Promoting well-being in frail elderly people

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5 Testing of the expected relations between frailty, SMA, and well-being in frail elderly people

In this study, we tested the expected relations between frailty, SMA, and well-being, as specified in the theory of Successful Self-Management of Aging (SSMA theory), in a clinical sample of frail elderly people. Higher SMA (adaptive abilities), a higher sense of mastery, a weaker loss-frame, and lower neuroticism were related to higher overall well-being, whereas higher levels of frailty and neuroticism were related to more psychological distress in frail elderly people. The explained variances in all tested models for overall well-being were higher than in the models for psychological distress. The SSMA theory is fit to explain what influences the positive dimension of well-being in frail elderly people, but additional theorizing is needed to explain what happens to the negative dimension of well-being. The findings of this study are in agreement with the findings described in Chapter 4. The relations of mastery and loss-frame with well-being are to a large extent comparable to the relations of SMA with well-being. The findings also show that frailty has a different predictive value than has age.

5.1 Introduction

In this study, we investigated the factors related to well-being in frail elderly people in the short term (± 6 weeks) and in the longer term (± 6 months). Well-being is of central importance for successful aging, and frail elderly people are at risk of declining well-being (see Chapter 1). The theory of Successful Self-Management of Aging (SSMA theory; see Chapter 1) predicts that a decline in well-being can be prevented or reduced by increasing people's Self-Management Ability (SMA). SMA refers to adaptive resources to realize and sustain well-being (see Chapter 1). The abilities are systematically linked to substantive or universal dimensions of well-being [1,2]. The expected relations between frailty, SMA, and well-being are described in Chapter 1 and were investigated cross-sectionally in a pilot sample and a large community sample in Chapter 4. Other influences on both well-being and SMA which were investigated in this study (mastery, loss-frame and neuroticism) are also described in Chapter 1.

We investigated both positive well-being (overall well-being) and negative well-being (psychological distress). As explained in Chapter 1, most research into proxies for frailty focused on the negative side of well-being. It has rarely been investigated how frailty might be related to the positive dimension of well-being. Because the absence of distress does not necessarily imply the presence of positive well-being, both dimensions were investigated [3]. Moreover, the SSMA theory emphasizes positive and sustainable aspects of well-being as being important for successful aging.

5.1.1 The influence of frailty and SMA on well-being

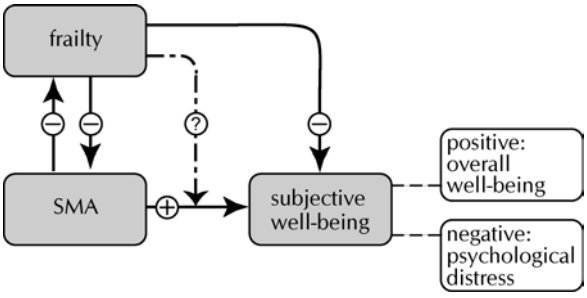

Figure 5-1. *The expected influences of frailty and SMA on well-being (results in Models 1 and 2 in Table 5-2 and Table 5-3)*

The first question was whether frailty leads to lower well-being and SMA to higher well-being, as expected in the SSMA theory (see Chapter 1). Secondly, we investigated whether these influences of SMA and frailty are direct or whether they are mediated by each other. Does SMA lead to higher well-being, and if so, is it because it leads to lower frailty (SMA neutralizes loss) and because lower frailty leads to higher well-being, or does SMA also lead to higher well-being directly? Does frailty lead to lower well-being only directly or also indirectly because it leads to a decline in SMA and because lower SMA leads to lower well-being? On the basis of the cross-sectional findings reported in Chapter 4, we expected that, in addition to its effect on

well-being via frailty, SMA also has a direct positive influence on well-being. Moreover, we expected that frailty would lead to lower well-being not only directly, but also indirectly via its influence on SMA. As shown in Chapter 3, frailty is negatively related to SMA.

Our third question was whether the positive contribution of SMA to well-being would continue even when frailty increases. We expected (also based on the findings of Chapter 4) that, even for very frail elderly people, SMA would have a positive effect on well-being. Figure 5-1 summarizes the expected influences of frailty and SMA on well-being.

We tested the following hypotheses:

- Frailty will lead to a decline in well-being in the short term and in the longer term.
- SMA will contribute positively to well-being in the short term and in the longer term.
- Frailty will lead to a decline in well-being partly because it leads to a decline in SMA.
- SMA will lead to an increase in well-being partly because it leads to a decline in frailty.
- The positive contribution of SMA to well-being will continue when frailty increases.

5.1.2 The influence of mastery, loss-frame, and neuroticism on well-being

Concerning other influences on well-being, we specifically investigated the influences of mastery, loss-frame, and neuroticism. In Chapter 1, we explain that these concepts are likely to influence well-being as well.

Mastery is thought to be comparable to SMA, although it is a more general capacity because it is not systematically linked to the substantive dimensions of well-being. We investigated whether higher mastery leads to higher well-being, directly or via frailty (Figure 5-2). Moreover, we explored whether frailty leads indirectly to a decline in well-being because it leads to a decline in mastery. Lastly, we examined whether the positive contribution of mastery to well-being would continue as frailty increased.

A loss-frame, contrary to a positive frame, is a cognitive frame in which people do not invest in the maintenance of resources, but focus on dealing with present losses. As it is opposite to a positive frame (an aspect of SMA), the influence of a loss-frame on well-being is opposite to that of SMA. A loss-frame is a way in which people cognitively 'frame' the losses they experience, in the same way as SMA is a way to actively and cognitively handle the loss of resources. We investigated, therefore, if frailty (losses) leads to lower well-being partly via a loss-frame, that is, via the way in which these losses are 'framed' (Figure 5-3).

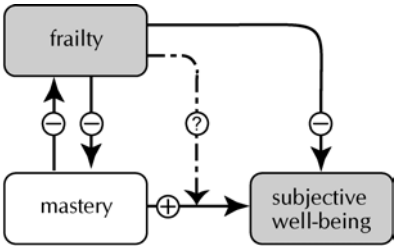

Figure 5-2. *The expected influences of mastery on well-being (results in Models 3 and 4 in Table 5-2 and Table 5-3)*

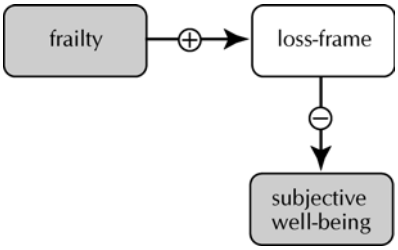

Figure 5-3. *The expected influence of frailty, via a loss-frame, on well-being (results in Model 5 in Table 5-2 and Table 5-3)*

We expected that neuroticism would have a negative influence on well-being, both directly and via SMA (see Chapter 1). Neuroticism, as a generic risk factor for both psychological and somatic ill health, causes this relation directly [4,5]. In much research, neuroticism has been shown to have an effect on subjective well-being through other mechanisms, such as coping strategies [see, e.g., 6-10]. Here, SMA is proposed as such an 'other mechanism'. Neuroticism may hamper adaptation to adverse events, such as chronic illness [see, e.g., 11]. It was expected that neurotic people would have a lower level of adaptive resources, which in turn leads to lower well-being. Moreover, we expected that neuroticism would affect the influence of frailty on well-being. That is, we expected that frailty in more neurotic people would lead to lower well-being than would frailty in less neurotic people. Comparable relationships have been found, for instance, in the research by Oldehinkel and others [12], and in the research by Evers and others [11]. Figure 5-4 summarizes the expected influences of neuroticism on well-being.

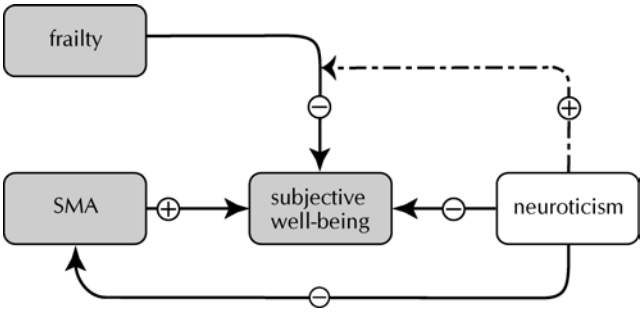

Figure 5-4. *The expected influences of neuroticism on well-being (results in Models 6 and 7 in Table 5-2 and Table 5-3)*

We tested the following hypotheses:

- Mastery will contribute positively to well-being in the short term and in the longer term.
- Mastery will lead to higher well-being partly via frailty.

- Frailty will lead to a decline in well-being partly because it leads to a decline in mastery.
- The positive contribution of mastery to well-being will continue when frailty increases.
- Frailty will lead to lower well-being partly because it leads to a stronger loss-frame.
- Neuroticism as a generic risk factor will lead to lower well-being.
- Neuroticism will lead to lower well-being partly because it leads to lower SMA.
- Neuroticism will moderate the influence of frailty on well-being – that is, frailty in more neurotic people will lead to lower well-being than does frailty in non-neurotic people.

5.2 Method

5.2.1 Respondents

Patients were recruited between May 2001 and March 2003 from wards of the University Hospital Groningen and from a Family Practitioner's practice. Patients of 65 years and older with a score of 3 or more on the Groningen Frailty Indicator were included in further screening. Patients who were cognitively impaired, delirious, or too ill, or who had a short life expectancy or severe psychiatric disorders, were excluded. The sample consisted of 99 patients who were measured three times: T0, T1 (after 6 weeks), and T2 (6 months after baseline). At T2, the sample consisted of 91 people. The mean age of the patients was 75 years (SD = 6.3), with ages ranging from 66 to 89 years. Twenty-six percent of the respondents were men. The mean level of frailty was 5.4 (*median* = 5), ranging from 3 to 12. For an extensive description of the sample, we refer to Chapter 6.

5.2.2 Measures

Frailty was measured using the Groningen Frailty Indicator (GFI) [13,14]. *SMA* was measured using the Self-Management Ability Scale (SMAS-30) (see Chapter 2). Two dimensions of well-being were measured. *Positive well-being* was measured using the SPF Instrument for the Level of Well-being, the 15-item version (SPF-IL(s)), which is used to measure overall well-being [15]. *Negative well-being* (or psychological distress, that is, a lack of well-being) was measured using the General Health Questionnaire, the 12-item version (GHQ) [16]. *Mastery* was measured using Pearlin and Schooler's Mastery Scale [17], which is used to measure a general sense of mastery (control). *Loss-frame* was operationalized using a 5-item version of the loss-perspective scale of Steverink [18]. This scale is used to measure the expectations that people have about the future fulfillment of the goals for physical and social well-being, as they age. *Neuroticism* was assessed using the Neuroticism subscale of the Eysenck Personality Questionnaire (EPQ) [19]. The measurement instruments are described in Chapter 6.

Table 5-1. Bivariate correlations[a] between age, frailty, SMA, overall well-being, and psychological distress at T0, T1, and T2

	Frailty T0	Frailty T1	Frailty T2	SMA T0	SMA T1	SMA T2
Age	.07	.26	.27	-.27		
	(.483)	(.011)	(.010)	(.008)		
Frailty T0	-	*.61*	*.58*	-.33		
		(<.001)	*(<.001)*	(.001)		
Frailty T1		-	*.74*		-.47	
			(<.001)		(<.001)	
Frailty T2			-			-.28
						(.008)
SMA T0				-	*.82*	*.85*
					(< .001)	*(<.001)*
SMA T1					-	*.82*
						(<.001)
SMA T2						-
Overall well-being T0						
Overall well-being T1						
Overall well-being T2						
Psychological Distress T0						
Psychological Distress T1						

a. Correlations with the own scale (in italics) are Intraclass Correlations.

	Overall well-being T0	Overall well-being T1	Overall well-being T2	Psychological Distress T0	Psychological Distress T1	Psychological Distress T2
Age	-.20 (.080)			-.17 (.088)		
Frailty T0	-.41 (<.001)			.33 (.001)		
Frailty T1		-.63 (<.001)			.51 (<.001)	
Frailty T2			-.52 (<.001)			.45 (<.001)
SMA T0	.79 (<.001)			-.29 (.004)		
SMA T1		.71 (<.001)			-.25 (.013)	
SMA T2			.80 (<.001)			-.32 (.002)
Overall well-being T0	-	*.78 (< .001)*	*.75 (<.001)*	-.51 (<.001)		
Overall well-being T1		-	*.83 (<.001)*		-.40 (<.001)	
Overall well-being T2			-			-.45 (<.001)
Psychological Distress T0				-	*.43 (<.001)*	*.35 (<.001)*
Psychological Distress T1					-	*.65 (<.001)*

5.2.3 Analysis

Several hierarchical and non-hierarchical regression models were tested with overall well-being at T1, overall well-being at T2, psychological distress at T1, and psychological distress at T2 as the dependent variables. All predictors were centered around their means to prevent negative effects of multicollinearity. All regression models were controlled for age and gender. Because age showed some interesting results, these results are reported, even though it was a control variable.

From a clinical perspective, it is more interesting to know how the baseline scores of the predictors of frail elderly people relate to well-being at later points in time than it is to know how these scores relate to well-being at the same point in time. That is, from a clinical perspective, we wanted to discover whether these baseline characteristics could give information about later well-being. Therefore, we used the baseline scores of the predictors and the scores at T1 and T2 of the dependent variables (well-being). This was a purely cross-sectional analysis. To introduce as few variables as possible which would yield non-interpretable outcomes, we did not control for the baseline scores of the dependent variables nor did we use difference scores for the predictors and the dependent variables. In the description of the results, we refer to influences rather than relations to indicate that we considered relations to well-being at later points in time.

All analyses of overall well-being were carried out using a non-imputed file and 8 imputed files (see Chapter 6). Because the results are similar, only the results of the non-imputed file are reported. Because psychological distress had few missing values, it was analyzed using the non-imputed file only. The results of all regression analyses are shown in Table 5-2 and Table 5-3. Below, we present the most important results concerning relations with longer-term well-being ($\pm$ 6 months after baseline). For the relations with short-term well-being ($\pm$ 6 weeks after baseline; they are mostly comparable to the longer-term predictors), we refer to the tables.

5.3 Results

5.3.1 Relations between age, frailty, SMA, and subjective well-being

The relations between frailty, SMA, and well-being were as expected on the basis of our theory (Table 5-1). Higher frailty was related to lower SMA and lower overall well-being, and to more psychological distress. Higher SMA was related to more overall well-being and less psychological distress. The relations between SMA and overall well-being were strong (correlations above .70). Overall well-being and psychological distress were negatively related, which implies that high overall well-being was related to little psychological distress, and vice versa.

SMA and overall well-being turned out to be stable concepts (Intraclass Correlations in Table 5-1). Psychological distress was a less stable concept. The stability of frailty was in between the stabilities of the previous concepts. This implies that, in this sample, SMA and overall well-being changed little over time, frailty changed somewhat over time, and psychological distress changed the most. Though this could be regarded as an indication of how much these concepts can be influenced by interventions, it is more likely that it relates to the natural fluctuations of these concepts or to the reliability of the measurement scales.

5.3.2 The influences of frailty and SMA on well-being

We conclude that SMA led strongly and directly to higher overall well-being, but only indirectly to less psychological distress, via frailty. That is, SMA had a direct positive influence on positive well-being, whereas it influenced negative well-being only because it influenced frailty. Frailty, by contrast, led directly to more psychological distress, but led to lower overall well-being only via SMA. That is, frailty had a direct effect on negative well-being (negative well-being increased), whereas it influenced positive well-being only because it influenced SMA. SMA influenced the positive dimension of well-being strongly and directly, whereas frailty influenced the negative dimension strongly and directly (Models 1 and 2 in Table 5-2 and Table 5-3). SMA maintained its positive influence on overall well-being when frailty increased (non-significant interaction term SMA*frailty, Model 1, Table 5-2).

Greater age was related to lower SMA and lower overall well-being, but also to less psychological distress (Table 5-1). Age was not related to frailty in pre-measurement, but, at the other two measurement moments, there was a significant relation between age and frailty (greater age – higher frailty). Age, often used as a proxy for the processes of aging or frailty (see Chapters 1 and 3), influenced well-being in a different way than frailty did. Age negatively influenced overall well-being (partly through its influence on SMA), but not psychological distress. While greater age led to lower SMA and lower overall well-being, it did not lead to more psychological distress.

Frailty and SMA predicted the positive dimension of well-being (overall well-being) better than the negative dimension (psychological distress) (explained variances 60% versus less than 10%).

Table 5-2. Several models[a] predicting overall well-being, in the short term and longer term

	Model 1			Model 2		
	SMA → frailty → overall well-being			Frailty → SMA → overall well-being		
		short-term	longer-term		short-term	longer-term
		β (p)	β (p)		β (p)	β (p)
Step 1	Age	-.09 (.268)	-.26 (.001)	Age	-.24 (.017)	-.39 (<.001)
	SMA T0	.68 (<.001)	.66 (<.001)	Frailty T0	-.45 (<.001)	-.35 (.001)
	Adj. R^2	.49	.57	Adj. R^2	.25	.26
Step 2	Age	-.09 (.257)	-.26 (.001)	Age	-.09 (.257)	-.26 (.001)
	SMA T0	.60 (<.001)	.61 (<.001)	Frailty T0	-.19 (.032)	-.12 (.155)
	Frailty T0	-.19 (.032)	-.12 (.155)	SMA T0	.60 (<.001)	.61 (<.001)
	Adj. R^2	.52	.57	Adj. R^2	.52	.57
	Sig. F Change	.032	.155	Sig. F Change	<.001	<.001
Step 3	Age	-.09 (.257)	-.25 (.001)			
	SMA T0	.60 (<.001)	.62 (<.001)			
	Frailty T0	-.19 (.032)	-.11 (.168)			
	Frailty T0 * SMA T0	-.02 (.780)	.09 (.250)			
	Adj. R^2	.51	.57			
	Sig. F Change	.780	.250			

	Model 5			Model 6		
	Frailty → loss-frame → overall well-being			Neuroticism → SMA → overall well-being		
Step 1	Age	-.24 (.017)	-.38 (<.001)	Age	-.33 (.003)	-.49 (<.001)
	Frailty T0	-.45 (<.001)	-.35 (.001)	Neuroticism	-.24 (.031)	-.42 (<.001)
	Adj. R^2	.25	.26	Adj. R^2	.11	.31
Step 2	Age	-.19 (.043)	-.32 (.001)	Age	-.12 (.171)	-.33 (<.001)
	Frailty T0	-.32 (.002)	-.23 (.027)	Neuroticism	-.12 (.159)	-.31 (<.001)
	Loss-frame T0	-.36 (<.001)	-.34 (.001)	SMA T0	.66 (<.001)	.60 (<.001)
	Adj. R^2	.35	.35	Adj. R^2	.50	.65
	Sig. F Change	(<.001)	.001	Sig. F Change	<.001	<.001

a. Models 1 to 3 were tested using the non-imputed and imputed files. Because the results in the imputed files were similar to the results in the non-imputed file, only the results of the non-imputed file are reported here. Models 4 to 7 were tested only using the non-imputed file. All analyses were controlled for gender.

	Model 3			Model 4		
	Mastery → frailty → overall well-being			Frailty → mastery → overall well-being		
		short-term	longer-term		short-term	longer-term
		β (p)	β (p)		β (p)	β (p)
Step 1	Age	-.26(.006)	-.35(< .001)	Age	-.24(.017)	-.39(< .001)
	Mastery T0	.50(< .001)	.52(< .001)	Frailty T0	-.45(< 001)	-.35(.001)
	Adj. R^2	.31	.41	Adj. R^2	.25	.26
Step 2	Age	-.23(.011)	-.35(< .001)	Age	-.23(.011)	-.35(< .001)
	Mastery T0	.38(< .001)	.45(< .001)	Frailty T0	-.28(.008)	-.17(.075)
	Frailty T0	-.28(.008)	-.17(.075)	Mastery T0	.38(< .001)	.45(< .001)
	Adj. R^2	.36	.43	Adj. R^2	.36	.43
	Sig. F Change	.008	.075	Sig. F Change	< .001	< .001
Step 3	Age	-.24(.009)	-.36(< .001)			
	Mastery T0	.36(< .001)	.40(< .001)			
	Frailty T0	-.28(.007)	-.19(.043)			
	Frailty T0 * Mastery T0	-.13(.145)	-.22(.012)			
	Adj. R^2	.37	.47			
	Sig. F Change	.145	.012			

	Model 7		
	Frailty * neuroticism → overall well-being		
	Age	-.26 (.012)	-.45 (<.001)
	Frailty T0	-.41 (<.001)	-.26 (.010)
	Neuroticism	-.14 (.188)	-.36 (<.001)
	Frailty T0 * Neuroticism	.02 (.850)	.03 (.804)
	Adj. R^2	.25	.36

Table 5-3. Several models[a] predicting psychological distress, in the short term and longer term

	Model 1					Model 2				
	SMA → frailty → psychological distress					Frailty → SMA → psychological distress				
		short-term		longer-term			short-term		longer-term	
		β (p)		β (p)			β (p)		β (p)	
Step 1	Age	-.01	(.957)	-.01	(.911)	Age	.02	(.831)	.01	(.891)
	SMA T0	-.20	(.057)	-.14	(.197)	Frailty T0	.34	(.001)	.26	(.015)
	Adj. R^2	.01		.00		Adj. R^2	.08		.05	
Step 2	Age	.00	(.979)	.00	(.990)	Age	.00	(.979)	.00	(.990)
	SMA T0	-.10	(.370)	-.05	(.659)	Frailty T0	.30	(.006)	.24	(.035)
	Frailty T0	.30	(.006)	.24	(.035)	SMA T0	-.10	(.370)	-.05	(.659)
	Adj. R^2	.08		.04		Adj. R^2	.08		.04	
	Sig. F Change	.006		.035		Sig. F Change	.370		.659	
Step 3	Age	.00	(.978)	-.01	(.902)					
	SMA T0	-.10	(.373)	-.05	(.659)					
	Frailty T0	.30	(.006)	.25	(.029)					
	Frailty T0 * SMA T0	.00	(.989)	.12	(.253)					
	Adj. R^2	.07		.04						
	Sig. F Change	.989		.253						

	Model 5					Model 6				
	Frailty → loss-frame → psychological distress					Neuroticism → SMA →psych. distress				
Step 1	Age	.00	(.995)	.02	(.857)	Age	.15	(.094)	.11	(.255)
	Frailty T0	.33	(.001)	.26	(.019)	Neuroticism	.57(< .001)		.48(< .001)	
	Adj. R^2	.08		.05		Adj. R^2	.28		.19	
Step 2	Age	.00	(.971)	.02	(.876)	Age	.12	(.207)	.10	(.351)
	Frailty T0	.32	(.004)	.25	(.034)	Neuroticism	.55(< .001)		.47(< .001)	
	Loss-frame T0	.03	(.794)	.02	(.898)	SMA T0	-.11	(.249)	-.05	(.617)
	Adj. R^2	.07		.04		Adj. R^2	.28		.19	
	Sig. F Change	.794		.898		Sig. F Change	.249		.617	

a. All models with psychological distress as the dependent variable were tested using the non-imputed file only. Since psychological distress had few missing values, imputing it was not necessary. All analyses were controlled for gender.

	Model 3					Model 4				
	Mastery → frailty → psychological distress					Frailty → mastery → psychological distress				
		short-term		longer-term			short-term		longer-term	
		β (p)		β (p)			β (p)		β (p)	
Step 1	Age	-.01	(.922)	-.01	(.926)	Age	.00	(.986)	.01	(.891)
	Mastery T0	-.26	(.011)	-.25	(.018)	Frailty T0	.33	(.001)	.26	(.015)
	Adj. R^2	.04		.05		Adj. R^2	.08		.05	
Step 2	Age	-.02	(.853)	-.01	(.941)	Age	-.02	(.853)	-.01	(.941)
	Mastery T0	-.16	(.124)	-.18	(.121)	Frailty T0	.27	(.013)	.19	(.097)
	Frailty T0	.27	(.013)	.19	(.097)	Mastery T0	-.16	(.124)	-.18	(.121)
	Adj. R^2	.09		.06		Adj. R^2	.09		.06	
	Sig. F Change	.013		.097		Sig. F Change	.124		.121	
Step 3	Age	-.02	(.854)	-.01	(.936)					
	Mastery T0	-.16	(.130)	-.17	(.143)					
	Frailty T0	.27	(.013)	.20	(.092)					
	Frailty T0 * Mastery T0	.00	(.990)	.04	(.704)					
	Adj. R^2	.08		.06						
	Sig. F Change	.990		.704						

	Model 7				
	Frailty * neuroticism → psychological distress				
	Age	.08	(.366)	.09	(.353)
	Frailty T0	.21	(.024)	.15	(.147)
	Neuroticism	.52	(< .001)	.45	(< .001)
	Frailty T0 * Neuroticism	-.09	(.310)	-.03	(.802)
	Adj. R^2	.30		.20	

5.3.3 The influences of mastery, a loss-frame, and neuroticism on well-being

The influence of mastery on well-being was partly comparable to that of SMA. That is, mastery led directly to higher overall well-being and not via an influence on frailty (Model 3, Table 5-2). Frailty led both directly and indirectly, via an influence on mastery, to lower overall well-being (Model 4, Table 5-2). The positive contribution of mastery to overall well-being was negatively affected by the level of frailty, which was opposite to our expectation (interaction term frailty*mastery, Model 3, Table 5-2). The positive effect of mastery on overall well-being decreased with increasing frailty.

The influence of a loss-frame was partly comparable to that of SMA. The influence of frailty on overall well-being was both direct and indirect, via a loss-frame (Model 5, Table 5-2). As we saw before, the influence of frailty on overall well-being was almost completely via SMA, and frailty did not influence overall well-being directly. When SMA was replaced by a loss-frame, frailty also had a direct influence on overall well-being and not all of its influence was via a loss-frame.

Neuroticism was a risk factor for a decline in overall well-being and an increase in psychological distress. It influenced overall well-being and psychological distress directly and not via an influence on SMA (Model 6, Table 5-2 and Table 5-3). Neuroticism did not affect the influence of frailty on overall well-being or psychological distress (Model 7, Table 5-2 and Table 5-3). That is, frailty led to lower overall well-being and higher psychological distress, regardless of how neurotic people were.

Only frailty and neuroticism had an important influence on psychological distress. The models again predicted the positive dimension of well-being better than the negative dimension (explained variances 65% versus 29%).

5.4 Conclusions and Discussion

The relations between frailty, SMA, and well-being were as expected on the basis of the SSMA theory. We conclude that SMA leads strongly and directly to higher overall well-being, and only indirectly influences psychological distress. By contrast, frailty leads directly to higher psychological distress, and only indirectly influences overall well-being (see Figure 5-5 and Figure 5-6). The positive contribution of SMA to overall well-being remains when frailty increases. The effects of frailty and SMA on well-being are additive, and increasing SMA to improve overall well-being is advisable even when frailty is high. These findings are for a large part in agreement with the findings of the studies in Chapter 4. There, it was also found that SMA related strongly and directly to positive indicators of well-being (such as overall well-being and positive affect) and that frailty related strongly and directly to negative indicators of well-being (such as psychological distress and negative affect).

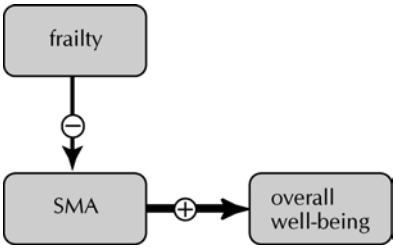

Figure 5-5. *The influences of frailty and SMA on overall well-being*

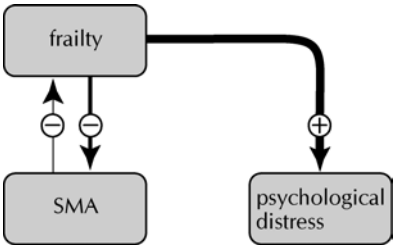

Figure 5-6. *The influences of frailty and SMA on psychological distress*

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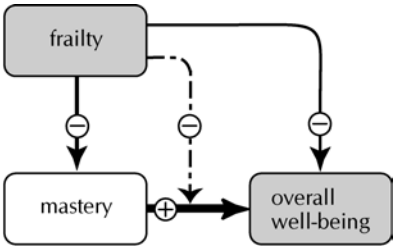

Figure 5-7. *The influence of mastery on overall well-being*

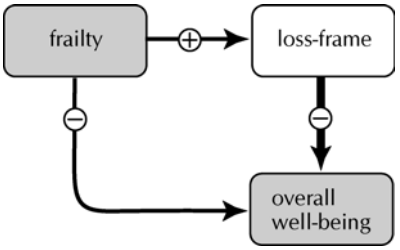

Figure 5-8. *The influence of a loss-frame on overall well-being*

Our findings show that both mastery and a loss-frame partly influence well-being in ways that are comparable to the influence of (aspects of) SMA. Just as SMA does, mastery leads directly to higher overall well-being, and has no indirect effect through neutralizing losses (frailty) (see Figure 5-7). A higher sense of control over life is directly beneficial to overall well-being. The influence of frailty on overall well-being runs partly via mastery. That is, frailty leads to a lower sense of mastery, which in turn leads to lower overall well-being.

The influence of frailty on overall well-being runs partly via a loss-frame (see Figure 5-8). That is, it is important for overall well-being how people frame the losses (frailty) they experience, just as SMA is important. The higher the loss-frame, the lower overall well-being is. Nevertheless, not all of the influence of frailty on well-being depends on the way it was framed. Though they have comparable influences, mastery and a loss-frame have a weaker influence than does SMA, as SMA explained more variance.

Mastery and a loss-frame have much more influence on the positive dimension of well-being than on the negative dimension. Neuroticism, however, is a risk factor for both dimensions of well-being. Neuroticism leads directly to both lower overall well-being (positive well-being) and more psychological distress (negative well-being) (see Figure 5-9 and Figure 5-10). Neuroticism does not, however, affect the influence of frailty on well-being. Frailty leads to lower overall well-being and higher psychological distress, regardless of how neurotic people are.

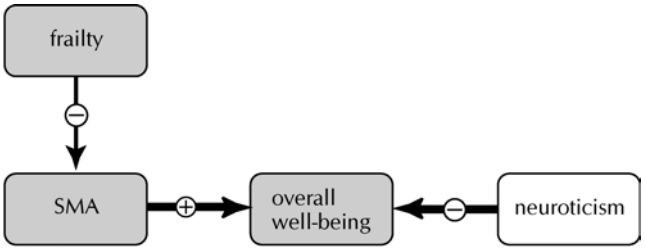

Figure 5-9. *The influence of neuroticism on overall well-being*

We conclude that, for overall well-being in frail elderly people, SMA (adaptive abilities), sense of mastery, a loss-frame, neuroticism, and age are important, whereas, for psychological distress in frail elderly people, frailty (loss of direct resources) and neuroticism are important. These findings support the relations of frailty and SMA with well-being found cross-sectionally in a pilot sample and a large community sample (Chapter 4) and show that they also hold in a group of moderately to severely frail elderly people.

Our findings imply that SMA and frailty influence different dimensions of well-being. The causal relation of SMA to well-being is apparently underestimated when only the negative side of well-being is considered. This can be expected on the basis of the SSMA theory, which emphasizes that self-management abilities also focus on positive sustainable well-being and not only on the neutralizing of losses. The theory-driven concept of SMA appears to be primarily directed at positive well-being. When the purpose is to specify the direct positive influence of SMA on well-being, more positive conceptions should be used, such as overall well-being. However, when the purpose is to specify the direct negative influence of frailty on well-being, it may be advisable to look at negative conceptions of well-being as well. An intervention focusing on increasing SMA might increase positive well-being, but is likely to have little effect on psychological distress. This was found in our intervention (see Chapter 7) and in the study by Frieswijk et al. [20].

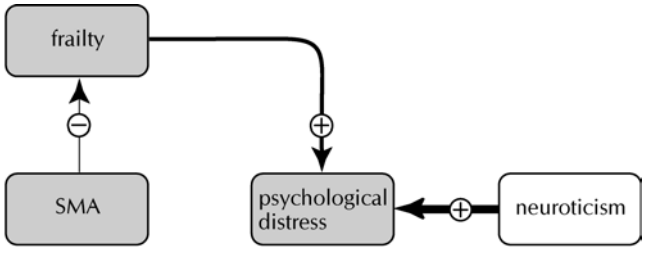

Figure 5-10. *The influence of neuroticism on psychological distress*

We should make two remarks with respect to the analytical strategies used here. Firstly, though the dependent variables were specified in the investigated models, in reality, it is unknown which of the variables is the dependent one. All causal influences can be reversed and it is also possible that there are feedback mechanisms from the dependent variables (well-being) to the predictors. However, because the data did not allow the test of a structural model with feedback loops (i.e., the sample was too small to use this kind of model), we chose to use regression analysis, which forced us to specify the dependent variables. In choosing the dependent variables, we followed the SSMA theory and the relations expected on the basis of this theory.

Secondly, though our analyses were cross-sectional, they rendered more information than would analyses with both predictors and dependent variables at the same measurement moments. Instead of only simultaneous relations between these variables, our analyses showed relations over a time interval. Because all variables (both independent and dependent) were related to a certain extent, this may have given us more information about which relations are the strongest (i.e., which also hold over time) and therefore the most important. When we considered simultaneous cross-sectional models (that is, with both predictors and dependent variables at the same moment), we found more relations, both direct and indirect. In particular, more variables were related to negative well-being. However, the strongest relations were the same as in the non-simultaneous cross-sectional models presented here, indicating that they are the most important. Moreover, the differences in explained variance between positive and negative well-being remained. To investigate the relations between the variables longitudinally, it is necessary to model the fluctuations in time of both dependent variables and predictors, as well as to take their interdependence into account. An appropriate method of doing this would be to use a multivariate multilevel model which allows longitudinal measurements within individuals to be considered [21,22].

It is important to note that the explained variance in all the different models for overall well-being was higher than that in the models for psychological distress. Our theoretical models were better able to explain what happens to the positive dimension of well-being in frail elderly people than what happens to the negative dimension. As we also concluded in Chapter 4, for the relations and effects, we found that it is of great importance how well-being is conceptualized and which dimension of well-being is focused on. As mentioned before, other research has also found that different variables relate to the negative and the positive dimensions of well-being [see, e.g., 23-27]. For instance, positive and negative affect have been shown to be two relatively independent facets of well-being [3,27,28], and it has been recommended to differentiate interventions according to the dimension of well-being at which they are directed [e.g., 28]. The same argument may hold for our results with positive and negative well-being. We apparently found important predictors for positive well-being, but did not fully capture relevant predictors for negative well-being. It is possible that almost all predictors focus more on resources for positive well-being, which seem to be less relevant to negative well-being. When designing interventions to prevent a decline in well-being in frail elderly people, it must be specified on which dimension of well-being the focus should be. To investigate if other variables would be better able to predict negative well-being, we tested a model including variables such as number of diseases, restrictions in social and household activities, pain, living conditions, and perceived health. This model, however, was not better able to show what influences psychological distress. Frailty and neuroticism had still the strongest influences. Psychological distress is perhaps better predicted by variables such as emotion-focused coping [29], self-efficacy in certain domains [30], and social support [31,32].

Neuroticism is a risk factor for all kinds of adversity, such as declining well-being. In addition, the stable trait of neuroticism is strongly related to psychological distress [see also, e.g., 33-35]. This may imply that psychological distress has a trait component as well, or is at least strongly determined by neuroticism [e.g., 36-38], which makes it difficult to influence. Though many researchers consider neuroticism to be a trait and psychological distress to be a state [e.g., 34,39,40], psychological distress may also be a stable tendency (i.e., a trait) to react in a certain way to stressors [e.g., 41]. The reverse may also be true, namely, that neuroticism indicates a person's stable or characteristic level of psychological distress [see 42]. High correlations between neuroticism and distress may be caused by the fact that both scales measure stable levels of distress [42]. There is reason to believe that the questionnaire we used to measure psychological distress (GHQ) measured not only fluctuations in state but also, to some or a large extent, a tendency to report mental distress [e.g., 42,43]. It is possible that the measurement of negative well-being in this study was inadequate, because, as measured, it is difficult to influence. We cannot exclude the possibility that we measured some kind of trait distress as well. To distinguish the trait component of psychological distress, and to investigate to what extent psychological distress can be influenced, latent state-trait models could be used, which apply structural equation modeling [e.g., 37,42,44,45]. Using such a model, it can also be determined what is measured using a particular scale [45]. For instance, it has been shown that the PANAS measures both state and trait positive affect and negative affect [46]. It is likely that the predictive models used in this study would be better able to show what influences psychological distress when people with high levels of neuroticism are excluded from the sample or when the trait component of distress is distinguished and removed using a state-trait model. It is also likely that, in this way, the influences on positive and negative well-being would converge more. Because of the small sample size, it was not possible to test this.

A last important finding concerns the differential influences of age and frailty. Only at the baseline were age and frailty not significantly related. At later measurement moments, they were positively related. This can be explained by the selection on the basis of frailty, and perhaps by the changes in frailty which occurred during the study. The absence of or only a weak relation between frailty and age at the baseline can be expected when people are selected on the basis of their level of frailty. During the study, however, a considerable part of the patients changed in level of frailty; many patients (20%) even to a point below the cut-off score for inclusion. This caused a higher spread in the frailty scores at T1 and T2, and made the sample more comparable to a non-clinical (or community) sample, in which a moderate relation between age and frailty was found (see footnote 1 in Chapter 3).

Age influenced only the positive dimension of well-being (overall well-being) and not the negative dimension (psychological distress) in this sample. Frailty, on the contrary, more strongly influenced the negative dimension of well-being than it did the positive dimension. Age is often used as a proxy for frailty or the process of aging, but our models show that this is not (always) a reasonable thing to do. Recently, Smith et al. [47] also concluded that the relations between age and well-being vary depending on

whether life circumstances such as ill health are controlled for, and that age-related variance in subjective well-being can mostly be attributed to health factors. Isaacowitz and Smith [27] argue that, if unique age effects on well-being are found, a study has not captured all age-related predictors. Age per se is not a predictor. Research into relations between age and well-being has yielded inconsistent findings. With increasing age, declines in well-being [e.g., 27,47,48], stability of well-being [e.g., 49-52], and even improvement in well-being have been found [e.g., 53-55]. When personality, sociodemographic, contextual and situational factors, or risk factors, were controlled for, age had a small own effect in some studies [e.g., 52,56]. But this effect is likely to differ depending on other variables, such as gender [52], personality characteristics, or adaptive strategies or resilience [49-51]. This supports our statement that age is not the best predictor of adverse outcomes, and that frailty is a better predictor. Frailty and age are two different entities. That frailty is a better selection criterion for those elderly people at risk of adverse outcomes has been shown before (Chapter 3). When chronological age instead of frailty was used, both too many and too few people were selected. Moreover, frailty was related more strongly to a decline in self-management abilities than was chronological age (see Chapter 3). The current data confirm this finding by showing that frailty has a different predictive value than age – that is, frailty and age appear to influence different dimensions of well-being.

There are also some unexpected findings. The influence of mastery on well-being decreased with an increasing level of frailty, which is contrary to our expectations and to our findings in relation to SMA. The findings suggest that, with higher frailty, mastery is less beneficial to well-being. This finding shows that mastery, though comparable, is different from SMA, which maintains its positive contribution to well-being when frailty increases. Mastery is a more general capacity, whereas SMA refers to variable abilities systematically linked to substantive dimensions of or goals for well-being.

A possible explanation for the decreasing positive effect of mastery with increasing well-being is that having a high sense of mastery in the face of many losses (high frailty) may no longer be beneficial. People with a high sense of mastery may find it difficult to let things go and accept the losses, which are to a large extent uncontrollable. Research has shown that it can be maladaptive to perceive control when control is not possible [e.g., 57-62]. When frailty is high, it might even be more adaptive to have a lower sense of mastery. In this way, people can better accept the losses (uncontrollable events) that happen and flexibly readjust their goals in such a way that they become more realistic and more beneficial to their well-being [59]. This flexible adjustment of goals is specified in SMA as being a strategy beneficial to well-being. The tendency of people with high feelings of control not to flexibly adjust their goals [59] again underscores the difference between mastery and SMA in their relations to goals. High mastery makes people strive for unattainable goals, whereas SMA makes people strive for realistic goals that are beneficial to their well-being.

Another unexpected finding is that a loss-frame does not predict psychological distress nor does the influence of frailty on psychological distress run via a loss-frame. Expecting future losses was thought to increase psychological distress. A reason for the

absence of a relation between a loss-frame and psychological distress may lie in the possible 'trait component' of psychological distress, the difficulty of explaining negative well-being, or the possible inadequate measurement of negative well-being.

Though the results show that we can predict overall well-being in frail elderly people reasonably well using our theory, there are some limitations that should be mentioned here. Our findings came from a small sample and should, therefore, be tested again in a larger sample in order to be able to generalize the findings. However, the comparable findings on the relations between the main concepts presented in Chapter 4 indicate that we are on the right track in identifying relevant influences on well-being. To predict the negative dimension of well-being, additional theorizing is needed, as is more adequate measurement of negative well-being. The results clearly show that positive and negative well-being are two different entities and not just two sides of the same coin.

A possible problem is the high correlation between SMA and overall well-being (.70 to .80). With such a correlation, it could be argued that the two concepts are the same and must, therefore, be strongly related. This could explain the high explained variances in the models including both overall well-being and SMA. However, the item content of the questionnaires used to measure SMA and overall well-being shows that this is not likely. Moreover, the concepts seem to relate to different aspects of the theoretical sequence. SMA is related to the behavioral mechanism, whereas overall well-being is related to the outcome of this mechanism and the satisfaction with this outcome. This makes us confident that we measured two different concepts and that the high correlation is a sign that SMA is very important for positive well-being.

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