CHAPTER 5:

DOES HAPPINESS LENGTHEN LIFE?
The prediction of longevity in the elderly

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Summary

A happy person can count on more years of life than an unhappy person. This conclusion is based on data from the Dutch Longitudinal Study among the Elderly. A national probability sample of 3149 persons aged 65 and over was examined at baseline, 1955-'57. Vital status and date of death were ascertained for 84% of the original sample in 1983. Physical, mental and social characteristics were related to survival time subsequent to the baseline examination. From the eleven variables that pertain to happiness or satisfaction with various aspects of life, the majority showed a significant univariate correlation with survival time. In a multivariate model controlling for symptoms and indicators of ill-health, satisfaction appeared to be an independent predictor of survival time. Specifically, this was the case for satisfaction with aging, income satisfaction, and perceived value of life. In total, satisfaction explains minimally 1.4% and maximally 8.1% of the variance in survival time. For a 70-year-old man of average health, satisfaction of one standard deviation above average promises a 20 months longer life.

1. INTRODUCTION

Happiness and a long life are often mentioned in connection with each other. If a long life is valued as an asset, then happiness is not harmful. However, the popular saying may be based on desirability rather than on reality. Empirical studies must decide whether or not happiness is associated with a longer life. In the studies reviewed in this paper, `happiness' is operationally defined as `satisfaction'. These two terms will be used synonymously.

   Two processes may play a role in the hypothesized relationship between satisfaction and longevity (Cohen & Brody, 1981). The first involves a direct relationship of cause and effect: dissatisfaction with life leads to accident-proneness and suicide, resulting in a premature end of life. The second process is perhaps more relevant in an older population. This involves satisfaction as a permanent characteristic which is causally related to chronic disease. Not only the onset of disease is relevant in this process, but also severity and duration of the disease. In this sense, life satisfaction is closely related to `coping': the ability to deal with problems presented by life. (These effects are discussed in more detail in chapters 2 and 8 of this volume.)

   Problems confronting older persons may stem from physical changes that accompany aging, or from a worsening health. Brenner (1979) and Rideout & Montemuro (1986) demonstrate

an association between life satisfaction and both onset and coping with disease. Furthermore, older age brings about changes at the social level. Retirement, financial limitations, and social prejudice against older persons require adaptation. Haynes et al. (1978) and O'Hara et al. (1985) report an association of satisfaction with respect to retirement and financial status with longevity. In addition, the availability of a social network is threatened by an increased frequency of deaths among relatives and friends. This may have a direct bearing on longevity (Berkman & Syme, 1979; House et al., 1982), or an indirect one. Levitt et al. (1985-'86) and Chapman et al. (1986) show that adequate social support has a positive effect on health by attenuating stress and inducing a healthy life style.

This paper investigates the empirical basis for a direct, positive association between happiness in old age and remaining length of life.

In addition to a brief review of the available literature, data from the Dutch Longitudinal Study among the Elderly are used to study the hypothesized association.

Previous research on life satisfaction and survival time
Results

In the more general context of the study of predictors of survival in the elderly, some evidence concerning the association between satisfaction and survival has been presented by Bond 1983, Botwinick 1978, Kaplan & Camacho 1983, Lehr & Schmitz-Scherzer 1974, Lehr et al. 1987, Mossey & Shapiro 1982, Palmore 1974, Palmore & Cleveland 1976, and Zuckerman 1984. In these studies, older persons were interviewed with respect to a number of aspects, amongst others life satisfaction. Many of these studies included a physical examination. The vital status of the respondents was ascertained over a period of one year to several decades subsequently. This enabled a comparison of survival or survival time with characteristics determined at baseline. One of the questions looked into was whether initially happy persons had survived a longer time than initially unhappy persons.

Some evidence can be found that happy persons are likely to live lon-ger. From seven of the studies listed, a positive association of initial satisfaction and subsequent survival is reported. The associations are, however, not strong and the findings are not always consistent. In one study no association is found (Palmore & Cleveland, 1976). Inconsistencies are mostly found in sex differences. While Lehr et al. (1987) could only demonstrate an association between life satisfaction and survival for men, Palmore (1974) finds such an association only for women.

From univariate associations between happiness and survival, no final conclusions may be drawn without adjusting for other factors that are likely to be related to both satisfaction and survival. Satisfaction may reflect conditions that have a more direct influence on survival, such as health, financial status, and living arrangements. For instance, a good physical condition may cause a greater satisfaction to be observed at baseline. Underlying mechanisms may be an accepting attitude towards old age with its frequently occurring ailments, or even a positive perception of old age and of life in general. The satisfaction observed may thus be statistically associated with greater survival without being its cause. The true cause is good health.

In most studies where multivariate analyses are performed, the association between satisfaction and survival appears to become largely insignificant (Botwinick et al., 1978; Mossey & Shapiro, 1982; Kaplan & Camacho, 1983). These studies measured happiness by means of self-ratings. However, in studies where happiness is measured by interviewer ratings, the association remains significant after controlling for other variables (Zuckerman et al. 1984, Palmore 1974).

Methodological differences
The inconsistencies in the results cited may stem from differences in study design. The

following methodological aspects are relevant. First, the populations are not similar. One population consists of West Germans (Lehr & Schmitz-Scherzer, 1974; Lehr et al., 1987), one of Canadians (Mossey & Shapiro, 1982), the other five of U.S. Americans. Not all studies draw on representative samples. Three samples are more or less healthy members of the elite (Palmore, 1974; Palmore & Cleveland, 1976; Lehr & Schmitz-Scherzer, 1974; Lehr et al., 1987; Botwinick et al., 1978), one sample is an economically deprived group (Zuckerman et al., 1984).

Second, the operational definition of `survival' differs across studies. In the majority of studies, survival is conceived as a dichotomous variable: dead or alive at end-of-follow-up (Lehr & Schmitz-Scherzer, 1974; Lehr et al., 1987; Botwinick et al., 1978; Mossey & Shapiro, 1982; Kaplan & Camacho, 1983; Zuckerman et al., 1984). Not only may the results from these studies depend on the length of the follow-up, important information is dropped as well, namely the exact survival time. Ideally, the investigator would wait until all sample members have died, and determine the exact survival time subsequently. Two of the studies cited partly follow this approach, by only including the decedents in their study samples (Palmore & Cleveland, 1976; Bond, 1983). Nevertheless, Palmore & Cleveland do not find any association between satisfaction and survival time. This may be due to their analytic approach, that differs from all the other studies, including the earlier study of the same sample (Palmore, 1974). Somewhat counter-intuitively, they choose life satisfaction as the dependent variable, and `distance to death' controlled for age as the independent variable. A compromise between these definitions of survival is to determine the exact survival time of those who have died, and to impute the remaining life expectancy for those who survived up to end-of-follow-up (Palmore, 1974).

Third, the measurement of life satisfaction differs considerably across studies. Two studies use the `Life Satisfaction Index' by Neugarten (Mossey & Shapiro, 1982; Zuckerman et al., 1984). The `Affect Balance Scale' by Bradburn is used by Kaplan & Camacho (1983), and Cantrill's `Ladder Scale' is used by Botwinick et al. (1978). Three studies employ `home made' scales of satisfaction (Palmore, 1974; Palmore & Cleveland, 1976; Lehr & Schmitz-Scherzer, 1974; Lehr et al., 1987; Zuckerman et al., 1984). In two studies an interviewer rating was made in addition to self-reports by the subjects (Palmore, 1974; Palmore & Cleveland, 1976; Zuckerman et al., 1984). It has been demonstrated that interviewer ratings often measure other dimensions than satisfaction per se (Veenhoven, 1984). Two investigators include measures of satisfaction on separate aspects of life, such as work and family relations (Palmore, 1974; Lehr et al., 1987). Particularly with respect to these `partial' satisfaction measures, the sex-specific results presented by both authors are contradictory.

Thus, despite the indicated methodological differences, some empirical evidence is available that can be used as a starting point for a more detailed study of the relationship between life satisfaction and survival time.

2.   MATERIAL AND METHODS

Since the methodological differences discussed above may to some extent be responsible for the inconsistent results in literature, it is important to choose an optimal study design. The best design should combine at least the following elements: a. A representative sample; b. A follow-up of such length that virtually all respondents have died and their exact survival time can be determined; c. The availability of potential determinants of longevity other than satisfaction, particularly those related to health; d. The measurement of satisfaction by way of self-reports of the respondents. This combination is available in the Dutch Longitudinal Study among the Elderly (Beek & van Zonneveld, 1976; Deeg et al., 1985; Deeg & van Zonneveld, 1987).

The study sample included initially 3149 persons aged 65 years and over. The sample is

stratified in such a way that the age categories 65-69, 70-74, 75-79, and 80 and over included equal numbers of males and females. Each age-sex category can be considered to be representative for the Netherlands. The elderly subjects were examined by their own general practitioners. The baseline examination took place between 1955 and 1957 and is reported in detail by Van Zonneveld (1961). Over 200 items were recorded on the following aspects:
- health status, determined by medical history, clinical examination and memory test;
- self-perceived health;
- health care use;
- activities of daily living;
- psychosocial characteristics, including satisfaction;
- socio-economic and demographic characteristics.

In 1983, an effort was made to ascertain whether the initial subjects were still alive or when they had died. Information could be obtained on 2645 persons (84%)[1]. For each of these persons, the Realized Probability of Dying (RPD) is calculated. The RPD is based on population life tables and indicates for each subject how long he or she has lived relative to his or her peers of the same age and sex in the total population. Thus, an individual measure of survival time is obtained that makes all sample subjects comparable regardless of age and sex. For those subjects still alive in 1983, the probability of dying is imputed (see **appendix)**. Possible values of the RPD are between 0 and 1. The value of an individual's RPD is 0.7, if at the time of his or her death 70% of his or her cohort is still alive. The log of the RPD is approximately normally distributed, which makes it suitable as the dependent variable in regression analysis.

The available data contain eleven questions with respect to satisfaction (**scheme 1**). They cover health, social position, and family relations. Two questions pertain to life satisfaction. The eleven questions may not be the most adequate operationalizations of happiness. Since the start of this study, several good satisfaction scales have been developed elsewhere. However, the available questions may be considered to be indicative of aspects of happiness.

3.   RESULTS

Principal component analysis confirms that the eleven variables reflect satisfaction with respect to four different aspects: health, family relations, social position, and life as a whole. In men, health satisfaction is somewhat related to satisfaction with respect to their present social position (excluding income satisfaction). In women, by contrast, health satisfaction is related to satisfaction with respect to family relations and life in retrospect. (Never-married women rather conform to the male pattern.)

The association of satisfaction with physical health is evaluated by determining the correlations with the global health rating by the examining physician, which variable turned out to be the most powerful predictor of longevity in this study (Deeg et al., 1985). This so-called objective health is mainly related to health satisfaction (correlation coefficients between +.20 and +.40), especially in men. Otherwise, objective health shows an appreciable association only with satisfaction with life as a whole (correlation coefficient approximately +.15).

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[1] Of the 505 subjects who could not be traced in 1983, most (70%) had already been lost to follow-up in 1960. Since that year, a series of six follow-up examinations was initiated. In a comparison of the baseline (1955-'57) data of those subjects lost to follow-up and those examined at follow-up, the groups did not differ significantly on the central study variables. Moreover, the distribution of the survival time of those traced in 1983 appears to correspond to the distribution of the survival time of the total Dutch population of the same age-at-baseline and sex.

3.1   Do happy persons live longer?

For a first impression of a possible direct relation with survival time, the zero-order correlations between satisfaction as reported in 1955-'57 and subsequent Realized Probability of Dying are calculated (**scheme 2**, leftmost column). These correlations are modest in size. Most prominent are the associations of dissatisfaction with health (items 1 and 2) and a higher RPD. Dissatisfaction with income (item 3), dissatisfaction with the contacts with children (item 9), and a perceived lack of value of life (item 10) are also predictive of a relatively short survival time. Evaluation of life in retrospect (item 11), and acceptance of the social position of an elder (items 4, 5, and 6), however, are not significantly associated with the RPD. Taken together, these satisfaction variables explain 8.1% of the variance in the RPD, indicating that satisfaction seems to be favorable to longevity to some extent.

 Univariate correlations, however, may represent spurious relationships. In order to determine possible spuriousness of the relationships found above, it is ascertained how much variance is explained in a regression model with all independent predictors of the RPD other than satisfaction variables, which percent of variance is compared to that explained after the eleven satisfaction variables are added in a stepwise manner to the regression model **(scheme 3**, 1st row). This procedure allows controlling for the effect of other, particularly health variables. In these regression models, of each independent variable both the linear and the quadratic term are included in order to allow for possible non-linear relationships.

In the first regression model, a total of 19.1% of the variance is explained. The strongest independent predictor of the RPD is objective health. Symptoms of disease, particularly heart disease, have important predictive abilities: shortness of breath, a high erythrocyte sedimentation rate, abnormalities of heart and large blood vessels, systolic murmur, and poor performance on a memory test. Other indicators of illness with independent effect are: disability in instrumental activities of daily living, no longer working, regular contact with the general practitioner, and health care use because of cancer. The direction of the effect of these variables conforms to expectation: the more severe the abnormality (shortness of breath with little or no exertion, more health care use, etc.), the shorter the remaining survival time.

 In the second regression model, the total variance explained is 21.4%; the satisfaction variables are responsible for an increase of 1.4% variance explained. This 1.4% should be interpreted as a minimum effect of satisfaction on survival time. The true effect could be larger, if satisfaction would have an effect through the variables first entered into the model. In the procedure followed, such potential effect is not discernible. It can be concluded that the eleven satisfaction variables studied explain 8.1% maximally, and 1.4% minimally in the variance of survival time.

 The impact of the statistical procedure of controlling for health variables is not the same for each of the eleven satisfaction variables. The standardized regression coefficients (**scheme 4**, column 1) are, of course, smaller than the zero-order correlation coefficients and therefore less often significant. In addition, compared to the coefficients of the other variables, the decrease is most dramatic for satisfaction with health, although the coefficients remain significant. Apparently, health satisfaction has only little independent effect on survival time in a model including indicators of actual health. The effect of income satisfaction and perceived value of present life are less affected by the controlling procedure. The effect of satisfaction with contacts with children is rendered insignificant. Notably, a small independent effect of evaluation of life in retrospect is now revealed.

 In summary, evidence is found that, minimally, satisfaction with life in general as well as satisfaction with health and income have independent effects on survival time. The magnitude of these effects is illustrated by the example of a man, examined in 1956 at age 70, and found

to be in "average" health while his income satisfaction and his satisfaction with aging are one standard deviation above average. Would he also have an "average" level of satisfaction, he would be expected to live 10 years and 7 months subsequent to baseline. His excess level of satisfaction translates into a gain of 10 months (95% confidence interval: {5,16}) due to his satisfaction with aging, and also of 10 months (95% confidence interval: {4,15}) due to his income satisfaction.

3.2 Does the relationship of satisfaction and survival time differ according to sex, age and marital status?

The effect of satisfaction on survival time is not of equal strength across subsamples categorized according to age and sex, and marital status and sex. The percent variance explained (**scheme 2**, bottom row) appears to be greater among men than among women, and greater among married than among widowed subjects. The variance explained in the never married may be artificially high, due to small sample fluctuations. Note, that the variance explained is smallest in the widowed women. Age at baseline does not appear to affect the association of satisfaction and survival time.

   In all subsamples, health satisfaction appears to have the strongest association with the RPD. Especially in non married (= never married and widowed) men dissatisfaction with health has an adverse effect on survival time. Evaluation of income is associated with survival time mainly in men; evaluation of retirement and of being labelled `elderly' have their effects mainly in recently retired (ages 65-74) and married men. Satisfaction with family relations appears to have an impact only in married subjects; for men, the relationship with their wife seems more important, while the contacts with their children seem to be more important for women. The perceived value of present life is associated with survival time in virtually all samples (exception: the never married), particularly in men.

   Again, spurious relationships may invalidate the above statements. Therefore within each sub-sample the size of the minimal, independent effect of the satisfaction variables is ascertained after controlling for other predictors of survival time (**scheme 4**). The standardized regression coefficients remain more often significant in men than in women; in widowed women no independent effect of satisfaction is seen at all. Moreover, the aspects of life to which the satisfaction pertains are different for men and women. In men, it is mainly physical and material aspects to which life-threatening dissatisfaction is related, while dissatisfaction with life pertains to present-day life. The few domains with respect to which dissatisfaction is life-threatening in women are family relations and life in retrospect.

A comparison of these results with the literature shows also in West German women an absence of clear effects of satisfaction on survival (Lehr et al. 1987). This is remarkable, since many studies have demonstrated high scores in women, and particularly in widows, on scales of (psychosomatic) complaints in comparison to men. Previous reports from the present study (van Zonneveld, 1961) reveal similar results with respect to many self-reported complaints as well as findings from the physical examination. However, women's scores on the eleven variables currently studied are not appreciably different than those of men. It has been noted above that objective health is more closely related to satisfaction in men than in women. This could indicate that women are better able than men to accept the ailments that accompany old age: they appear to be better `copers' than men (Cohen & Brody, 1981). The threat to life that lies embodied in women's ailments - occurring more frequently than in men - might be reduced by their superior coping abilities. Since satisfaction with family relations (in particular with children) has been found to be a predictor of survival time in women, the social network within the family could be a critical factor with respect to their coping abilities (Chapman et al., 1986; Levitt et al., 1986).

4.   CONCLUSION

A happy life contributes to longevity to a limited extent. The eleven satisfaction variables studied explain between 1.4% and 8.1% of the variance in survival time. The most notable effect on longevity is seen in satisfaction with health and aging, evaluation of income, and perceived value of life in old age. The described effects are stronger for men than for women. The magnitude of the effect is illustrated in the imaginary case of a 70-year-old man of average health and with a satisfaction level of one standard deviation above average. His expected gain in life time over and above his population-based life expectancy of 10 years and 7 months, is one year and 8 months.

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APPENDIX

The calculation of the Realized Probability of Dying (RPD) is essentially as follows.

Let

$d_i^{c,s}$ = the population mortality rate of cohort c of sex s in calendar year i,

where the cohort is defined by its year of birth.

The probability p of surviving j years subsequent to year i is, then:

$$p_{i,j}^{c,s} = (1 - d_i^{c,s})(1 - d_{i+1}^{c,s})......(1 - d_{i+j}^{c,s}).$$

A male subject born in 1880 and examined in 1956 has the following probability of surviving 3 years after baseline examination:

$$p_{1956,1959}^{1880,m} = (1 - d_{1956}^{1880,m})(1 - d_{1957}^{1880,m})(1 - d_{1958}^{1880,m})$$
$$(1 - d_{1959}^{1880,m}).$$

If this subject dies in 1959, his RPD is given by this formula. The value of the RPD in this case is 0.8, indicating that out of the male population born in 1880 and alive in 1956, 80% was still alive in 1959.

        An advantage of this operational definition of longevity (survival time) is that men and women of widely different ages can be compared within the same study. For example, a man aged 90 years who will live 5 more years subsequent to baseline has a relatively more favorable life expectancy than a man aged 70 who will live the same number of years. This illustrates the uselessness of comparing survival or survival time in absolute numbers of years, which would be an alternative individual measure of longevity. In addition, this operationalization accounts for the decline in mortality which has occurred during the period of observation and which was especially dramatic for those aged 75 and over.

        For more details concerning calculation and rationale of the RPD see Deeg et al. (1985) and Deeg et al. (in press).

Scheme 1.	**Items about satisfaction in the baseline interview of the**
	Dutch Longitudinal Study among the Elderly

Health

1. If your health has declined recently, how do you feel   accepting
    about this?   not accepting
2. Did you notice any signs of (physical) aging, and dit this negative
    affect you unpleasantly?   no problem
                                                               not noticed

Social position of an elder

3. How is your income level compared to that at age 60?   much lower
                                                              lower
                                                              no difference
                                                              higher
                                                              much higher
4. Did you like retiring or would you have preferred to   rather continued
    continue working?   indifferent
                                                              liked retiring
5. If people take much or all of the work off your hands, do yes
    you favor this?   no
6. Do you like it when others draw attention to your age?   negative
                                                              indifferent
                                                              no objections

Family relations

7. Has the relationship with your spouse improved or worsened worsened
    during the last few years?   no difference
                                                               improved
8. If any children are living with you, how do you like this? positive
                                                               indifferent
                                                               negative
9. How do you feel about the contacts with your children?   quarrels
                                                               no contact
                                                               moderate contact
                                                               good contact

Life as a whole

10. What value do you feel your life has for the community?   negative
                                                               don't know
                                                               positive for others
                                                               positive for self
11. What do you think of your life in retrospect?   Negative
                                                               mixed, don't know
                                                               positive

Scheme 2.
Pearson correlation coefficients of the satisfaction variables with the Realized Probability of Dying: total sample and subsamples. Dutch Longitudinal Study among the Elderly.

	total	ages 65-74		ages 75+		never married		married		widowed	
		m.	f.	m.	f.	m.	f.	m.	f.	m.	f.
	(n=2645)	(626)	(596)	(733)	(690)	(88)	(143)	(823)	(496)	(437)	(627)
Health											
1. perceived health decline	+.20*	+.24*	+.17*	+.23*	+.19*	+.31*	+.23*	+.23*	+.24*	+.19*	+.10*
2. evaluation of aging	-.16*	-.23*	-.14*	-.19*	-.10*	-.38*	-.13	-.19*	-.17*	-.16*	-.05
Social position											
3. income compared to age 60	-.08*	-.12*	-.10*	-.08+	-.03	-.05	-.09	-.11*	-.06	-.12*	-.07+
4. evaluation retiring	-.02	-.11*	-.03	+.00	+.01	-.01	-.02	-.06	-.01	-.04	+.02
5. acceptance work taken off hands	+.02	+.09	-.08	-.01	+.05	-.11	+.15	+.01	0.06	0.03	-.03
6. evaluation label of elder	-.02	-.10*	-.00	+.02	+.03	-.18	+.12	-.07+	-.08+	+.04	+.04
Family relations											
7. relationship spouse	-.00	-.07	+.06	-.10+	-.08	-	-	.07+	+.01	-	-
8. evaluation children living in	+.01	+.10	-.05	+.04	-.06	-	-	+.12+	-.13+	+.00	-.01
9. contact with children	-.05+	-.03	-.10+	-.04	-.07	-	-	-.02	-.12*	+.00	-.01
Life as a whole											
10. value present life	-.11*	-.14*	-.10+	-.17*	-.07	-.19	+.03	-.11*	-.12*	-.17*	-.05
11. evaluation life in retrospect	-.01	+.02	-.03	-.02	-.00	-.12	-.12	-.00	.02	+.03	-.02
Total variance explained	8.1%	12.8%	11.6%	13.9%	11.6%	29.5%	22.6%	10.5%	14.9%	11.7%	5.3%

m. = male
f. = female
+ = significant (.01 < p < .05)
* = significant (p < .01)

Scheme 3. Percentage of variance explained in the Realized Probability of Dying (RPD)

subsample	(1)	(2^a)	(2^b)	$(2^b\text{-}2^a)$*
total	8.1%	19.1%	20.4%	1.4%
males aged 65-74	12.8%	20.9%	21.9%	1.2%
females aged 65-74	11.6%	19.3%	19.3%	0.0%
males aged 75+	13.9%	20.7%	23.1%	2.9%
females aged 75+	11.6%	22.5%	22.5%	0.0%
never married males	29.5%	30.1%	45.2%	15.1%
never married females	22.6%	25.8%	28.5%	2.7%
married males	10.5%	21.9%	22.8%	1.3%
married females	14.9%	24.1%	24.9%	0.8%
widowed males	11.7%	16.9%	17.7%	0.8%
widowed females	5.3%	20.0%	20.0%	0.0%

* The percentage listed in this column may be greater than the difference between those listed in column (2^b) and (2^a), because those marginally significant variables entering the regression model in (2^a) which were not correlated with any satisfaction variables, were ignored.

(1)　　in a regression model with the eleven satisfaction variables
(2^a)　　in a forward stepwise regression model with all predictors of the RPD except the satisfaction variables
(2^b)　　in a regression model with all predictors of the RPD to which the satisfaction variables are added in a forward stepwise manner
$(2^b\text{-}2^a)$　 minimal independent effect of the satisfaction variables.

Scheme 4.   Standardized regression coefficients[*] of those satisfaction variables with significant, independent effect on the Realized Probability of Dying (RPD) in a forward stepwise regression model controlling for other predictors of the RPD: total sample and subsamples. Dutch Longitudinal Study among the Elderly.

	total (n=2645)	ages 65-74 m. (626)	ages 65-74 f. (596)	ages 75+ m. (733)	ages 75+ f. (690)	never married m. (88)	never married f. (143)	married m. (823)	married f. (496)	widowed m. (437)	widowed f. (627)
Health											
1. perceived health decline	-.26;-.22	-	-	-	-	-	-	-	-	-	-
2. evaluation of aging		-.07	-.10	-.09	-	-.31	-	-.07	-	-	-
Social position											
3. income compared to age 60		-.05	-.09	-	-	-	-	-.08	-	-	-
4. evaluation retiring		-	-	-	-	+.23	-	-	-	-	-
5. acceptance work taken off hands		-	-	-	-	-	-	-	-	-	-
6. evaluation label of elder	--.08	-	-	-.64;-.57	-	-	-	-	-	-	-
Family relations											
7. relationship spouse		-	-	-	-	-	-	-	-	-	-
8. evaluation children living in		-	-	-	-	-	-	-	-.09	-	-
9. contact with children		-	-	-	-	-	-	-	-	-	-
Life as a whole											
10. value present life	-.05	-	-	-.11	-	-	-	-	-	-.09	-
11. evaluation life in retrospect	-.04	-	-	-	-	-	-.17	-	-	-	-
Total independent effect in variance explained	1.4%	1.8%	0.0%	2.9%	0.0%	15.1%	2.7%	1.3%	0.8%	0.8%	0.0%

m. = male
f.   = female
[*]   If the regression procedure selects the linear as well as the quadratic term of a variable, both standardized coefficients are listed.