or not they have children alive. In fact, various studies have highlighted other aspects such as feelings of loneliness (Weiguo & Guiping 2007), leisure activity (Gautam *et al.* 2007; Oishi *et al.* 1999), and voluntary work (Wu *et al.* 2005) as important for life satisfaction.

Cross-sectional studies on ageing have their limitations; there is much to be gained in understanding cause and effect regarding factors influencing life satisfaction by adopting a longitudinal approach. Such results may be useful for outlining country-specific health promotion efforts targeting vulnerable groups of older people, such as single-living women.

In conclusion, the results of the present cross-sectional study indicate that there were marked differences in life satisfaction between older women in Latvia and Sweden. Further, there were marked differences regarding the factors explaining LS among women in these two European countries with quite different economic and social circumstances. When both standard of living and health are low, it seems most important to obtain a better standard of living while health problems tend to be neglected. On the other hand, when standard of living is satisfactory, health problems become important and the individuals have possibilities to deal with them. Thus, for single-living older women low standard of living seems to be a more serious obstacle than poor health for achieving life satisfaction.

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