

Antecedents and Effects of Wisdom in Old Age

A Longitudinal Perspective on Aging Well

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Using longitudinal data on 82 White, California women from the Berkeley Guidance Study, this study examines the relationship between wisdom (defined as a combination of cognitive, reflective, and affective personality qualities) and aging well and explores the early antecedents of wisdom. In structural equation models with latent variables, the social environment of early adulthood has a significant positive influence on wisdom over 40 years later, whereas mature personality characteristics during the early years of life and the quality of one's childhood exert no enduring effects. Wisdom in the later years has a positive effect on women's life satisfaction, physical health, and the quality of their family relationships. Hence, wisdom appears to be an important predictor of aging well.

Wisdom is often considered to be the pinnacle of successful human development because it comprises such positive qualities as ego integrity and maturity, judgment and interpersonal skills, and an exceptional understanding of life (Clayton 1982; Erikson 1963, 1964; Erikson, Erikson, and Kivnick 1986). Moreover, wisdom is a personal strength that is believed to increase rather than decline with age (Assmann 1994; Baltes and Smith 1990; Holliday and Chandler 1986; Kekes 1983). Yet, we know only a little about its determinants and effects (Sternberg 1990). How do people develop wisdom, and what are its benefits in old age?

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This study attempts to shed some light on the above questions through a longitudinal analysis of 82 White women from Berkeley, California, who were born around the turn of the century. The women were first interviewed in the 1930s during their early adulthood years and again in 1968-69 when they were between 59 and 81 years of age (Maas and Kuypers 1974). Using the same data set, an earlier study (Ardelt 1997) found that wisdom had a stronger impact on life satisfaction in old age than the objective conditions that elderly people encounter, such as physical health, socioeconomic status, financial situation, physical environment, and the extent of social relations. Based on the theoretical literature, wisdom was defined and operationalized as a combination of cognitive, reflective, and affective qualities of a person (Clayton and Birren 1980; Kramer 1990).

The *cognitive component* of wisdom refers to the ability to see the truth, that is, to perceive reality as it is and not as one wants it to be (Hart 1987; Maslow 1970). However, one can only arrive at this stage through the development of the *reflective component* of wisdom. That is, one needs to learn to become aware and ultimately transcend one's subjectivity and projections (Csikszentmihalyi and Rathunde 1990; Kramer 1990; Orwoll and Perlmutter 1990) by observing phenomena and events objectively from different perspectives without reacting to these events (Hart 1987). Reflective thinking decreases one's self-centeredness and enables one to see reality and oneself more clearly including the negative aspects of life and the complex and sometimes contradictory nature of human behavior (Clayton 1982; Csikszentmihalyi and Rathunde 1990; Labouvie-Vief 1990). While projections and unpleasant events often result in negative feelings such as depression, anger, or even hatred, wise individuals do not react with negative emotions toward these events. On the contrary, having overcome all their projections, reduced their self-centeredness, and gained a deeper insight into their own and others' motives and behavior, they are able to develop feelings of genuine empathy, sympathy, and compassion for others (Clayton and Birren 1980; Kramer 1990; Pascual-Leone 1990), which characterizes the *affective component* of wisdom. Defined in this way, wisdom describes a Weberian ideal type that may rarely exist in reality. However, even though not many people may be considered completely wise, it should be possible to assess how close individuals come to this ideal state.

The three dimensions of wisdom are not independent but, rather, reinforce each other, with the reflective component as the essential element. Conceptually, however, they are not identical. For instance, being able to see the truth is not the same as being compassionate. One realizes the truth after taking all possible perspectives into account, and one develops genuine sympathy and compassion for others after overcoming one's own projections, acknowledging other people's point of view, and realizing the deeper truth of the situation. Wisdom is a combination of all three components. If, for example, the affective component were missing, the construct would measure advanced cognitive functioning, not wisdom. As Vaillant (1993:158) remarks, "We can all imagine care without wisdom, but not wisdom without care." Similarly, without the cognitive component, the rational, analytical insights of a wise person would be missing, and without the reflective aspect, we might describe a sympathetic counselor who is unable to help him- or herself (Schmidbauer 1977).

The research presented here expands the 1997 study by examining early antecedents of wisdom and testing the effects of childhood and early adulthood measures on satisfaction with life during the later years. In addition, the influence of wisdom in old age on indicators of aging well other than life satisfaction is also investigated. Using linear structural relationship models with latent variables (Bollen 1989), the analyses test the hypotheses that wisdom in old age is the result of social and psychological resources and assets early in life and that wisdom has a positive effect on objective and subjective components of aging well.

Presently, not many studies exist that examine the antecedents and effects of wisdom. The literature review in the following sections is, therefore, not limited to research on wisdom but, rather, focuses on theoretical and empirical research on human development in general. Because of this, the present study is primarily exploratory in nature. It uses available longitudinal data to test whether childhood and early adulthood experiences are related to wisdom in old age.

Antecedents of Wisdom

Theoretical considerations and empirical findings suggest that a benign childhood favors the psychosocial development of a person (e.g., Erikson 1963; Heath 1991; Maslow 1970). A benign childhood

is characterized by an affectionate, emotionally supportive, and stable family environment. Such an environment tends to support and enhance mature personality traits, such as tolerance, open-mindedness, sincerity, equanimity, and self-confidence, that may facilitate the acquisition of wisdom. In contrast, unfavorable family conditions in childhood may have long-lasting damaging effects on the future development of a person, although these negative effects can be reduced by later events, such as a supportive relationship during adulthood (Allport 1961; Clausen 1993; Vaillant 1977, 1993).

Besides childhood experiences, the capacity to develop wisdom tends to depend on a person's social environment, which is defined as a combination of an individual's physical, cultural, and intellectual environments. The social environment of a young person is strongly related to the parents' socioeconomic status, which often determines the quality of the neighborhood, the schools that the children attend, and the intellectual climate in the family (Schneewind 1995). Kohn (1977) and Kohn and Schoenbach (1983) discovered that a positive relationship exists between an individual's socioeconomic status and the desire to lead a self-directed, autonomous life. Families that occupy a higher socioeconomic position in society are more likely than lower-class families to prefer a democratic parenting style that encourages the child's pursuit of autonomy, an open exchange of ideas, and his or her search for the deeper meaning of things and events—all of which are essential elements in the development of wisdom.

However, individuals are not merely passive receivers of environmental forces. According to interactionist theory, the subjective perception of the environment and the ability to adapt to given circumstances in a constructive way are more important in determining environmental effects on people's lives than the objective environment itself (Allport 1961; Bandura 1995; Johnson 1995). People with mature personality characteristics, as defined earlier, may be very successful in their quest for human development and the pursuit of wisdom even if they grew up in detrimental psychological and social environments (cf. Bandura 1995; Clausen 1993; Heath 1991).

Effects of Wisdom in Old Age

Erikson (1963, 1964) and Erikson et al. (1986) divided the life course into eight stages or developmental tasks. Wisdom is connected

to the resolution of the last crisis, integrity versus despair. Erikson (1964:133) considered wisdom as “detached concern with life itself in the face of death itself.” Wise elders are able to maintain the integrity of experience while simultaneously accepting physical deterioration and the nearing of death, which are both an integral part of old age (Assmann 1994; Baltes 1993; Ikels et al. 1995). They are assumed to be satisfied even under conditions of social and physical limitations because they understand the true nature of things and, therefore, can accept the negative aspects of life as well (Blazer 1991; Taranto 1989).

However, only few researchers have attempted to test the relationship between wisdom and aging well empirically. Baltes, Smith, and Staudinger (1992) showed that wisdom-related knowledge, or the cognitive aspect of wisdom, can compensate for the decline in mental capacity of the elderly, especially when confronted with problems that concern the “fundamental pragmatics of life.” Clayton (1982:315-16), who reviewed the results of some of the few studies about wisdom and life satisfaction in old age, came to the conclusion that “the older people who did possess wisdom did not begrudge loss of those people or things over which they could exert no control; they treated their infirmities with humor as well as medicine and exuded a contentment and peacefulness that drew the discontented to them.”

In an earlier study, Ardel (1997) found that wisdom had a higher impact on life satisfaction in old age than physical health, income, socioeconomic status, physical environment, or the extent of social relationships. It appears that objective conditions and events have in themselves relatively little influence on the life satisfaction and emotional well-being of individuals. Selected research suggests that the cognitive perception and appraisal of the situation affects older people’s sense of well-being more than objective circumstances (Colerick 1985; George 1990; Johnson 1995).

Theoretical Model

The theoretical model in Figure 1 proposes that a person’s situation in old age is affected by social and psychological resources and assets early in life (Maas and Kuypers 1974; Vaillant 1990). Individuals who experienced a benign childhood and a supportive social environment

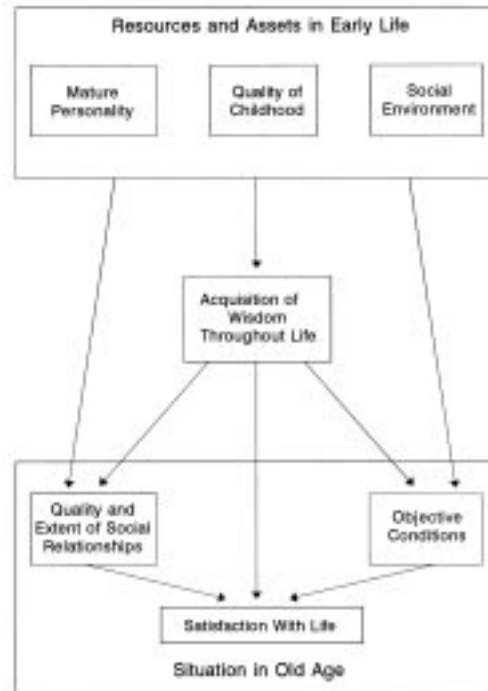


Figure 1: Theoretical Model

during childhood and early adulthood, and who were psychologically mature in early adulthood, are more likely to develop wisdom during the life course than persons who were relatively immature in their earlier years and were brought up in less favorable social and family environments.

These factors will not only impinge on an individual's likelihood to develop wisdom but are also assumed to have long-term consequences for the quality and extent of a person's social relationships and objective life conditions in old age (Austin 1991). These "objective" conditions consist of an older person's socioeconomic status, physical environment, financial situation, and physical health. They are objective in the sense that the individual cannot change these conditions in the short run. In the long run, however, those objective conditions are to a great extent the result of an individual's conduct and choices in life (Allmendinger, Brückner, and Sandell 1991).

Previous research has shown that social relationships and objective life conditions affect older people's subjective well-being (e.g., Antonucci and Akiyama 1991; Edwards and Klemmack 1973; Ikels et al. 1995; Larson 1978). However, it is hypothesized that wise elders will be satisfied with their lot even if their social relations and objective conditions are less than ideal. This hypothesis was partially tested and confirmed in previous analyses (Ardelt 1997), albeit without the inclusion of relationship quality as an independent variable. Because subjective well-being and social support are positively related (e.g., Antonucci and Akiyama 1991; Chappell 1995; Ducharme 1994), it may be that the influence of wisdom on life satisfaction is substantially reduced when relationship quality is added to the model. Despite this possibility, it is expected that wise older people experience satisfaction and a sense of fulfillment in old age independent of their cultural, social, and personal circumstances because they are able to accept their life as it is (Hart 1987; Thomas 1991). If this hypothesis is true, it would explain why there is a less than perfect relationship between objective conditions and life satisfaction among the elderly (George and Clipp 1991; Larson 1978).

In addition, the acquisition of wisdom may have a positive impact on people's social relationships and, to a lesser extent, their objective life conditions. The affective component of wisdom, which represents sympathy and compassion for others, and the positive personality transformation that presumably accompanies the emergence of wisdom are likely to have a favorable impact on the quality of social relationships (Clayton and Birren 1980; Csikszentmihalyi and Rathunde 1990; Kramer 1990; Pascual-Leone 1990). Although it is not guaranteed that a wise person will always be of high socioeconomic status and spend his or her old days wealthy and in excellent physical health, the emergence of wisdom may at least prevent people from ruining their financial situation and their health.

To summarize, this study tests the following three hypotheses:

Hypothesis 1: A benign childhood, a favorable social environment, and mature personality characteristics during the early years of life will have a positive influence on a person's degree of wisdom in old age.

Hypothesis 2: The acquisition of wisdom may improve one's objective life conditions in the long run. However, it is expected that wisdom in old age has a stronger influence on the quality of people's social rela-

tionships than on their socioeconomic status, physical environment, financial situation, physical health, or the extent of their social relations.

Hypothesis 3: Wisdom has a stronger impact on life satisfaction in old age than social relationships and objective life conditions.

Method

SAMPLE

The sample consists of 82 women from the Berkeley Guidance Study who participated in the 1968-69 follow-up (Eichorn 1981; Maas and Kuypers 1974). Originally, 248 families took part in this study, which was initiated in 1928 by Jean Walker Macfarlane to investigate early personality development of children. The original participants were selected from a socioeconomic survey of every third birth in Berkeley between January 1, 1928, and June 30, 1929 (Eichorn 1981). The families were interviewed at the beginning of the project in 1928-29, periodically during the following 18 years, and again in 1968-69 when they were between 59 and 81 years of age as part of a 40-year follow-up study conducted by Maas and Kuypers (1974). By 1968-69, 92 families had refused to continue with the study and 34 women had died. Forty women were lost for a variety of other reasons (Maas and Kuypers 1974). About half of the original sample were control families for which only basic data were collected. Because of this, some of the variables assessed during the respondents' early adulthood years contain a high percentage of missing cases (see Appendix A).

Among the men, sample attrition was so severe that only 39 participated in the 1968-69 study. Male widowers were excluded from the sample by the original investigators because of methodological reasons (Maas and Kuypers 1974); in the present analyses, however, it would have been preferable if they had been included. The decision to exclude male widowers results in a sample in which all male respondents are married to a female sample member. This means that men and women are not statistically independent from each other, and autocorrelation across spouses may occur if the male and female subsamples are analyzed together. Because of the small sample size for the men and the more elaborate analyses in this study compared

with the previous research (Ardelt 1997), only the analyses performed for the women are reported.

PROCEDURE

At the beginning of the research project, the participating women were repeatedly interviewed about the development of the study child after an initial assessment of their socioeconomic and family backgrounds (Macfarlane 1966). These semistructured interviews, which sometimes lasted for more than three hours, serve as the major source of information for respondents' quality of childhood, mature personality characteristics in early adulthood, and social environment during their early years of life.

In 1968-69, the respondents who participated in the 40-year follow-up study were interviewed about various areas of living, such as work and retirement, parenting, marriage, friendship, health, and so on (Maas and Kuypers 1974). During the average four-hour visit, the clinically experienced interviewers took observational notes (e.g., on the quality of the neighborhood and the residence) and made clinical inferences about the respondent (e.g., salient personality characteristics and coping with the aging process). Each interview was tape-recorded and later transcribed verbatim.

All variables that are used in this study are based on ratings made by clinically trained coders at the time of the interviews. All raters belonged to the staff of the Institute of Human Development in Berkeley. At least two trained judges rated the 1968-69 interviews, whereas some of the 1930s measures are based on single ratings by Macfarlane, the longtime director of the Berkeley Guidance Study (Maas and Kuypers 1974). Interrater reliability ranges from .48 for congruence between desired and achieved goals to the high nineties for satisfaction with different areas of life, quality and extent of social relationships, and objective conditions in old age.

MEASUREMENTS

The measures of life satisfaction, wisdom, and objective conditions in old age are identical to those in an earlier study (Ardelt 1997). Hence, only summary information on these measures is presented.

The latent variable life satisfaction in old age is measured by three separate indicators: satisfaction with different areas of life, satisfaction with one's lot, and congruence between desired and achieved goals.

Satisfaction with different areas of life is the average of 9 to 12 rated domains (e.g., respondent's satisfaction with home, neighborhood, current marriage, financial situation, soma/health, etc.), with a score ranging from 0 (dissatisfaction is equal to or stronger than satisfaction in all areas) to 1 (satisfaction outweighs dissatisfaction in all areas). Satisfaction with one's lot is a single item originally constructed by Caroline McCann Tryon (Maas and Kuypers 1974), with a score that ranges from 1 (*nothing satisfactory; conditions in home and circumstances generally in no way measure up to drives, desires, etc.*) to 7 (*"cup running over"; completely pleased; smug; satisfied*). Congruence between desired and achieved goals is based on the Life Satisfaction Rating Scale developed by Neugarten, Havighurst, and Tobin (1961). The scale scores range from 1 (*feels she has missed most opportunities in life*) to 5 (*feels she has accomplished what she wanted to do; has achieved or is achieving her own personal goal*). The correlations between the three life satisfaction indicators range from .38 to .53.

Wisdom in old age is operationalized as a latent variable with cognitive, reflective, and affective effect indicators (Ardelt 1997). The items used to construct the three indicators of the latent variable wisdom were selected at face validity from Haan's (1969) Ego Rating Scale and the California Q-sort deck (Block and Haan 1971). For the Ego Rating Scale and the Q-sort items, the average interrater reliability is .51 and .62, respectively.

The cognitive component of wisdom is operationalized as the cognitive skills that are necessary for the discovery of truth. The index is a combination of one Q-sort item ("Is able to see to the heart of important problems") and four items from the Ego Rating Scale (objectivity, intellectuality, logical analysis, and concentration). The scores of the Ego Rating Scale range from 1 (*minimal or absent*) to 5 (*strongly present or high*), whereas the Q-sort scores range from 1 (*most characteristic of the person being judged*) to 9 (*most uncharacteristic of the person being judged*). Hence, the items from the Ego Rating Scale are first transformed into scores ranging from 1 to 9 before all items are

averaged. The same procedure is followed for the reflective and affective indexes.

The reflective component of wisdom is the mean of three items from the Ego Rating Scale and six items from the Q-sort (e.g., tolerance of ambiguity; no projection; has insight into own motives and behavior). It measures the extent to which a respondent exhibits a reflective, insightful behavior and avoids subjectivity and projections. The last index, the affective component of wisdom, is operationalized as the presence of positive and the absence of negative emotions and behavior toward others. It is computed as the average of one Ego Rating Scale item, empathy, and 10 Q-sort items (e.g., has warmth, is compassionate; behaves in a sympathetic or considerate manner; has no hostility toward others).

Complete information on all the items is available for 69 sample women. For those respondents, Cronbach's alpha is .88, .86, and .93, respectively, for the cognitive, reflective, and affective components of wisdom. To prevent the loss of almost 16% of all cases from the analysis, the average of all valid items is taken to construct the wisdom indexes. The same procedure is followed for the remaining measures. The correlations between the three wisdom indicators range from .55 to .81, which is almost identical to the correlations for the reduced sample. Because linear structural relationship models use covariances or correlations as input rather than the values of the individual cases, it is unlikely that the coefficient estimates will be considerably affected as a result of this procedure.

Two indexes are constructed to measure the social environment during a person's early years of life: the social environment of the respondent's family of origin and the respondent's own social environment during early adulthood.

The social environment of the respondent's family of origin is measured by the following items: usual occupation of father (Hollingshead code), with scores ranging from 1 (*unskilled employee*) to 7 (*higher executive; proprietor of large concern; major professionals*); usual occupational status of mother, ranging from 2 (*farm labor—low status*) to 6 (*white-collar professional*); education of mother and father (Hollingshead code), ranging from 1 (*less than seven years of school*) to 7 (*professional training*); and intellectual interests of the parents, ranging from 1 (*few intellectual interests*) to 5 (*many intellectual interests; much intellectual drive*). The occupational status of the 74

mothers who were “housewives” is coded as missing. The items occupation of mother and intellectual interests of parents are transformed into scores of 1 to 7 before the average of all nonmissing items is taken. The respondent’s own social environment during early adulthood is computed as the average of four items: own education and education of husband (Hollingshead code), occupation from 1930 to 1935 (Hollingshead code), and husband’s occupation in 1929 (Hollingshead code). For 58 women who did not hold a job during 1930-35, the index is an average of three rather than four items.

Quality of childhood is measured by three latent variables: positive family relations, psychological health of the respondent’s mother, and psychological health of the respondent’s father.

The four indicators of the latent variable positive family relations are happiness of family life, with scores ranging from 1 (*generally unhappy*) to 3 (*generally happy*); marital adjustment of parents, ranging from 1 (*extreme conflict*) to 5 (*exceptionally happy adjustment*); and expressions of affection on the part of the respondent’s father and mother, ranging from 1 (*never demonstrative; shut-in emotionally*) to 5 (*very demonstrative to family, relatives, and friends*). The psychological health of the respondent’s parents is assessed by three 5-point items, rated separately for mothers and fathers: nervous stability (1 = *psychotic episodes or equivalent*, 5 = *markedly above average*), absence of irritability (1 = *very quickly irritable or explosive*, 5 = *extremely even tempered; never irritable*), and not tense or worrisome (1 = *extremely worrisome; agitated*, 5 = *relaxed*). With the exception of happiness of family life, all of the items used to measure quality of childhood are based on single ratings by Macfarlane in 1932. Cronbach’s alpha is .75 for positive family relations, .77 for psychological health of the mother, and .52 for psychological health of the father.

The latent variable mature personality characteristics during the early years of life (around 1930) is measured by two indicators: equanimity and absence of anxiety. Equanimity is the average of three items (nervous stability, absence of irritability, and no restlessness), and absence of anxiety is the average of two items (not tense or worrisome and no worry). Nervous stability, absence of irritability, and not tense or worrisome are assessed in the same way as the psychological health items of the respondent’s parents (see above). For those items, interrater reliability (Pearson’s *r*) varies between .56 and .66. No

restlessness ranges from 1 (*cannot stand or sit still with self-possession*) to 7 (*complete absence of restlessness*), and no worry ranges from 1 (*constant undertone of anxiety*) to 7 (*no worries*). No interrater reliability is available for these two items. The score of each index is computed by taking the average of all nonmissing items after all items are transformed into 5-point scales. The reliability coefficient alpha is .81 for equanimity and .78 for absence of anxiety. The correlation between these two indicators of the latent variable early maturity is .73.

To study the quality of the family relationship, in the 1968-69 interview the respondents were asked about their relationships with the study child, their siblings, and their spouse. Six items are used to construct this variable: current relationship with study child, relationship with closest sibling, marital relationship closeness, mutual instrumental support in marriage, openness of communication between spouses, and marital adjustment. All items are coded as dichotomous variables, with 1 indicating a relationship that is above average and 0 indicating all other types of relationships. The data do not allow us to distinguish between average and below-average relationships. For an equal weighting of the three different relationships, the four marital relationship items were first averaged. This mean was then averaged with the remaining two items. Only items that are valid for an individual respondent are averaged, so that the resulting index represents the respondent's quality of the relationship with close family members. Its score varies between 0 (low relationship quality) and 1 (high relationship quality).

The respondent's objective conditions in old age are measured by six different variables: age (in years), physical health, socioeconomic status, financial situation, physical environment, and the extent of the respondent's social relationships.

Physical health is constructed as the simple average of five 3-point items: general health (compared with same-age others), present health (illness proneness), energy level, enduring disabilities, and degree of disablement. The resulting index varies from 1 (*below average*) to 3 (*above average*).

Socioeconomic status is a composite of education, ranging from 1 (*less than 12 years; no high school diploma*) to 3 (*college degree and/or beyond into graduate study*), and longest held occupation, ranging from 1 (*laborer, skilled or unskilled*) to 5 (*professional worker*). The

two items are averaged after the first item is transformed into a score from 1 to 5.

The financial situation is assessed by a single variable, ranging from 1 (*average financial strain or below*) to 3 (*affluence*). Physical environment is the sum of three binary items—neighborhood status, home status, and residence type—with a score of 1 (superior; resides in a one-family home owned by respondent) and 0 (all other), resulting in a possible range of the index from 0 (*average and below*) to 3 (*superior in all respects*).

The extent of the respondent's social relationships is measured as the simple average of four 3-point items: frequency of being visited and frequency of visiting (1 = *once a month or less*, 3 = *more than once a week*), frequency of attending (most frequent) formal group (1 = *less often than once or twice per month*, 3 = *about once or more per week*), and number of "people important to me" (1 = *one to ten*, 3 = *more than 20*). The closer the value of the index is to 3, the more socially active the respondent is.

A summary of all measurements and their statistical properties is given in Appendix A. Because the number of items varies for some of the measures, column 2 displays the minimum number of items that is used to construct this measure together with the number of affected respondents in parentheses. Conversely, column 3 shows the number of respondents (in parentheses) with the maximum number of items for this measure. As can be seen in Appendix A, skewness, kurtosis, and the reliability coefficients for the individual measures are all within the acceptable range.

ANALYSIS

The data were analyzed using a maximum likelihood estimation procedure in LISREL VII (Bollen 1989; Jöreskog and Sörbom 1988). Whenever possible, variables and effect indicators were constructed as the average of several items to increase their measurement reliability. Furthermore, to measure the latent variables, confirmatory factor analyses in LISREL were applied that specifically took measurement error into account (Bollen 1989).

Because the sample size is relatively small, the analysis was divided into several parts to keep the number of parameters to be estimated at a minimum (Tanaka 1987). First, confirmatory factor

analysis was applied to test whether the individual indicators represented the latent variables sufficiently well. The results of these analyses were used to compute estimates of the latent constructs, which were introduced as single indicators for the latent variables in more complex models. Then, each part in Figure 1 was analyzed separately. All variables that were not statistically related to either wisdom or life satisfaction in old age were removed from the model ($p > .10$), and all insignificant path coefficients were set to zero before the complete model was tested.

Sample attrition in the 40-year follow-up study may threaten the internal validity of the results if it leads to truncated dependent variables (Berk 1983). However, if only the independent variables in a linear relationship are censored or all variables that may be responsible for the selection bias in the dependent variable are controlled in the substantive equation, the coefficient estimates will still be consistent and unbiased (Achen 1986). In the following analyses, Heckman's two-step estimator, a maximum likelihood estimation procedure, and a sample selection equation that includes the age, income, and social environment in early adulthood variables are used to test whether personality characteristics, childhood quality, and the social environment during women's early years of life are sufficient to "explain" most of the sample selection bias in the 1968-69 survey (Greene 1991).

Results

MEASUREMENT MODELS

Confirmatory factor analyses in LISREL are performed to determine how well the indicators represent the latent concepts wisdom, life satisfaction, positive family relations in childhood and adolescence, psychological health of mother and father, and mature personality characteristics in early adulthood. The models fit the data well as indicated by nonsignificant χ^2 values, all factor loadings are statistically significant, and none of the standardized factor loadings is smaller than .53. The measurement errors of the cognitive and reflective components of wisdom and the reflective and affective components of wisdom are statistically related to each other due to an overlap in measurement instruments. For further details on the measurement models

of wisdom and life satisfaction in old age and on the theoretical and empirical differences between these two constructs, see Ardelt (1997).

The latent variables mature personality characteristics in early adulthood, wisdom, and life satisfaction in old age are measured by a single indicator (their factor score estimates) whose measurement error is fixed to a value greater than zero. The LISREL solutions from the confirmatory factor analyses are used to estimate the values of the latent variable by regressing the estimate of the latent variable on a weighted function of its indicators (Bollen 1989). The resulting factor score estimates form an estimate of the latent variable, which are included as a single indicator for the “true” latent variable together with an estimate of its measurement error in the following models. The equations that were used to calculate the factor score estimates are reported in Appendix A. The measurement error of each single indicator was calculated by using the reliability of the latent variable estimate, which is the square of the correlation between the factor score estimates and the “true” latent variable obtained from the confirmatory factor analysis.

Because of the high percentage of missing cases for the indicators of the latent variables positive family relations, psychological health of mother, and psychological health of father (see Appendix A), the simple average of all nonmissing items per latent variable rather than the factor score estimates will represent these latent variables. The reliability of the factor score estimates was used to calculate the error variance of each single indicator per latent variable.

The bivariate correlations of all variables are displayed in Appendix B. The correlations were obtained through analyses of several structural equation models. Each latent variable is represented by a single indicator (either its factor score estimate or the simple mean of all nonmissing items) with a fixed error variance (for more details, see the note in Appendix B).

The individual hypotheses were first tested separately to eliminate any variables or path coefficients from the final model that were not statistically related to the two dependent variables of interest: wisdom and life satisfaction in old age.

TABLE 1
 Effects of Resources and Assets Early in Life (early 1930s) on Wisdom
 in Old Age (in 1968-69) (maximum likelihood parameter estimates)

<i>Independent Variable</i>	<i>Wisdom in Old Age</i>		
	<i>Unstandardized Effects</i>	<i>Standardized Effects</i>	<i>t</i>
Maturity in early adulthood	.13	.10	0.41
Social environment in early adulthood	.25**	.54	2.51
Social environment in childhood	-.07	-.12	-0.55
Positive family relations in childhood	.03	.04	0.14
Mother's psychological health in childhood	-.09	-.11	-0.36
Father's psychological health in childhood	-.15	-.13	-0.43
<i>n</i> = 49			
<i>R</i> ² = .24			

* $p < .10$. ** $p < .05$. *** $p < .01$.

EARLY ANTECEDENTS OF WISDOM IN OLD AGE

Hypothesis 1 states that a benign childhood (assessed as positive family relations during childhood and adolescence and the psychological health of the respondent's father and mother), a favorable social environment during childhood and early adulthood, and mature personality characteristics during the early years of life increase the likelihood of developing wisdom and, therefore, have a positive effect on an individual's level of wisdom in old age.

Only 49 women remain if all these variables are included in a structural equation model with a listwise deletion of cases. The variables that are most responsible for this major loss of cases are the psychological health measures of the respondent's parents, which are not available for at least 29 women from the control sample. Because of this, analyses were conducted with and without these variables to determine whether wisdom in old age was affected by the psychological health of the respondent's parents and how stable the effects of the other variables would be if the impact of parents' psychological health were removed from the model and additional cases added. Finally, a third model was tested that excluded positive family relations from the analysis to gain an additional five cases. However, the results of the three structural equation models are relatively stable despite varying

TABLE 2
 Predictors of Life Satisfaction in Old Age (in 1968-69)
 (maximum likelihood parameter estimates)

<i>Independent Variable</i>	<i>Life Satisfaction in Old Age</i>					
	<i>Model 1</i>			<i>Model 2</i>		
	<i>Unstable</i>	<i>Stable</i>	<i>t</i>	<i>Unstable</i>	<i>Stable</i>	<i>t</i>
Measured in the early 1930s						
Maturity in early adulthood	.57**	.52	2.39			
Social environment in early adulthood	.17*	.40	1.94			
Social environment in childhood	-.06	-.13	-0.71			
Positive family relations in childhood	.02	.03	0.13			
Mother's psychological health in childhood	-.11	-.14	-0.57			
Father's psychological health in childhood	-.31	-.28	-1.12			
Measured in 1968-69						
Wisdom in old age	.49***	.54	2.98	.62***	.74	5.56
Quality of social relations in old age				-.03	-.02	-0.15
Extent of social relationships in old age				.16	.11	1.08
Age				-.03**	-.22	-2.03
Physical health in old age				.06	.06	0.54
Socioeconomic status in old age				.03	.05	0.42
Financial situation in old age				.31***	.42	3.28
Physical environment in old age				-.07	-.14	-1.11
<i>n</i>		49			81	
<i>R</i> ²		.74			.79	

* $p < .10$. ** $p < .05$. *** $p < .01$.

numbers of cases. Hence, only the most comprehensive model with all variables included is shown in Tables 1 and 2.

As predicted, respondents' social environment in early adulthood has a significant positive effect on their degree of wisdom in old age. But contrary to Hypothesis 1, all other variables in the model are unrelated to wisdom in the later years of life (see Table 1).

To test for sample selection bias, a sample selection equation was constructed with the independent variables family income in 1929, social environment in early adulthood, and age. The sample selection equation contains 206 cases. The statistical program LIMDEP (Greene 1991) was used to correct for sample selection bias in the

substantive equations. Because LIMDEP does not take measurement error of the latent variables into account, the corrected results could not be directly compared to the LISREL solution in Table 1. Instead, the corrected estimates were compared to ordinary least squares (OLS) regression coefficients. However, the LISREL and OLS estimates are remarkably similar.

The corrected coefficient estimates suggest that the positive impact of social environment in early adulthood on wisdom in old age may not be statistically significant or at least relatively unstable in its size. Therefore, a substantial interpretation of these results cannot be conclusive until further research is conducted.

PREDICTORS OF LIFE SATISFACTION IN OLD AGE

The theoretical model in Figure 1 postulates that none of the resources and assets in early life will affect life satisfaction in the later years directly if the older person's wisdom, quality and extent of social relationships, and objective life conditions in old age are held constant. The analyses in Table 2 show that mature personality characteristics and a favorable social environment in early adulthood have a significant positive impact on life satisfaction in old age even after controlling for wisdom in the later years. The path analysis in the next section tests whether these effects remain significant when other old age variables are held constant.

Hypothesis 3 predicts that wisdom will have a stronger impact on life satisfaction in old age than social relations and objective life conditions. Age is entered as an additional control variable because life satisfaction may be impaired by age-related limitations and a general decline of one's abilities that are not captured by the other independent variables in the model.

The results are similar to those obtained in a previous study (Ardelt 1997), even though quality of family relations was added to the model. In fact, for this particular sample, relationship quality is not significantly correlated with life satisfaction in old age (see Appendix B). Besides wisdom, only the financial situation has a positive significant effect on subjective well-being when all other variables in the model are held constant (see Table 2). Age, by contrast, has a significant negative effect on women's satisfaction with life. Overall, 79% of the

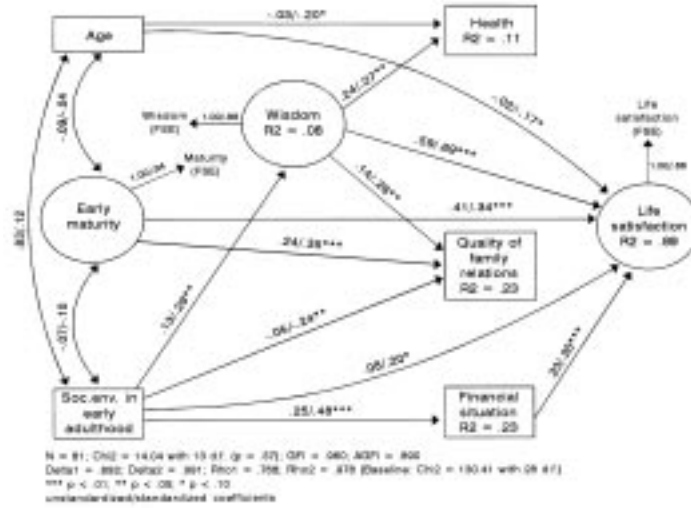


Figure 2: Final Version of Path Model (unstandardized and standardized maximum likelihood parameters)

variation in life satisfaction can be explained by the independent variables in the model.

Although the bivariate correlations between women’s objective circumstances, including extent of social relationships, and life satisfaction in old age are significant (see Appendix B), the positive impact on life satisfaction disappears when wisdom is held constant. The only exception is women’s financial situation, which still exerts a positive influence on life satisfaction in old age.

To test for sample selection bias, the sample selection equation in the previous section was used. With wisdom and early resources and assets as predictors of life satisfaction in old age, no sample selection bias could be detected. But for model 2 in Table 2, a sample selection bias is likely. However, the corrected coefficient estimates are similar to the OLS estimates. The only difference is that age does not have a statistically significant effect on life satisfaction in the corrected solutions. Hence, it is not likely that sample selection bias distorted the results for this part of the model.

ANTECEDENTS AND EFFECTS OF WISDOM IN OLD AGE

The final model in Figure 2 derives from the models shown in Tables 1 and 2 and other preliminary analyses similar to model 1 in Table 2. All variables that were unrelated ($p > .10$) to wisdom and life satisfaction in old age in those previous analyses were eliminated, and all insignificant paths ($p > .10$) were set to zero in a stepwise procedure. At each step, the coefficient with the smallest t value was fixed to zero. This procedure was repeated until all remaining parameter estimates were statistically significant with a t value of at least 1.645 ($p < .10$).

The model in Figure 2 fits the data well, $\chi^2(13) = 14.04, p = .37$. The overall fit measures indicate a satisfactory model fit, specifically Δ_2 and ρ_2 , which are more appropriate for small samples (Bollen 1989). Taken together, the independent variables in the model explain 89% of the variation in life satisfaction in old age.

Age has a negative impact on physical health and life satisfaction, whereas women's mature personality characteristics in early adulthood have a significant positive effect on satisfaction with life 40 years later, even when the other variables in the model are held constant. A favorable social environment in early adulthood increases women's life satisfaction in old age directly and indirectly through their wisdom and financial situation in later life. The unstandardized total indirect effect of social environment in early adulthood on life satisfaction in old age is highly significant ($t = 3.21$) and even higher than its direct impact (indirect effect = .14, direct effect = .08).

Are these relationships the same for all women or do they differ for those who gained social and psychological independence in life through a successful career? Additional analyses reveal that the total effect of early social environment on wisdom and life satisfaction in old age and the impact of early maturity on life satisfaction are considerably weaker and not statistically significant for the 24 women whose longest held occupation was a higher status job (i.e., small-business owner, supervisor, teacher, executive, or professional). For the other 57 women, in contrast, these effects are much stronger and remain highly significant.

Social environment in early adulthood has a negative direct effect but a positive indirect effect (mediated by wisdom) on the quality of respondents' family relations in old age. The total unstandardized

coefficient is $-.04$, which is not statistically significant. Furthermore, early maturity significantly increase the quality of women's family relationships in old age.

As in Table 1 and contrary to Hypothesis 1, resources and assets in childhood and early adulthood do not appear to affect respondents' degree of wisdom in old age. The only exception is the positive impact of the social environment in early adulthood. It should be noted, however, that wisdom is unrelated to older women's socioeconomic status, financial situation, and physical environment even though these variables are highly correlated with social environment in early adulthood (see Appendix B). The latter variable may indeed capture respondents' social, cultural, and intellectual climate during the early adult years rather than merely measure their socioeconomic position in society.

Hypothesis 2 is partly corroborated by the data. Wisdom has a positive influence on physical health and the quality of women's family relationships but was unrelated to other objective life conditions. In accordance with Hypothesis 2, the standardized effect of wisdom on the quality of family relationships was stronger than its effect on socioeconomic status, physical environment, financial situation, or extent of social relations, but contrary to Hypothesis 2, the impact of wisdom on physical health was almost identical to its effect on relationship quality.

As stated in Hypothesis 3, wisdom has a stronger impact on life satisfaction than any other variable in the model. But does wisdom really improve life satisfaction, or could it be that life satisfaction is a prerequisite for developing wisdom? It may be that only those older people who are satisfied with their life, are healthy, and have positive family relationships feel self-confident and well enough to begin the quest for truth, to look at phenomena and events from different perspectives, and to develop sympathy and compassion for others. To test this hypothesis, the arrows between wisdom and the variables health, quality of family relations, and life satisfaction were reversed in the model. The alternative model does not fit the data well ($\chi^2 = 34.90$, $p = .001$, goodness of fit index [GFI] = .910, adjusted goodness of fit index [AGFI] = .750). Moreover, the effects of physical health and quality of family relations on wisdom are not statistically significant and the modification indexes of the eliminated effects are high, ranging from 4.84 for the impact of wisdom on family relations to 12.19 for the

effect of wisdom on life satisfaction. (The higher the modification index, the higher is the probability that the eliminated effect is statistically significant.)

Because the effect of life satisfaction on wisdom was statistically significant, another model was tested with only the arrow between wisdom and life satisfaction reversed. Again, this model fails to fit the data well ($\chi^2 = 27.10$, $p = .012$, GFI = .935, AGFI = .820). Although the effect of life satisfaction on wisdom was statistically significant, the modification index for the reverse effect was 8.63. By contrast, the modification index for the effect of life satisfaction on wisdom in Figure 2 was only 0.10. While these analyses cannot prove the directionality of the effects due to the cross-sectional nature of the 1968-69 data, they do indicate that the proposed model in Figure 2 is more compatible with the data at hand than the other two models tested.

Discussion

This study attempted to answer the following questions: What are possible antecedents of wisdom in old age? How does the acquisition of wisdom affect people's well-being during their later years of life? It was hypothesized that a benign childhood, mature personality characteristics in early adulthood, and a supportive social environment during childhood and early adulthood would have a positive impact on a person's degree of wisdom in old age. As it turned out, only a supportive social environment in early adulthood had a significant influence on wisdom over 40 years later, and even this effect was relatively unstable. In a sense, this is good news: Psychosocial and spiritual development in later life is not necessarily determined by the quality of one's childhood or personality characteristics in early adulthood. Whereas some researchers have claimed that personality characteristics are relatively stable (e.g., Costa and McCrae 1980; Costa, McCrae, and Arenberg 1983; Siegler, George, and Okun 1979), the present study shows that individuals can and do change over the course of their lives (Clausen 1993; Haan 1981; Moss and Susman 1980). In fact, in this study early maturity is not significantly related to maturity in old age, which was measured in a similar manner (Ardelt 1994). As theoretically predicted, old age maturity is so highly correlated with wisdom

(.89) that it could not be included in the model as a separate predictor of life satisfaction.

The analyses revealed that a favorable social environment and mature personality characteristics in early adulthood tended to improve women's satisfaction with life in the later years even if the social and psychological situation of the elderly respondents was held constant. Furthermore, early maturity had a positive influence on women's family relations in old age. The long-term effect of the social environment might be explained by the fact that respondents' socioeconomic status was relatively stable across the life course (see Appendix B) and that people from a higher socioeconomic status are generally found to be more satisfied with their lives (e.g., Allmendinger et al. 1991; Chatfield 1977; George 1990; Larson 1978). However, it is surprising that mature personality characteristics in early adulthood have a positive influence on life satisfaction and relationship quality in old age but are unrelated to wisdom. This suggests that a benign personality disposition during the early years of life can have long-lasting positive influences on people's subjective well-being throughout life up to old age independent of their current degree of wisdom.

However, the impact of the social environment and mature personality characteristics in early adulthood on respondents' situation in old age was by far more important for those women who were primarily employed in lower status jobs or did not become a member of the paid labor force. It is possible that higher occupations liberate individuals from social constraints in childhood and early adulthood by providing them with the opportunity for further psychological growth.

Another hypothesis of this study was that wise individuals age more successfully than people low on wisdom. The analyses suggest that this is indeed the case. On the average, wise elderly women were not only more satisfied during their later years of life, they also tended to be healthier and to have better family relationships than women with a lower degree of wisdom. Furthermore, wisdom had a higher impact on life satisfaction than social relations or objective life conditions. As in an earlier study (Ardelt 1997) and with the exception of financial situation, the influence of objective life conditions and social relations on life satisfaction was not statistically significant when wisdom was included in the model, even though the bivariate correlations between life satisfaction and objective conditions, including extent of social relations, were significant. This suggests that models that

exclude psychosocial and developmental variables as predictors of life satisfaction in old age may be seriously misspecified.

The findings do not necessarily imply that situational and contextual factors are unimportant in determining a person's psychological well-being during the later years of life. Clearly, the objective situation cannot be ignored in assessing a person's well-being. Basic physical and psychological needs have to be met in order for a person to be satisfied (Cantril 1965; Ikels et al. 1995). But this is only a necessary and not a sufficient condition for emotional well-being, since the opposite is not true (cf. Maslow 1971). The impact of objective conditions and social relationships on life satisfaction in old age often depends on the general circumstances, vulnerabilities, and strengths of an individual, whereas wisdom is likely to increase life satisfaction for all elderly persons (Ardelt 1997). As a consequence, public policies that attempt to enhance the well-being of older people by improving their objective life conditions are probably less successful than policies that also promote the psychosocial development of individuals, starting as early in life as possible and continuing up to old age. For example, reflexive thinking may be taught as early as in kindergarten through role-playing games and by teaching children to see another person's point of view. In old age, a guided life review may help individuals to come to terms with their past and to give and seek forgiveness (Bianchi 1994; Butler 1974).

People who are able to perceive a deeper and more comprehensive truth, have transcended their subjectivity and projections, and reduced their self-centeredness enough to feel sympathy and compassion for others will ultimately have a positive influence on society through their connection with other individuals (Csikszentmihalyi and Rathunde 1990; Orwoll and Perlmutter 1990). In this study, wise women were more likely than women with a low degree of wisdom to have better social relations with other family members. In addition to helping themselves, it seems that wise persons help others through their advice, actions, and positive examples (Bianchi 1994; Kramer 1990). Hence, instead of being a burden for younger generations, wise older people could be an invaluable asset for society by guiding the young. This is the method that was traditionally followed by ancient societies (Assmann 1994; Clayton and Birren 1980). Although a wise person is more likely to be old, we found no indication that wisdom automatically increases with age (cf. Baltes and Smith 1990; Kekes

1983). The relationship between wisdom and age may be stronger in societies where general life expectancy is much lower. As Labouvie-Vief (1990:79) remarked, "In past societies the old may well have constituted a more strongly selected subgroup in which wisdom proved related to longevity."

Modern medicine and better living conditions have made it possible for people to live longer lives. Growing old is no longer a privilege of a small elite. But finding satisfaction and fulfillment in the later years is still an exception rather than the norm. The next important task of society should be that of helping people to prepare for old age not just physically but also emotionally by promoting the development of wisdom (Manheimer 1992).

LIMITS AND WEAKNESSES OF THE STUDY

Several caveats should be mentioned that are related to the specific characteristics of this longitudinal study. First, the sample size is relatively small. The longitudinal sample consists of only 82 women. Many of the statistical tests and the maximum likelihood estimation procedure in LISREL are based on large-sample theory, and the statistical properties for smaller samples are not known. However, by dividing the analyses into several parts and using the factor score estimates of the latent variables in the models, we kept the number of parameters to be estimated relatively small.

Second, the sample is not representative of elderly women in the United States born around the turn of the century. The original sample included only White, middle-class families with children from Berkeley, California, and respondents who participated in the 40-year follow-up study were healthier, financially better off, and of higher socioeconomic status than the nonparticipants at the beginning of the study (Maas and Kuypers 1974). One obvious solution to this problem is to restrict all empirical generalizations to the population that the original sample represents. However, a selection bias can affect not only the external but also the internal validity of the results. Previous research has shown that truncated dependent variables can cause biased and inconsistent estimates (Berk 1983). In this study, Heckman's two-step estimator and a maximum likelihood estimation procedure were used to test whether sample selection bias was a problem (Greene 1991). There was no indication of sample selection bias in the

models with life satisfaction as the dependent variable, except for the negative effect of age on satisfaction with life. However, the positive effect of women's social environment in early adulthood on wisdom in old age may partly be affected by sample selection bias.

Third, because the original studies pursued different research objectives, the indicators and variables are not always ideal. For example, there may be better ways to measure the latent variables wisdom and mature personality characteristics, but unfortunately the items that were available to construct the indicators were limited. Similarly, the variable quality of social relations had to be restricted to the family, since the study did not assess the quality of respondents' friendships.

Fourth, contrary to the theoretical model, the items that were used to measure the three dimensions of wisdom were only assessed in 1968-69. Still, it is generally assumed that wisdom in old age is the pinnacle of successful human development across the life span rather than a quality that suddenly emerges during a person's postretirement years (Assmann 1994; Clayton 1982; Erikson et al. 1986; Sternberg 1990). Although it would have been ideal to analyze the development of wisdom throughout life, this is not possible in the present data set. It may be that quality of childhood and maturity in early adulthood influence the acquisition of wisdom in early adulthood, and that a person's degree of wisdom during the early years of life has a positive impact on his or her wisdom during the middle years. This in turn may increase his or her wisdom in old age. To investigate this hypothesis, we need longitudinal data that measure a person's degree of wisdom at different points in the life course.

For all the reasons just cited, these data are less than ideal. Yet, this is a unique data set for other reasons. It is one of very few data sets that include a wide-ranging assessment of psychological and social characteristics collected over a time span of 40 years. Moreover, long-term longitudinal studies with items that can be used to measure the latent variable wisdom are extremely rare. Many of the limitations of this data set, including attrition and quality of measurement, are inherent in data collected over such a long period of time. Use of these data allows analyses that would not be possible otherwise and adds to our knowledge of the aging process.

The results from this research may be viewed as an important first step in developing a model for the antecedents and effects of wisdom in old age. Although the analyses for the male sample were not

reported here due to the small sample size and the complexity of the model, it is worth mentioning that the antecedents and effects of wisdom were similar for both women and men (Ardelt 1994). As in the female sample, only social environment in early adulthood had a significant positive impact on elderly men's degree of wisdom, and wisdom had a significant positive effect on their life satisfaction and physical health (but not on the quality of their family relations). Even though we do not know how reliable these findings are for men, it is still remarkable that the results are similar to those of the female sample.

Appendix A Summary of Measurements

<i>Measurement</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Alpha/</i>	<i>n</i>
	<i>Number of</i>	<i>Number of</i>					<i>Value</i>	<i>Value</i>	<i>Reliability</i>	
	<i>Items (n)</i>	<i>Items (n)</i>								
Satisfaction with life (factor score estimates)	3 (81)	3 (81)	0.00	0.67	-0.41	-0.37	-1.6	1.2	.60/.73	81
Satisfaction with different areas of life	9 (16)	12 (29)	0.53	0.20	-0.40	-0.46	0.0	0.9		82
Satisfaction with lot	1 (81)	1 (81)	4.57	1.12	-0.42	-0.17	2.0	7.0		81
Congruence between desired and achieved goals	1 (2)	2 (79)	3.62	0.94	-0.43	-0.60	1.5	5.0	.65	81
Wisdom (factor score estimates)	3 (81)	3 (81)	0.00	0.79	-0.36	-0.72	-1.8	1.5	.87/.75	81
Cognitive component	1 (10)	5 (69)	4.74	1.40	-0.02	-0.55	1.5	8.0	.88	81
Reflective component	3 (2)	9 (69)	5.34	1.15	-0.56	-0.19	2.5	7.3	.86	81
Affective component	1 (2)	11 (69)	5.92	1.33	-0.82	0.07	2.0	7.7	.93	81
Social environment during early years of life										
Social environment of family of origin	1 (18)	5 (1)	3.94	1.34	0.05	-0.44	1.0	7.0		77
Social environment during early adulthood	3 (58)	4 (24)	4.53	1.47	-0.41	-0.60	1.0	7.0		82
Positive family relations in childhood (average)	1 (22)	4 (33)	3.15	0.80	0.19	-0.69	1.0	5.0	.75/.80	71
Happiness of family life	1 (63)	1 (63)	2.05	0.75	-0.08	-1.19	1.0	3.0		63
Marital adjustment of parents	1 (48)	1 (48)	2.71	1.30	0.21	-1.03	1.0	5.0		48
Affection of respondent's mother	1 (45)	1 (45)	3.13	1.24	0.04	-1.22	1.0	5.0		45
Affection of respondent's father	1 (41)	1 (41)	3.22	1.26	-0.36	-0.87	1.0	5.0		41
Psychological health of mother (average)	1 (3)	3 (46)	2.71	0.87	-0.20	-0.86	1.0	4.3	.77/.79	52
Nervous stability	1 (51)	1 (51)	2.96	1.28	0.31	-0.85	1.0	5.0		51
Absence of irritability	1 (49)	1 (49)	2.74	0.97	-0.14	-1.01	1.0	4.0		49
Not tense or worrisome	1 (47)	1 (47)	2.40	0.95	0.21	-0.79	1.0	4.0		47

Psychological health of father (average)	1 (3)	3 (41)	2.94	0.78	-0.49	-0.00	1.0	4.3	.52	50
Nervous stability	1 (50)	1 (50)	2.84	1.27	0.13	-0.69	1.0	5.0		50
Absence of irritability	1 (45)	1 (45)	3.07	0.89	-0.54	-0.62	1.0	4.0		45
Not tense or worrisome	1 (43)	1 (43)	2.93	0.99	-0.33	-0.42	1.0	5.0		43
Maturity in early adulthood (factor score estimates)	2 (81)	2 (81)	0.00	0.51	-0.49	-0.25	-1.3	1.1	.84/.88	81
Equanimity	1 (28)	3 (53)	3.00	0.69	-0.23	-0.14	1.4	4.6	.81	81
Absence of anxiety	1 (28)	2 (53)	2.79	0.67	-0.43	-0.45	1.2	4.1	.78	81
Social relationships										
Quality of social relationships	1 (11)	3 (34)	0.56	0.34	-0.04	-1.16	0.0	1.0		82
Extent of social relationships	4 (82)	4 (82)	2.04	0.40	0.29	-0.34	1.3	3.0		82
Objective conditions in old age										
Age		68.464.75	0.49	-0.01	59.0	81.0		82		
Physical health	5 (82)	5 (82)	2.24	0.60	-0.44	-1.04	1.0	3.0	.85	82
Socioeconomic status	2 (82)	2 (82)	2.70	1.08	0.20	-0.65	1.0	5.0	.60	82
Financial situation	1 (82)	1 (82)	1.84	0.76	0.28	-1.21	1.0	3.0		82
Physical environment	3 (82)	3 (82)	1.43	1.13	0.24	-1.34	0.0	3.0	.68	82

NOTE: Factor score estimates of latent variables were calculated as follows: satisfaction with life = (satisfaction with different areas of life - .53) * .7980 + (satisfaction with lot - 4.57) * .2558 + (congruence between desired and achieved goals - 3.62) * .4002; wisdom = (cognition - 4.74) * .3589 + (reflection - 5.34) * .1292 + (affection - 5.92) * .1715; mature personality in early adulthood = (equanimity - 3.00) * .2032 + (absence of anxiety - 2.79) * .5996.

Appendix B
Correlation Matrix of All Variables (maximum
likelihood parameter estimates for pairwise correlations)

<i>Variable</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Childhood and early adulthood														
1. Social environment of family of origin														
2. Social environment during early adulthood	.55***													
3. Positive family relations	-.02	-.15												
4. Psychological health of mother	.05	-.06	.41**											
5. Psychological health of father	-.19	-.23	.29	.06										
6. Maturity in early adulthood	-.07	-.10	.18	.44**	.26									
Old age														
7. Wisdom	.08	.28**	.06	-.07	-.13	.02								
8. Quality of family relations	-.14	-.18	.14	.04	.01	.38***	.24*							
9. Age	.06	.13	.02	.25	.30	-.04	.21	-.01						
10. Physical health	.10	.07	-.03	-.21	-.30	-.17	.16	.15	-.17					
11. Socioeconomic status	.49***	.78***	-.06	-.08	-.05	-.16	.22	-.08	.21*	.06				
12. Financial situation	.27**	.47***	-.03	.04	-.36*	-.10	.13	-.06	.02	.13	.40***			
13. Physical environment	.32***	.51***	-.02	-.12	-.22	-.16	.15	-.09	-.07	-.01	.35***	.59***		
14. Extent of social relations	.13	.21*	.00	.11	-.29	.17	.15	-.00	-.03	.26**	.13	.11	.07	
15. Life satisfaction	.23*	.49***	.03	.02	-.27	.30**	.76***	.17	-.03	.30**	.32**	.45***	.24*	.28**

NOTE: All latent variables are represented by single indicators (factor score estimates or average of all nonmissing items) whose error variances are fixed to the following values: positive family relations = .254, psychological health of mother = .157, psychological health of father = .289, mature personality in early adulthood = .032, wisdom = .158, and life satisfaction = .120.

* $p < .10$. ** $p < .05$. *** $p < .01$.

Still, at this stage of the research project, the findings are not generalizable to older populations with different sociodemographic characteristics. The next task will be that of repeating the analyses with more contemporary samples that include elderly respondents from rural areas, members of other racial/ethnic groups, and people from the lower as well as the higher socioeconomic stratum. If the results replicate, we can no longer afford to ignore the concept of wisdom as an important predictor of aging well.

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