RESEARCH PAPER

Maintaining Successful Aging: The Role of Coping Patterns and Resources

Hava Tovel · Sara Carmel

Abstract One of the main challenges of aging societies is maintaining quality of life despite inevitable changes that occur in the lives of elderly people. This study examined the contribution of coping resources and coping patterns to successful aging among elderly persons following a decline in health and function. Data were collected from 262 elderly Israelis during two home interviews carried out at an interval of 12 months. Successful aging was assessed using a number of measures of subjective well-being. Predictive variables included change in health/functioning, coping resources, and coping patterns (proactive and reactive). Hierarchical regression analyses showed that the coping resources *self-efficacy* and *social support* and the proactive coping pattern of *concrete planning* positively predicted successful aging, while the proactive coping pattern *deciding on preferences* had a negative influence. These results indicate that elderly people have the ability to shape their quality of life in the presence of decline in health and functioning by using appropriate coping resources and coping patterns. Controlled interventions are recommended to help older people acquire and maintain effective resources and coping skills, thus further promoting their successful aging process.

Keywords Successful aging · Resources · Reactive coping · Proactive coping

1 Introduction

The general increase in longevity in developed countries creates new needs and presents new personal, familial, and social challenges. One of the main challenges is how to maintain quality of life in the face of the unavoidable losses of later years. In this context, the concept of "Successful Aging" has been studied extensively in recent decades.

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1.1 What is Successful Aging and How is it Measured?

Successful aging, also known as positive, productive or robust aging, first appeared in the literature in the fifties of the last century (Pressey and Simcoe 1950), but came into common use only in the eighties. The literature does not indicate any clear or commonly accepted definitions of successful aging, nor is there a consensus regarding its measurement, or the ways for achieving it. The term is used when referring to topics like good physical and mental functioning and well-being (Rowe and Kahn 1997), the capacity for cognitive growth (Ryff 1989), life satisfaction (Neugarten et al. 1961), adaptation to change and the achievement of personal goals (Baltes and Baltes 1990), control (Schulz and Heckhausen 1996), productive activity (Caro et al. 1993), the completion of developmental tasks (Havighurst 1972), self-fulfillment and spirituality (Moody 2001).

Various theories relate to different perceptions of successful aging. For example, Disengagement Theory considers relinquishing social roles and relationships according to preferences of the aging individual while at the same time suiting needs of society (Cumming and Henry 1961). Activity Theory (Maddox 1968) and Continuity Theory (Atchley 1971) view activity and interpersonal relationships as critical aspects of well-being. Others argue that a range of objective and subjective criteria are needed to assess successful aging (e.g., Baltes and Baltes 1990; Rowe and Kahn 1997; Kahana and Kahana 2003). For this study we chose to assess successful aging by use of subjective well-being (Depp and Jeste 2006), and included affective and cognitive dimensions (Diener et al. 2003).

1.2 Coping with Health and Function Losses

Although life changes occur at all ages, negative events such as losses in health and/or function become more frequent in old age, while the existing resources needed for adaptation become weaker and poorer. Old age is marked by declining health, loss of capabilities, a high prevalence of chronic diseases, various forms of dementia, depression, and a range of functional limitations (Dunkle et al. 2001). Later years are thus characterized by high levels of frailty, dysfunction, and multimorbidity (Baltes and Smith 2003; Simon et al. 2012). All of these are changes that usually interfere with everyday functioning. In Western societies, independence in performing all activities of daily living (ADL) without having to rely on help from others is considered a positive state, while dependency which implies helplessness and powerlessness, is considered a negative state (Baltes 1996). Therefore, the loss of functional independence has grave implications for an elderly individual's quality of life and subjective well-being.

Resources are actual or potential means relevant for achieving one's specific goals or handling adjustment to new positive or negative life events (Freund and Riediger 2001). Therefore, possessing and recruitment of coping resources assist in reducing negative impacts of stressful life events such as decline in health and function (Taylor and Stanton 2007). Coping is the cognitive and/or behavioral process of managing the demands created by life events by using existing coping resources or recruiting new ones. Similar to Freund and Riediger (2001), who distinguish between "What I have" and "What I do," our study examines the role of coping resources and coping behaviors in maintaining successful aging while facing decline in health and/or function among elderly people (75+).

1.3 Coping Resources and Successful Aging

Numerous theories and studies indicate the utility of possessing personal, social, and economic resources when coping with stressful situations. Various resources are presented in the literature, among them: self-efficacy (Bandura 1997), social support (Antonucci 2001), economic status and education (Kim 2011; Ross and Wu 1996; Ross and Mirowsky 2010). Social support, an important external informal resource, has repeatedly been shown to positively impact health and well-being of adults throughout the life span (Thoits 1995, 2010). Socioeconomic status and its key indicators—income and education—moderate the negative correlation between stressors and health status, and predict survival (Ross and Wu 1996; Thoits 1995). Self-efficacy—an individual's appraisal of his or her ability to plan and perform the actions necessary to achieve various goals—affects functioning through cognitive, affective, and motivational processes, which in turn influence one's choices and development (Freund and Riediger 2001). When coping with losses at old age, perceived self-efficacy is critical since it influences the goals that are set, the amount and duration of the invested effort, and the steps taken to achieve these goals (Schwarzer 2001).

1.4 Coping Patterns and Successful Aging

Different classifications of ways of coping are presented in the literature (e.g., Skinner et al. 2003). Considering the temporal aspect of coping, two distinct patterns of coping are presented in the literature: reactive coping, referring to behaviors displayed after an event has occurred, and proactive coping, consisting of efforts undertaken in advance and directed to reducing the negative effects of future events (Aspinwall and Taylor 1997). Given this conceptual distinction, the gerontological literature offers a number of models for coping patterns related to successful aging, including the Selection-Optimization-Compensation Model (SOC) (Baltes and Baltes 1990) and the Preventive-Corrective-Proactivity Model (Kahana and Kahana 2003). According to SOC, the term "successful aging" implies a psychological process which enables individuals to view their lives as meaningful and satisfying, due to their ability to find ways to maximize the positive aspects of their lives, while minimizing inevitable age-related losses. More specifically, Baltes and colleagues (e.g., Baltes and Baltes 1990; Freund and Baltes 1998) have proposed that the three-fold process of selecting areas of functioning, optimizing the use of available resources, and compensating for lost or weakened functions, is an effective life management strategy in the face of age-related losses. The core of this model is the selection process, elective or loss-based. Selection is embedded also in the dual-process model of assimilative and accommodative coping (Brandtstädter and Renner 1990), and in the life-span theory of control (Schulz and Heckhausen 1996). These models imply adaptive self-regulation through processes of abandoning unattainable personal goals and reengaging in valued alternative goals (Wrosch et al. 2003). In terms of a temporal perspective, since these processes describe behaviors that follow losses, they can be considered reactive coping patterns.

Theories such as anticipatory socialization and proactive coping deal with the importance of planning for future scenarios and its effect on adapting to role transitions over the life course. Planning for the future implies coping cognitively with prospects, and making rational decisions before the occurrence of negative or positive events (Aspinwall and Taylor 1997). In the case of losses in health and/or function, this is of importance because once a significant health loss occurs, elderly individuals may need to make treatment decisions under conditions of stress, without access to all relevant information, and often

with no ability to express their preferences in respect to treatment (Sorensen and Pinquart 2001). Kahana and Kahana's (2003) Preventive-Corrective-Proactivity Model highlights the importance of proactive coping in old age. This model emphasizes continuous adjustment to change, and points out the moderating effects of proactive behaviors on health outcomes and successful aging. These theories emphasize the need for development of resources before they are needed, through a process of planned investment.

In this longitudinal study we examined the contribution of personal coping resources and the use of reactive and proactive coping patterns to successful aging, in terms of subjective well-being.

2 Methods

2.1 Sample

Using a snowball method, five trained interviewers from urban and rural settings across Israel searched among their acquaintances for names and telephone numbers of potential participants. Out of this list of names which created a sample of convenience, we selected participants on basis of three criteria: (a) aged 75+, (b) having no limitation in activities of daily living (ADL) (c) community-dweller. The rationale for choosing this population was to study independent, functioning elderly individuals, in order to enable us to evaluate proactive coping behaviors related to a foreseen decline in health and function. The interviewers chose 274 elderly Israelis who fit the above three criteria. The potential participants were approached by telephone and asked to participate in a longitudinal two-stage study. Nine of them refused to participate. Following the telephone calls, two home interviews based on structured questionnaires were conducted between January 2006 and June 2007 (Time 1 and Time 2) with a 12 month interval between interviews. At the beginning of each interview, the potential participants were asked to respond to the Mini Mental State Examination (MMSE, Folstein et al. 1975). Three people were excluded due to a low score on the mini-mental test. Altogether, 262 persons were interviewed at baseline (Time 1). Twelve months after the first interview (at Time 2), 27 of the participants dropped out of the study (six of them passed away, seven refused to participate at Time 2, and two were unable to participate due to cognitive decline). In addition, 11 did not complete the questionnaire at Time 2, and we lost contact with one participant, thus reducing the final sample to 235 participants. The sample was comprised of 143 women (63 % of them lived with a spouse), and 92 men (81.5 % with spouse). At Time 1, the average age was 80.6 years (SD = 4.18, range 75–93); 51 % of the participants had 12 years or less of formal education, and the rest completed more than 12 years. A vast majority of participants (92 %) ranked their economic status as moderate or higher on a five point scale (M = 3.28, SD = .71).

2.2 Measures

Successful aging was measured by five different scales: The Philadelphia Geriatric Center Positive Morale Scale (PGCMS) (Lawton 1975, 17 items, e.g., " As I get older, things are better/worse than I thought they would be"); The Life Satisfaction Index A (Neugarten et al. 1961, 19 items, e.g., "I am just as happy as when I was younger"); The Satisfaction with Life Scale (Carmel and Mutran 1997, 6 items, e.g., "How satisfied are you with your life in general?"); The Happiness Scale (Lyubomirsky and Lepper 1999, 4 items, e.g., "In

general I consider myself: not a very happy person (1)—a very happy person (7)"); Carmel's Will To Live (Carmel 2011, 5 items, e.g., " On a scale from 0 to 5, would you say that your will to live is: 5 = very strong, 4 = strong, 3 = intermediate, 2 = weak, 1 = very weak, 0 = no will to live"). Exploratory factor analysis conducted on the 5 scales yielded a solution with one factor, accounting for 63 % of the variance (factor loadings ranged from .71 to .86). Similar to previous studies in which composite indicators were created from a number of scales (e.g., Diener and Fujita 1995; Jopp and Smith 2006; Ebner et al. 2006), we created an indicator to represent successful aging by the mean score of all five z-standardized scores. Cronbach's alpha for this index was relatively high (α = 0.84).

The measure used for *change in health* was an adjusted mean of the following four items: a self-reported change in health in the past year (measured only at Time 2); the effect of the change in health on one's life (measured only at Time 2); the difference in number of chronic diseases between Time 1 and Time 2; and the difference in self-rated health between Time 1 and Time 2. The index for the *change in function* was based on the mean of z-standardized scores of the following five measures: the average score of differences in performing Instrumental Activities of Daily Living (IADL) between Time 1 and Time 2; the average score of differences in needs for assistance in performing IADL between Time 1 and Time 2; self-perceived change in the ability to perform IADL (measured only at Time 2); self-perceived change in the ability to perform ADL activities (measured only at Time 2); and the average score of needing assistance with ADL activities (measured only at Time 2, since persons with difficulties in ADL at Time 1 were excluded from the study). Considering the relatively high correlation found between the average scores of *change in health* and *change in function* (r = .543, $p < .001$), we used a combined measure to represent the *change in health and/or function* (health/function) between Time 1 and Time 2.

Coping resources: *Self-efficacy* was measured by the General Efficacy Scale (Sherer et al. 1982) of ten items (e.g., "Thanks to my resourcefulness, I know how to handle unforeseen situations"). *Social support* was measured by warm relations with other people (Carmel and Bernstein 2003), with six items (e.g., "To what extent do you have close and warm relationships with your spouse?"). *Education* was assessed by the number of years of formal education and the highest academic degree. *Economic status* was assessed by a subjective evaluation of it on a 5-point scale (from "very poor" to "very good").

Coping Patterns: *Reactive coping* was measured using two different scales: (1) Three of the four strategies of Freund and Baltes' 36-item SOC questionnaire (2002), each consisting of two statements: one describing behavior reflecting SOC, and the other used as a distracter. Using a forced-choice format, participants were asked to choose one of two statements for : a. Loss-based selection (12 items, e.g., "When things don't go as well as before, I drop some goals to concentrate on the more important ones"); b. Optimization (12 items, e.g., "I think about when exactly I can best realize my plans"); and c. Compensation (12 items, e.g., "When things don't go as well as they used to, I keep trying other ways until I can achieve the same result I used to". (2) Wrosch et al.'s Goal-Management Scale (2003), which includes the aspect of disengagement from goals no longer attainable (four items, e.g., "It's easy for me to reduce my effort toward the goal") as well as the aspect of goal reengagement (six items, e.g., "I think about other new goals to pursue"), both to be answered with respect to the following generic item stem: "If I have to stop pursuing an important goal in my life…" (p. 1497). *Proactive coping* was measured by Sorensen and Pinquart's (2001) Preparation for Future Care Needs (PFCN) measure. We used five scales to measure the preparation process: Becoming Aware (six items, e.g., "The thought that I

Table 1 Reliability and descriptive statistics of the research measures

Variable	Cronbach's α (No. of items)	Mean (SD)	Min	Max
Successful aging (T2)	.84 (51)	.029 (.786)	−2.37	1.71
Health-function change		−.012 (.671)	−.95	3.54
Self-efficacy	.89 (10)	3.26 (.537)	1.50	4.00
Social support	.76 (6)	4.41 (.510)	2.33	5.00
Education	(1)	3.77 (1.85)	1	7
Economic status	(1)	3.28 (.713)	1	5
Loss based selection	.66 (12)	8.53 (2.48)	0	12
Optimization	.64 (12)	8.59 (2.39)	1	12
Compensation	.70 (12)	6.88 (2.78)	0	12
Goal disengagement	.76 (4)	2.85 (.931)	1.00	5.00
Goal reengagement	.89 (6)	2.91 (1.00)	1.00	5.00
Becoming aware	.80 (6)	2.73 (.939)	1.00	5.00
Avoidance	.70 (3)	3.11 (1.12)	1.00	5.00
Gathering information	.79 (6)	2.13 (.835)	1.00	4.57
Deciding on preferences	.83 (6)	2.68 (1.08)	1.00	5.00
Concrete planning	.79 (7)	2.59 (.785)	1.00	4.63

may need help or care in the future comes up a lot to me"), Avoidance (three items, e.g., "I don't like to think about the risk of needing help or care in the future"), Gathering Information (six items, e.g., "I have gathered information about options for care by talking to friends or family"), Deciding on Preferences (six items, e.g., "I have compared different options for obtaining help or care in the future and have decided which would work for me and which would not"), and Concrete Planning (seven items, e.g., "I have identified how I want to be cared for and have taken concrete steps to ensure that this option is available").

At Time 1, participants were interviewed about their successful aging, health and function, personal resources, both types of coping patterns, and socio-demographic characteristics. At Time 2, the same battery of questions was used with the addition of questions for assessing ADL, change in IADL and ADL, change in health and its effects, while omitting questions about socio-demographic variables, personal resources and coping patterns used at Time 1. The descriptive statistics and Cronbach's alphas for the measures used in the study are presented in Table 1.

2.3 Statistical Analyses

Univariate analyses (Spearman and Pearson correlation coefficients, and t tests, according to variable scales) were carried out between successful aging as measured at Time 2, and all of the indices and variables used to assess socio-demographic characteristics, coping patterns and resources as measured at Time 1 and the change in health/function assessed at Time 2.

Two-stage hierarchical regressions (enter method) were used to examine the differential influence of personal resources and coping patterns on successful aging in the presence of change in health/function. In the first model (stage 1), in addition to change in health/function, we included gender, which was found to be the only demographic variable significantly related to successful aging in the univariate analyses. In the second stage, we

conducted a separate regression analysis for each of the two groups of variables—coping resources (model 2a) and coping patterns (model 2b), by adding them to the variables included in the first stage (model 1). The statistically significant variables found in each of these three regression analyses were included in the final model (model 2c).

In order to examine moderating effects of resources and coping patterns on the association between change in health/function and successful aging, we conducted separate regression models for each of the interactions between coping resources/patterns and change in health/function.

3 Results

Statistically significant differences were found between measures of health and function measured at Time 1 and Time 2, indicating decline in health and/or function over the year of the study in self-rated health (t = −3.19, p = 0.001), change in number of chronic diseases (t = −2.99, p = 0.01), and decline in both measures of IADL (performance—t = −5.68, p = .001; need for assistance—t = −5.13, p = .001).

Except for happiness, all successful aging scores declined significantly after 12 months (Table 2).

The Pearson correlation coefficient between successful aging and change in health/function (both based on the combined score) was −.483 (p = .0001): The greater the decline in health/function during the 12 months of the study, the lower the score on successful aging (Time 2). Women scored significantly lower than men on successful aging (−.082 vs. .201, t = −2.53, p = .012), however, the correlations between the sociodemographic variables of age, education and economic status with successful aging (Time 2) were not statistically significant.

As can be seen in Table 3, positive correlations were found between successful aging and social support (r = .248), self-efficacy (r = .466), optimization (r = .231), compensation (r = .181) and goal reengagement (r = .227): The higher the scores on these coping resources and coping patterns (Time 1), the higher were the scores on successful aging (Time 2). Statistically significant negative correlations were found between successful aging and becoming aware of future care needs (r = −.192) and deciding on preferences for future care (r = −.157): the greater the reported use of these proactive coping patterns (at Time 1), the lower were the scores on successful aging (Time 2).

Regarding resources and coping patterns, positive correlations were found between social support and self-efficacy (r = .223) and social support and compensation (r = .142). Positive correlations were also found between self-efficacy and compensation (r = .331),

Table 2 Comparisons of scores for Time 1 and Time 2 successful aging indices

Indices	Time 1 Mean (SD)	Time 2 Mean (SD)	t*
PGCMS (Lawton 1975)	10.94 (3.46)	10.44 (3.63)	2.56, p = .011
Life Satisfaction Index A (Neugarten et al. 1961)	13.25 (3.68)	11.09 (3.85)	7.30, p = .000
Satisfaction with Life (Carmel and Mutran 1997)	3.96 (0.58)	3.85 (0.65)	2.99, p = .003
Happiness (Lyubomirsky and Lepper 1999)	5.38 (1.03)	5.29 (1.06)	1.68, p = .094
Will to Live (Carmel 2011)	3.68 (0.71)	3.58(0.71)	2.59, p = .010

* Paired *t* test for dependent samples

Table 3 Pearson correlation coefficients among resources (T1), coping patterns (T1) and successful aging (T2)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Social support	1.00											
2. Self-efficacy	.223**	1.00										
3. Optimization	.120	.429**	1.00									
4. Compensation	.142**	.331**	.478**	1.00								
5. Loss based selection	−.007	.029	.267**	.259**	1.00							
6. Goal disengagement	−.079	−.135*	−.137*	−.198***	−.120	1.00						
7. Goal reengagement	.019	.363**	.303**	.277**	.167*	.044	1.00					
8. Becoming aware	−.022	−.138*	.005	.064	.070	.015	−.063	1.00				
9. Avoidance	.015	.130*	−.019	−.166**	−.050	.135*	.069	−.398**	1.00			
10. Gathering information	.091	−.042	.054	.180**	.077	−.019	.075	.543**	−.323**	1.00		
11. Deciding on preferences	.037	−.116	−.031	.183*	.141*	−.023	.099	.451**	−.307**	.557**	1.00	
12. Concrete planning	.098	−.055	.008	.124	−.018	.036	.107	.401**	−.316**	.587**	.571**	1.00
13. Successful aging Time 2	.248**	.466**	.231**	.181*	−.058	.015	.227**	−.192**	.117	−.046	−.157*	−.004

* $p < .05$ (2-tailed); ** $p < .01$ (2-tailed)

goal reengagement (r = .363), and avoidance (r = .130). On the other hand, negative correlations were found between self-efficacy and goal disengagement (r = .−135) and becoming aware of future care needs (r = −.138). In general, the more resources people have, and especially the higher they rank on self-efficacy, the more likely they are to use reactive coping in the form of optimization, compensation and goal reengagement, but not loss-based selection. Accordingly, the stronger their sense of self-efficacy, the less they tend to disengage from their goals and to become aware of future care needs.

In order to understand the relative impact of resources and coping patterns on successful aging, we used hierarchical multiple regression analyses, the results of which are presented in Table 4. Gender and change in health/function explained a statistically significant portion of the variance of successful aging (model 1, stage 1: R^2 = .247). The addition of the studied resources (model 2a, stage 2) improved the amount of explained variance by 18.2 %. The contributions of self-efficacy (β = .382) and social support (β = .125) were statistically significant. The addition of the coping patterns to the first equation (model 2b, stage 2) improved the amount of explained variance by 13 %, with a positive statistically significant contribution of optimization (β = .137) and concrete planning (β = .151), and a negative contribution of deciding on preferences (β = −.211). The addition of both groups of variables (coping resources and patterns) that were found to be significant in the previous models (model 2c, stage 2), significantly improved the amount of explained variance by 21 %, with a positive statistically significant contribution of self-efficacy (β = .353), social support (β = .121), and concrete planning (β = .147), and a negative statistically significant contribution of deciding on preferences (β = −.208). The statistical significance of optimization (as seen in model 2b) disappeared due to the strong correlation between optimization and self-efficacy—see Table 3). While the negative effect of change in health/function remained significant in the final model, the effect of gender diminished. The final model explained 44.7 % of the variance in successful aging.

We searched for interactions between variables found significant in the final regression model—change in health/function and the social support and self-efficacy resources—and between change in health/function and the two coping dimensions *deciding on preferences* and *concrete planning*. We found no significant interactions.

4 Discussion

The purpose of our study was to predict successful aging after change in health/function by examining the relative contribution of coping resources and use of various coping patterns.

Regarding the relation between changes in health/function and successful aging, our findings indicate a negative effect of change in health/function on successful aging, and support literature emphasizing the importance of health and function for successful aging (Maddox 1968; Rowe and Kahn 1997; Baltes and Baltes 1990; Caro et al. 1993; Baltes 1996; Jopp and Smith 2006: Schindler and Staudinger 2008). A similar indication was reported in Carmel and Bernstein's study (2003), which compared various age groups of adults aged 70 and older, and found a decline in physical health and function, as well as in life satisfaction and other indicators of well-being with increase in age. However, there are scholars who argue that subjective well-being is quite stable and affected by change in health/function and other negative life events only for the short term (e.g., Diener et al. 2006; Gerstorf et al. 2006). Due to the fact that our study covers a period of only 12 months during which four out of five of our measures of successful aging significantly

Table 4 Hierarchical regression analyses predicting successful aging at Time 2

Model	Variables	B	SE	β	t	Sig	ΔR²	R²
1	Constant	−.067	.057		−1.17	.241		
	Gender	**.227**	**.091**	**.141**	**2.48**	**.014**		
	Decline in health/function	**−.555**	**.067**	**−.473**	**−8.31**			
								.247**
2 (a)	Constant	−2.90	.424		−6.84	.000		
	Gender	.158	.082	.099	1.94	.054		
	Decline in health/function	**−.497**	**.060**	**−.423**	**−8.33**	**.000**		
	Self-efficacy	**.560**	**.076**	**.382**	**7.36**	**.000**		
	Social support	**.197**	**.081**	**.125**	**2.43**	**.016**		
	Economic status	.045	.057	.041	.801	.424		
	Education	.006	.022	.014	.275	.783		
							.182**	**.420****
2 (b)	Constant	−.693	.363		−1.91	.058		
	Gender	**.190**	**.087**	**.118**	**2.19**	**.030**		
	Decline in health/function	**−.540**	**.063**	**−.460**	**−8.52**	**.000**		
	Optimization	**.045**	**.021**	**.137**	**2.15**	**.032**		
	Compensation	.035	.018	.125	1.93	.055		
	Loss based selection	−.033	.018	−.106	−1.86	.064		
	Goal disengagement	.022	.047	.026	.475	.636		
	Goal reengagement	.79	.046	.101	1.74	.083		
	Becoming aware	−.072	.057	−.086	−1.27	.204		
	Avoidance	.069	.046	.099	1.51	.132		
	Gathering information	.041	.070	.044	.589	.556		
	Deciding on preferences	**−.154**	**.053**	**−.211**	**−2.92**	**.004**		
	Concrete planning	**.151**	**.073**	**.151**	**2.07**	**.040**		
	Low usefulness	−.012	.050	−.015	−.231	.817		
							.131**	**.348****
2 (c)	Constant	**−2.57**	**.397**		**−6.49**	**.000**		
	Gender	.143	.080	.089	1.79	.074		
	Decline in health/function	**−.519**	**.058**	**−.442**	**−8.97**	**.000**		
	Self-efficacy	**.517**	**.082**	**.353**	**6.33**	**.000**		
	Social support	**.190**	**.079**	**.121**	**2.39**	**.017**		
	Optimization	.011	.018	.034	.621	.535		
	Deciding on preferences	**−.151**	**.044**	**−.208**	**−3.48**	**.001**		
	Concrete planning	**.147**	**.060**	**.147**	**2.45**	**.015**		
							.210**	**.447****

** $p < 0.01$

declined, our conclusion regarding the influence of changes in health/function on successful aging refers to a relatively short period of time.

Regarding coping resources, positive associations with successful aging were found for self-efficacy and social support. Furthermore, the positive contribution of these two resources to successful aging remained significant in the presence of change in

health/function and the addition of proactive and reactive coping patterns to the multi-variate regression analysis. These results support previous reports about the importance of having various personal resources to maintain successful aging, in particular social support and self-efficacy (e.g., Jopp and Smith 2006; Jopp and Rott 2006). In congruence with Yazicioglu et al. (2006), who reported positive associations between social support and quality of life, but not between education and quality of life, we found no association between education and successful aging. This finding is also in accordance with Ross and Wu (1996), who argued that the influence of education on health and subjective well-being is indirect through employment and economic status. The reason that we found no cor-relation between economic status and successful aging in our study, may stem from the fact that our sample was quite homogeneous as to economic status, being comprised mainly of individuals of middle and high socio-economic status.

The reactive and proactive coping patterns examined in this study are expressions of a motivation to control and direct life. While reactive coping patterns are considered life management (Baltes and Baltes 1990) or goal management strategies (Wrosch et al. 2003), activated mainly after a life event occurs, proactive coping patterns focus on the indi-vidual's ability to imagine future events, to foresee their possible outcomes, and to plan and act accordingly (Aspinwall 2005). Since in our study, proactive coping referred to negative future events such as decline in health and function, the purpose was to evaluate their effects in moderating the negative effects of these events.

As expected, we found positive associations between the dimensions of optimization, compensation (SOC), and goal reengagement and successful aging, supporting findings of previous studies (Freund and Baltes 1998, 2002; Jopp and Smith 2006; Miller and Wrosch 2007). Optimization also remained a significant contributor to successful aging in a multivariate analysis, which included only gender, change in health/function and the studied coping resources. However, the predictability of all of the studied reactive coping dimensions became statistically insignificant when the coping resources of self-efficacy and social support were added to the final multivariate analysis.

In this study we found no associations between loss-based selection and successful aging, or between goal disengagement and successful aging. These findings may indicate a prevalence of feelings that one is still capable of attaining goals and need not give up, as would be expressed by goal disengagement, or loss-based selection. This argument is supported by Wrosch et al. (2006) who claim that in early stages of functional decline, one can still attain important goals, and therefore it is not possible to predetermine when a person should abandon one goal and search for another. Our results may derive from the fact that one of our criteria for selecting the participants for this study was physical and mental independence, therefore, experiencing some change in health/function during the period of a few months to a year may not be long enough to bring one to acknowledge that some goals are no longer attainable, and that he or she must disengage from it (Schindler and Staudinger 2008).

Regarding proactive coping, only the dimensions of becoming aware of future care needs, and deciding on preferences, were significantly and negatively correlated with successful aging in the univariate analyses. However, in the multivariate analyses the only significant predictors were deciding on preferences, which negatively affected successful aging, and concrete planning, which influenced it positively.

The final multivariate analysis showed that the best predictors of successful aging after one year were (in order of importance): change in health/function, self-efficacy, deciding on preferences, concrete planning, and social support. While change in health/function and

deciding on preferences negatively affected successful aging, self-efficacy, social support and concrete planning all had a positive influence on successful aging.

In the final model, we found no moderating effects of coping resources or patterns on the association between change in health/function and successful aging. Some studies which examined indirect effects of resources on various outcomes report a partial moderating effect of resources on the association of health and variables such as satisfaction from old age (Jopp and Smith 2006), subjective well-being (Schindler and Staudinger 2008) and depression (Bisschop et al. 2004). Jonker et al. (2009) found that self-efficacy mediated the association between persistent deterioration of functioning and change in well-being. The change in health/function reported in our study was measured over a period of only 12 months and although statistically significant, it was quite minor. It is possible that coping resources and behaviors have a stronger moderating effect when losses in health/function are greater, and persist over a longer period of time.

In general, our findings indicate that self-efficacy has a dominant role in explaining successful aging. This finding supports the numerous studies based on meta-analyses which confirm the importance of efficacy beliefs to the quality of human functioning (Benight and Bandura 2004). Furthermore, our results show that as the perception of self-efficacy strengthens, so does the likelihood to use reactive coping patterns of optimization, compensation, and goal-reengagement, while avoiding the use of some dimensions of proactive coping, such as becoming aware of future care needs. These findings are contrary to those of previous studies which indicate positive associations beween self-efficacy and proactive coping (Sohl and Moyer 2009; Schwarzer and Taubert 2002; Greenglass 2002). A feasible explanation for this contradiction is the use of different measures of proactivity. We used Sorensen and Pinquart's (2001) Preparation for Future Care Needs (PFCN) which we found suitable for a study dealing in a decline in health and function in an aging population, as it is specific to future care needs—a recognized negative scenario. The above mentioned studies used the Proactive Coping Inventory (PCI, Greenglass et al. 1999) which is a more general measure and relevant to both positive and negative scenarios in various age groups.

These relatively strong associations between self-efficacy and some patterns of reactive coping explain the diminished effect of these coping patterns in the final multivariate analysis. It appears that self-efficacy encourages the use of the beneficial reactive coping patterns but simultaneously contributes to avoidance of some types of proactive coping. Probably, older people who are confident of their competence in dealing with occurring problems do not feel the necessity to deal with changes in health/function before they occur, and their competencies in reactive coping assist them in maintaining successful aging.

The importance of self-efficacy to successful aging raises the question: What happens to efficacy beliefs in later years? Jang et al. (2009) reported that the average scores for sense of mastery remained similar over a period of two years. In contrast, several cross-sectional studies have shown that feelings of control decrease with age (Carmel and Bernstein 2003; Lachman and Weaver 1998; Mirowsky 1995). Rodin (1986) claimed that in later years, repeated experiences of less controllable events such as losses in health may weaken one's sense of control. If this is the case, older persons may be deprived of this important coping resource when it is most needed. Scholars suggest that older adults may replace the health domain with more controllable and available domains such as social support as a determinant of mastery and control perceptions (Heckhausen et al. 2010). Since relevant literature shows conflicting evidence regarding the decrease in perceived control as a function of chronological age and health losses, further longitudinal research is needed.

Worthy of note is our finding that contrary to our expectations, the proactive coping pattern called *deciding on preferences for future care needs* had a negative effect on successful aging in the presence of change in health/function. However, the contribution of the proactive coping pattern *concrete planning* was positive. Proactive coping is a multi-step process that includes becoming aware of having to confront with negative events in the future, gathering relevant information, deciding on preferences, and planning how to deal with the faced negative events. All of these thoughts and actions involve depressing scenarios for the individual. The older a person is, the closer he or she is to the end of his or her life, and dealing with end-of-life aspects could have a negative effect on successful aging. In line with our findings regarding the negative associations between the dimensions of becoming aware and deciding on preferences and successful aging, Aspinwall and Taylor (1997) have suggested that over-awareness and intensive involvement in possible risks could result in an outcome quite the opposite of the desired effect, and could cause anxiety. Pinquart and Sorensen's (2002) findings also indicate that individuals who considered future risks without specific planning had the lowest levels of subjective well-being.

We suggest that deciding on preferences alone has a negative effect on successful aging, because it causes visualizing a grave scenario of one's potential dim future with no solution as how to face it. However, once ensuring that these preferences are applied by carrying out concrete planning, people may feel relief at having resolved the depressing issues, and not having to deal with them any longer. This may be expressed in improved well-being and successful aging. At the time of the interviews, participants in our study could be at different stages of the proactive coping process, aware of some of the negative effects of the process of proactive coping. Bode et al. (2007) have suggested a way to prevent such negative effects using controlled interventions directed to develop proactive coping skills.

The few studies on proactive coping, along with the diversity of participants, tools, study methods, and findings, have made it difficult to make an overall assessment of the effectiveness of proactive coping with regard to successful aging. To the best of our knowledge, no previous study has undertaken a comparative examination of the effects of both reactive and proactive coping patterns on successful aging in the presence of change in health and function. In this sense, this is a pioneering study. We do acknowledge two limitations: the data were collected from a relatively small sample of convenience that was quite homogenous in terms of education and economic status, and due to the relatively short interval (1 year) between the two measurements, the reported change in health and/or function was somewhat moderate.

5 Conclusions and Applicable Recommendations

Our findings indicate that: (1) Self-efficacy and social support have a positive effect on successful aging in the presence of a change in health and/or function. People ranking high in self-efficacy are more likely to make use of the appropriate patterns of reactive coping, but are less likely to use certain patterns of proactive coping. (2) Reactive coping has a positive effect on successful aging in the presence of a change in health and/or function. However, this effect diminishes when self-efficacy and social support are added to the analysis because of the strong correlations between these coping resources and reactive coping patterns. (3) The effect of two patterns of proactive coping seems to be contradictive: while the effect of deciding on preferences for future care needs is negative, the effect of concrete planning for how to meet such needs is positive. Since our final model

demonstrates the contribution of self-efficacy, social support and two dimensions of proactive coping to successful aging, we find it important to preserve and enhance those factors that have a positive contribution to successful aging, while cautiously handling those which affect successful aging in a negative way. These findings lead us to conclude that to a certain degree, elderly people have the ability to influence their aging process. Since coping resources can be accumulated by means of appropriate investment over the years, as well as during old age, and since coping patterns can be learned—people have the ability to increase and strengthen these factors in order to maintain and/or improve their successful aging.

We therefore recommend the development of socialization programs for older people to be initiated and implemented by professionals. For example, we suggest developing and implementing supervised interventions and training programs focused on role transitions and the losses these transitions hold for older adults, as well as on effective coping patterns and strategies for preserving and developing coping resources such as social support and self-efficacy.

Society accompanies and supports its members throughout the life span with an emphasis on the early and productive years. Guiding older people through their aging process has the potential to help maintain and improve quality of life during more years of old age, both for personal and familial benefit, as well as for the benefit of society as a whole.

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