Journal of Adult Development, Vol. 10, No. 2, April 2003 (© 2003)

Do You Need to Have Them or Should You Believe You Have Them? Resources, Their Appraisal, and Well-Being in Adulthood

Mike Martin[1,3] **and Gerben J. Westerhof**[2]

How young, middle-aged, and young-old adults use individual resources to cope with challenges and changes in their lives is likely to influence the ways they will approach late life. One of the most important barriers to using available resources is the subjective appraisal of the situation, of the available resources, and of the potential use of these resources. The present study based on 2,313 individuals (25–74 years) from the National Survey of Midlife Development in the United States (MIDUS) examines the structural relations between available social, financial, and health resources, the subjective appraisal of these resources, and well-being in young, middle-aged, and young-old adults. The results indicate that the subjective appraisal of resources mediates the effects of available social, financial, and health resources on well-being irrespective of age groups. The discussion focuses on the importance of the appraisal of available resources as a precondition to successfully cope with stress, and points out avenues for intervention research.

KEY WORDS: resources; resource appraisal; age differences; middle adulthood.

INTRODUCTION

Psychological, social, and physical resources like cognitive abilities, personality traits, health, social contacts, or wealth are often discussed as protective factors when facing stress or critical life events (Borchelt, Gilberg, Horgas, & Geiselmann, 1999; Martin, Grünendahl, & Martin, 2001; Pearlin & Skaff, 1996; Perrig-Chiello & Staehelin, 1996; Thomae, 1987). Here, resources are defined as the current level of health, the available income and assets, and the available social contacts. As an illustration, many studies on adaptational responses to stress suggest that the availability of social resources plays an important role in explaining how people cope with stressful environments or critical life experiences (e.g., Holahan, Moos, & Bonin, 1997; Krause, 1997; Moos, Fenn, Billings, & Moos, 1989; Simons & West, 1985). In addition, the availability of social resources can help to reduce the negative effects of critical life events like the loss of a partner or decreasing functional abilities (Baltes, 1995; Rook & Schuster, 1996). Similarly, high levels of health and financial resources seem to reduce the amount of stress experienced as a consequence of critical life experiences (Murberg, Bru, Svebak, Aarsland, & Dickstein, 1997; Werner & Smith, 1992; Zarit, Johansson, & Jarrott, 1998). In addition, high levels of health resources have been related to longevity, high levels of SES, and high levels of well-being (e.g., Staudinger, Fleeson, & Baltes, 1999). In general, the finding that social, financial, or health resources directly contribute to important aspects of well-being seems to be well established (Gall, Evans, & Howard, 1997; House, Landis, & Umberson, 1988; Pinquart & Sörensen, 2000). Although the magnitude of the effect for some types of resources is rather small in many adult age groups (Holahan & Moos, 1994), the study of prominent social, financial,

[1]University of Zurich, Switzerland.
[2]Department of Psychogerontology, University of Nijmegen, The Netherlands.
[3]University of Zurich, Department of Gerontopsychology, Treichlerstrasse 10, 8032 Zurich, Switzerland; e-mail: m.martin@psychologie.unizh.ch.

1068-0667/03/0400-0099/0 © 2003 Plenum Publishing Corporation

and health resources may help to identify important psychological factors that reduce the influences of stress and increase the level of subjective well-being in middle-aged and older adults (Bosworth & Schaie, 1997; Fernandez, Mutran, & Reitzes, 1998).

Despite their seemingly obvious importance, however, available health, financial, or social resources are not necessarily being used when adequate to effectively counter the effects of stress. For example, persons might use their social resources to cope with the death of a loved one (Stevens, 1995). However, although this would be potentially effective, the same persons might not use their social contacts when faced with financial strains (Harlow & Cantor, 1995; Hobfoll, 1985; Krause & Jay, 1991). In the health domain, persons might not respond adequately with respect to their available resources or, negatively speaking, their symptoms. In fact, a number of theoretical contributions point to the importance of subjective representations of objective levels of health symptoms, or, more generally, environmental conditions (Leventhal et al., 1997; Lewin, 1938; Thomae, 1970).

The paradox that people experience high levels of well-being in spite of low levels of available resources has been the subject of much debate in the well-being literature (Staudinger, 2000). For example, older adults do not report lower levels of well-being in spite of a more negative balance between losses and gains (Diener & Suh, 1998). A solution of this paradox might be found in the adjustment of subjective appraisals in order to compensate for objective losses. It is indeed often found that subjective appraisals are more strongly related to well-being than objective resources (Diener, Suh, Lucas, & Smith, 1999). Hence, health and coping behaviors might be more strongly related to individuals' subjective judgement of their level of health (Fielding & Tang, 1995; Perrig-Chiello & Staehelin, 1999). In addition, different types of resources differ in their appropriateness or fit with the problems individuals encounter and might, therefore, be differentially effective (Pearlin, Aneshensel, Mullan, & Whitlatch, 1995).

If available resources are not necessarily being used, it becomes important to determine which factors may influence the adequate use of available resources or mediate the effect on important outcome variables like well-being or particular aspects of behavior. Understanding these influencing factors might guide intervention efforts aiming at achieving high levels of well-being. Several factors have been suggested, among them gender differences (Fielding & Tang, 1995; Vanderzee, Buunk, & Sanderman, 1995), socioeconomic status (Katz & Alfieri, 1997), or beliefs about when particular resources might be appropriate to use (Morton & Worthley, 1995). Although these factors seem to account for some of the variance in the relationships between available resources and well-being, other, more general explanatory mechanisms can be examined. In fact, the contribution of available resources to well-being might be through a number of different mechanisms. For example, to the degree the use of available resources is an explicit and conscious act, the use of resources might depend on their adequate or positive appraisal, that is, a positive judgment about the availability, the available amount, and the appropriateness of use of the available resources (Lusk, MacDonald, & Newman, 1998). This idea is supported by some studies reporting that subjective health measures, but not objective health measures, were related to health behaviors (Fielding & Tang, 1995; Perrig-Chiello & Staehelin, 1999). In other words, the effect of available resources might be mediated by the positive appraisal of these resources (e.g., Chappell & Segall, 1989; Taylor & Aspinwall, 1996).

Besides actually having available particular types of resources, the effective use of available resources seems to have two main requirements. First, one needs to be aware of the available resources. Only if persons believe they have the resources required in a particular situation and they are confident these resources will be helpful are they likely to actively use them. Therefore, the appraisal of individual resources is of central importance to their use. Second, persons have to actually use their resources. This activation then may lead to more practice in employing particular resources (like relying on others) and a protection from the detrimental effects of future stress through more efficient resources and a higher perceived level of control over the environment. However, of the two aspects of resource use, the appraisal of resources is at the center of interest when examining how available resources affect outcomes like well-being or behaviors, and which resources they will employ in particular domains and situations.

Therefore, the first goal of the study is to examine the direct and the mediating effects of resources and their appraisal on well-being. One possibility is that the available health resources, financial resources, and social resources have a direct effect on well-being, but are unrelated to the subjective appraisal of these resources. In this case, one might conclude that most of the variance in resource appraisal stems from sources that are unrelated to the level of

available resources, for example, general beliefs about resources or their usefulness. Another possibility is that the available resources have a direct effect on well-being and on the subjective resource appraisal, but that there is no mediating relationship between resources, resource appraisal, and well-being. In this case, resource appraisal might be related to the actual resources, but the adequate appraisal is not critical to the effect of the available resources. Instead, it would suffice to have adequate health, financial, and social resources to achieve high levels of well-being. From an intervention perspective, this would suggest that priority should be given to raising the level of available resources, and that targeting resource appraisal would not affect well-being. Still another possibility is that there is no direct effect of available resources on well-being. Instead, available resources might affect well-being only through the mediation by a positive appraisal of the available resources. In this case, one would need a certain level of available resources and they need to be adequately appraised to result in high levels of well-being. From an intervention perspective, this would suggest that increases both in the level of available resources and in the level of resource appraisal is needed to improve current levels of well-being.

The second goal of the study is to examine differences in the relations between resource availability, resource appraisal, and well-being in three different age groups. Resource availability and appraisal might have different effects on well-being in different age groups. Such differences may result from different adaptation strategies to changes in resources (Wrosch, Heckhausen, & Lachman, 2000) and from differences in the motivational relevance of certain resources (Staudinger, 2000).

The third goal of the study was to compare mediating and nonmediating models of the interrelations between available resources, resource appraisal, and well-being for three different types of resources, that is, health resources, financial resources, and social resources. When examining the interrelations between available resources, resource appraisal, and well-being, attention should be paid to the type of resource examined. In fact, the appraisal of the available resources might critically depend on the type of resource examined. For example, individuals might be more sensitive to differences in the level of social resources compared to financial resources because they might have more experience with social resources compared to financial resources. Similarly, health resources might be more important than social or financial resources to most adults. Hence, compared to other types of resources, individuals might pay particularly close attention to differences in the level of health resources, and, therefore, might make more accurate appraisals of these health resources. Consequently, when considering the importance of resources in adulthood, three domains are of prominent concern, that is, health resources, financial factors, and social relationships. When evaluating their overall life satisfaction, many adults base their judgment on their perceived level of health symptoms (Bowling, Farquhar, & Grundy, 1996; Pinquart & Sörensen, 2000), their financial status, or the level of their social contacts or social integration (Harlow & Cantor, 1996; Martin, Grünendahl, & Martin, 2001; Pinquart & Sörensen, 2000). The absence of illnesses and symptoms might therefore be considered a health resource, available assets and income (financial resources), and the existence of social contacts a social resource. Empirically, it remains unclear if more positive judgements about the same level of objectively observable symptoms lead to higher levels of well-being, or, alternatively, if lower levels of illness symptoms lead to higher levels of well-being independent of the subjective appraisal of one's health. It is also known that the same level of symptoms might lead to widely discrepant judgements about one's life satisfaction or well-being (e.g., Lawton & Lawrence, 1994). The same is true for social relationships. A high number of social contacts might directly predict high levels of well-being, or the positive appraisal of available social contacts might lead to high levels of well-being. Both alternatives can be tested in structural equation models. It is hypothesized that the subjective appraisal of available resources completely mediates the effects of available resources in all three domains. The results will be informative from an intervention perspective because they will allow researchers to isolate the points at which interventions aiming at increasing levels of well-being might be most effective, that is, at improving available resources, at improving resource appraisal, or at improving both available resources and resource appraisal.

The overall goal of the study is to examine the structural relations between available resources, their subjective appraisal, and the current levels of well-being in young, middle-aged, and young-old adults for three different types of resources, that is, health resources, financial resources, and social resources. The analyses focus on the mediating role of subjective resource appraisals to achieve high levels of well-being, on resource-specific differences in the importance of

subjective resource appraisals, and on possible age differences in the structural relations between resources and their appraisal between young, middle-aged, and young-old adults.

Conceptual Models

One approach for the understanding of the interrelationships between the constructs of available resources, the appraisal of the available resources, and well-being is to assume that higher levels of available resources lead to a more positive appraisal of resources and to higher levels of well-being. However, the appraisal of the available resources does not affect current levels of well-being. In this case, the appraisal of resources might be an accurate reflection of the available resources. In addition, it would suggest that the resource appraisal is not used to adjust to an individual resource deficit or surplus, and that only increases in the level of available resources, not in their appraisal, may lead to higher levels of well-being. This could be the case when resources (or a lack thereof) are essential for the basic functioning of an individual, for example, in the case of health resources. An alternative approach is to assume that the effect of available resources on well-being is mediated by the adequate appraisal of these resources. In this case, the direct effect of available resources on well-being is significantly reduced by adding an indirect effect through the appraisal of resources. Resources would then affect well-being in a positive direction only if they lead to a more positive appraisal of one's available resources. In addition, it would suggest that the resource appraisal is used to adjust to an individual resource deficit or surplus and that mainly changes in the appraisal of available resources, not in the available resources, may lead to higher levels of well-being. This could be the case when resources are needed to optimize one's functioning, e.g., in the cases of financial and social resources. Overall, the two alternative models to understand the structural relations between available resources, their appraisal, and well-being need to be tested with different types of resources. There might be differences between the domains of health resources, financial resources, and social resources.

The Current Study

Unlike most earlier studies, the present investigation focuses on the role of the appraisal of health resources, financial resources, and social resources for the well-being in adulthood. From a life-span perspective, particularly middle adulthood has been an underresearched area. It is not clear from existing life-span data which factors determine the course of midlife development, and how it is related to the transition into old age (Lachman & James, 1997). Compared with very old age, middle adulthood and the development from age 40 to age 60 are characterized by relatively small changes in the available resources (Aldwin, Sutton, Chiara, & Spiro, 1996; Chiriboga, 1997). Therefore, the first goal of our study is to provide an estimate for the direct effect of three different types of available resources on the level of well-being and the second goal is to compare these estimates between young, middle-aged, and young-old adults.

The third goal of our study will be to determine how the constructs of three different types of resources, their appraisal, and well-being are related and if the effect of available resources is necessarily mediated by their positive appraisal (or if mediation occurs only for certain types of resources). Prominent types of resources across adulthood include health status, financial status, and social status. All three are typically related to general life satisfaction (e.g., Lachman & Weaver, 1998; Strawbridge, Shema, Balfour, Higby, & Kaplan, 1998). When considering that low income and poor health are risk factors for a number of other problems, such as (prolonged) unemployment, low self-esteem, chronic morbidity, and higher mortality in later life (e.g., McQuaide, 1998), it becomes obvious that these should be important predictors of well-being across adulthood. Overall, it seems clear from existing data that multiple variables contribute to well-being and that the roles of resource availability and resource appraisal need to be examined for different types of resources.

Structural-equation modeling permits the evaluation of the joint contributions of multiple agents to well-being. We used structural-equation modeling in the present research to assess the relative contributions of health resources, financial resources, and social resources and their respective appraisal on well-being in adults. Once the structural relationships are known, the weights of those relationships can be examined for differences across different types of resources.

In summary, the purpose of the current study was to examine differences in the interrelationships between constructs of three types of health resources, financial resources, and social resources and well-being in young, middle-aged, and young-old adults. We

compared the fit of several structural equation models specifying either a nonmediating relationship between available resources and well-being or a mediating role of resource appraisal. The examination of resource-specific differences in the interrelationships among available resources, resource appraisal, and well-being for three different adult age groups will help to explain if (a) the effects of available resources on well-being is independent of their appraisal as positive or negative, or (b) available resources affect well-being mainly through their adequate appraisal, and (c) there are differences depending on the type of resources examined. This will be of importance for future research on the effects of different types of resources and the role of resource appraisal on well-being, and may provide valuable insights for designing effective interventions aiming at increasing current levels of well-being across the adult life span.

METHOD

Sample

The data used for this study came from the National Survey of Midlife Development in the United States (MIDUS) collected in 1995. This survey was conducted by the John D. and Catherine T. MacArthur Foundation Network on Successful Midlife Development. The original purpose of the MIDUS was to examine patterns, predictors, and consequences of midlife development in the areas of physical health, psychological well-being, and social responsibility. MIDUS respondents are a nationally representative general U.S. population sample of noninstitutionalized persons age 25–74, who have telephones. The sample was obtained through random digit dialing, with an oversampling of older respondents and men made to guarantee a good distribution on the cross-classification of age and gender ($N = 3{,}032$; $n = 1{,}318$ for men; $n = 1{,}714$ for women).

MIDUS respondents first participated in a telephone interview that lasted approximately 40 min. The response rate for the telephone questionnaire was 70%. Respondents to the telephone survey were then asked to complete two self-administered mail-back questionnaires. The response rate for the mail-back questionnaire was 86.8%. This yielded an overall response rate of 60.8% for both parts of the survey. For the current study, we use data from 2,313 MIDUS respondents with complete data on all indicator variables used in the analyses. Sample descriptives are displayed in Table I.

Table I. Means and Standard Deviations of Variables for Overall Sample ($N = 2{,}313$)

Variables	
Education	
Some grade school to GED	6.7%
Graduated high school	25.2%
Some college	30.1%
Graduated college	38.0%
Family status	
Married	63.9%
Separated	3.1%
Divorced	15.7%
Widowed	3.4%
Never married	13.9%

Note. Women:men = 1031:1282.

Measures

Several measures were applied to gather data on health resources, financial resources, social resources, resource appraisal for each type of resource, and well-being.

Health Resources

Health resources were measured by summing the number of chronic conditions out of 29, for example, asthma, hay fever, teeth problems, migraine, high blood pressure, or diabetes, with a possible range of 0–29 conditions. This scale assumes that a lower score represents higher levels of health resources. A second scale was computed by adding the aspects in which health represented a limitation in eight activities of daily living, for example, carrying groceries or walking. Again, this scale assumes that a lower score represents higher levels of health resources. The possible range is from 0 to 8 limitations. Resource appraisal was measured by asking persons for an overall subjective judgement of their current health on an 11-point scale (from 0 = *the worst possible health* to 10 = *the best possible health*) and how good their health was compared to most other persons their age on a 5-point scale (from 1 = *much better* to 5 = *much worse*).

Financial Resources

To indicate how much money people have in assets (or debt), participants indicated the amount in 73 categories ranging from 0 = $*0 (None)* to −36 = *1,000,000 or more (in debt)* and from

1 = $1–$1000 to 36 = 1,000,000 or more (in assets). The possible range for this variable is from –36 to 36. To indicate if the monthly income suffices to pay the incoming bills, participants provide information on how difficult it is for them to pay their monthly bills on a scale from 1 = *very difficult* to 4 = *not at all difficult*. Resource appraisal was measured by asking participants for an overall judgement about their financial situation on an 11-point scale (from 0 = *the worst possible financial situation* to 10 = *the best possible financial situation*), and about their perceived control over their financial situation (from 0 = *no control over the financial situation* to 10 = *very much control over the financial situation*).

Social Resources

To indicate social network resources, participants indicated the frequency of contacts with family members on an 8-point scale from 1 = *several times a day* to 8 = *never or hardly ever*. Similarly, participants indicated the frequency of contacts with close friends on a 6-point scale from 1 = *almost every day* to 6 = *never or hardly ever*. Resource appraisal was measured by asking participants for an overall rating about how much they believed their family members really cared about them (from 1 = *a lot* to 4 = *not at all*), and how much they believed they could rely on their family members for help in the case of a serious problem (from 1 = *a lot* to 4 = *not at all*).

Subjective Well-Being

Well-being was measured through an overall rating of how satisfied participants presently were with their life (from 1 = *a lot* to 4 = *not at all*), and how satisfied participants presently were with themselves (from 1 = *a lot* to 4 = *not at all*). Table II provides more detailed information on the means, standard deviations, and ranges of the variables in the analyses. Except for the subjective health measure showing no age effect, ANOVAs testing for age effects showed the expected results, for example, lower levels of satisfaction, more health symptoms, and better financial control with increasing age.

Table II. Means and Standard Deviations of Indicator Variables (N = 2,313)

Variables	Mean (*SD*)	Range	Age effect[a]
Well-being			
Satisfaction with life	1.49 (0.65)	1–4	10.16***
Satisfaction with self	1.48 (0.60)	1–4	7.54**
Health resources			
Health symptoms	2.21 (2.32)	0–21	14.69***
Functional health	1.84 (2.21)	0–8	46.47***
Financial resources			
Assets	14.79 (18.13)	−35–36	128.05***
Difficulty paying bills	2.80 (0.87)	1–4	26.57***
Social resources			
Contact with family	3.28 (1.55)	1–8	12.47***
Contact with friend	3.36 (1.68)	1–8	14.19***
Health resource appraisal			
Subjective Health	7.48 (1.49)	0–10	2.84
Health compared to peers	2.24 (0.89)	1–5	20.16***
Financial resource appraisal			
Rate financial situation	5.97 (2.07)	0–10	35.13***
Control financial situation	6.69 (2.30)	0–10	16.61***
Social resource appraisal			
Care by family	1.26 (0.55)	1–4	8.48**
Help by family	1.43 (0.75)	1–4	10.49***

[a] Age effects based on ANOVA results with $F(2, 2299)$ and three age groups [1 = 25–39 years (n = 907); 2 = 40–59 years (n = 1,153); 3 = 60–74 years (n = 227)].
** $p < .01$. *** $p < .001$.

RESULTS

Structural-Equation Models

To assess our hypotheses regarding differences in the interrelationships among constructs and the relative contributions of different types of resources to well-being, we developed six separate structural-equation models. We used LISREL-8.20 (Jöreskog & Sörbom, 1996), a statistical package designed to develop structural-equation models, for the modeling component of the analyses. Despite the relatively high level of well-being, there was nevertheless sufficient variance to model it as a function of other predictor variables. Latent variables were constructed based on theoretical considerations as well as preliminary factor analyses of instruments and the examination of zero-order correlations among predictor variables. The outcome measure in the structural-equation models was well-being with the data from the overall ratings of satisfaction with life and satisfaction with the self used as indicators of the construct. Table III provides a correlation matrix of all the indicators used in the models.

Models of Well-Being

Two structural-equation models were estimated for each of the three types of resources. We started with the most parsimonious nonmediating model assuming a direct relationship between available resources and resource appraisal, and between available

Table III. Correlations Among Indicators in the Models ($N = 2, 313$)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Life satisfaction	1.0													
(2) Self satisfaction	.56**	1.0												
(3) Health symptoms	.22**	.26**	1.0											
(4) Functional health	.18**	.17**	.39**	1.0										
(5) Assets	−.19**	−.10**	−.02	−.07**	1.0									
(6) Difficulty paying bills	−.27**	−.22**	−.14**	−.17**	.39**	1.0								
(7) Contact family	.05*	.06**	.00	−.04	−.02	.03	1.0							
(8) Contact friend	.03	.05*	.04	−.07**	.01	−.03	.21**	1.0						
(9) Subjective health	−.23**	−.24**	−.40**	−.39**	.10**	.18**	−.03	−.04	1.0					
(10) Health compared to peers	.19**	.20**	.29**	.31**	−.07**	−.13**	.01	.03	−.45**	1.0				
(11) Rate financial situation	−.37**	−.27**	−.17**	−.16**	.37**	.63**	−.01	−.02	.26**	−.16**	1.0			
(12) Control financial situation	−.30**	−.25**	−.16**	−.12**	.24**	.46**	−.02	−.05**	.24**	−.17**	.62**	1.0		
(13) Care by family	.22**	.20**	.08**	.11**	−.08**	−.11**	.25**	.05**	−.16**	.11**	−.14**	−.12**	1.0	
(14) Help by family	.19**	.16**	.08**	.07**	−.09**	−.10**	.25**	.02	−.13**	.08**	−.10**	−.09**	.60**	1.0

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

resources and well-being. We then estimated a mediating model assuming an additional path from resource appraisal to well-being. For all three types of health, financial, and social resources, the mediating models evinced better fits compared to the nonmediating models. However, the improvement was not significant for health resources. The null models made no assumptions about the relationships of the indicator variables to latent variables or the interrelationships among the latent variables. It is typically used as a baseline measure to compare against models with specified relationships between indicators and latent variables.

In constructing the first set of nonmediating models, we conceptualized the available health resources, financial resources, and social resources, respectively, to have direct effects on well-being and on resource appraisal. The model we developed for health resources had an acceptable fit, $\chi^2(8) = 19.32$, $p > .01$, GFI (Goodness of Fit Index) = .99, AGFI (Adjusted Goodness of Fit Index) = .99, SRMR (standardized root mean square residual) = .025. The nonmediating models for financial resources, $\chi^2(7) = 63.52$, $p < .01$, GFI = .99, AGFI = .97, SRMR = .059, and for social resources, $\chi^2(8) = 120.02$, $p < .01$, GFI = .98, AGFI = .96, SRMR = .078, had a reasonable fit. Note that for social resources, we fixed the error variance of the variable contacts with close friends to .90 (this maximizes the contribution of the family-related contact variable). However, the df/χ^2 ratios and the SRMR values above .05 for the financial resource model and the social resource model indicated the possibility of fit improvements by adding a mediating path from resource appraisal to well-being.

In constructing the second set of models, we conceptualized available resources to contribute directly *and* indirectly to well-being. The mediating models assume that available resources impact on well-being mainly through an adequate appraisal of the available resources. For health resources, the mediating model did show an improvement over the nonmediating model, $\chi^2(7) = 16.83$, $p > .01$, GFI = .99, AGFI = .99, SRMR = .025 (see Table IV). However, this improvement was not significant. Model fit did improve significantly for financial resources, $\chi^2(6) = 29.45$, $p < .01$, GFI = .99, AGFI = .99, SRMR = .041, and for social resources, $\chi^2(7) = 14.88$, $p > .03$, GFI = .99, AGFI = .99, SRMR = .022.

The *mean age differences* in most of the indicator variables suggest to examine possible *age differences in the structural relations* between resources, resource appraisal, and well-being. Hence, we split the sample in three age groups, that is, age 25–39 ($n = 907$), age 40–59 ($n = 1{,}153$), and age 60–74 ($n = 227$), and ran multigroup comparisons for the mediating models for the three types of resources. The results of multigroup comparisons using the same structural (mediating) model and assuming identical relations between the latent constructs for all three age groups and free estimates for all other relations evinced acceptable fits,

Table IV. Fit Indices for Sequence of Resource Models

Model	χ^2	GFI	AGFI	χ^2_{diff}
Health resource models				
0. Null model	2704.85*			
1. Nonmediating model	19.32*	.99	.99	
Difference between Model 1 & Model 0				2685.53*
2. Mediating model	16.83*	.99	.99	
Difference between Model 2 & Model 1				2.49
Social resource models				
0. Null model	2329.46*			
1. Nonmediating model	120.02*	.98	.96	
Difference between Model 1 & Model 0				2209.44*
2. Mediating model	14.88*	.99	.99	
Difference between Model 2 & Model 1				105.14*
Financial resource models				
0. Null model	4062.15*			
1. Nonmediating model	63.52*	.99	.97	
Difference between Model 1 & Model 0				3998.63*
2. Mediating model	29.45*	.99	.99	
Difference between Model 2 & Model 1				34.07*

Note. GFI = goodness of fit index; AGFI = adjusted goodness of fit index.
*$p < .05$.

$\chi^2(37) = 57.17$, $p > .01$, GFI = .97, $SRMR = .049$ for health resources, $\chi^2(36) = 65.57$, $p < .01$, GFI = .96, SRMR = .06 for financial resources, and $\chi^2(36) = 36.37$, $p > .4$, GFI = .98, SRMR = .039 for social resources, that is, indicated that there was no significant difference between the structural relations in three age groups.

The best fitting nonmediating health resource model explained 22% of the variance in well-being. The best fitting mediating financial model explained 23% in well-being, and the best fitting mediating social resource model explained 11% in well-being. Table IV displaying the fit indices for the models, therefore, includes the more parsimonious nonmediating and mediating models for all three types of resources examined.

In a next step, we examined total and indirect effects of three types of available resources and resource appraisal on well-being for all three mediating models. As discussed earlier, a significant indirect effect of available resources on well-being via resources appraisal would support the mediating model. The total and indirect effects for all three models are displayed in Table V.

Table V. Total and Indirect Effects of Available Resources on Well-Being From Mediator Models

Effect	Effect size	*t*
Health resource model		
Total effect health resources on well-being	.45*	.04
Total effect resource appraisal on well-being	−.16	.09
Indirect effect health resources on well-being	.13	.07
Financial resource model		
Total effect financial resources on well-being	−.39*	.03
Total effect resource appraisal on well-being	−.50*	.07
Indirect effect financial resources on well-being	−.43*	.07
Social resource model		
Total effect social resources on well-being	.08	.03
Total effect resource appraisal on well-being	.35*	.03
Indirect effect social resources on well-being	.12*	.02

*$p < .05$.

As can be inferred from results, most of the effect of available financial and social resources is indirect through the appraisal of the respective resources. In contrast, the mediating effect of health resource appraisal is minimal.

Figures 1–3 show the best-fitting mediating models for financial, social, and health resources (see Table VI for indices of measurement models). The

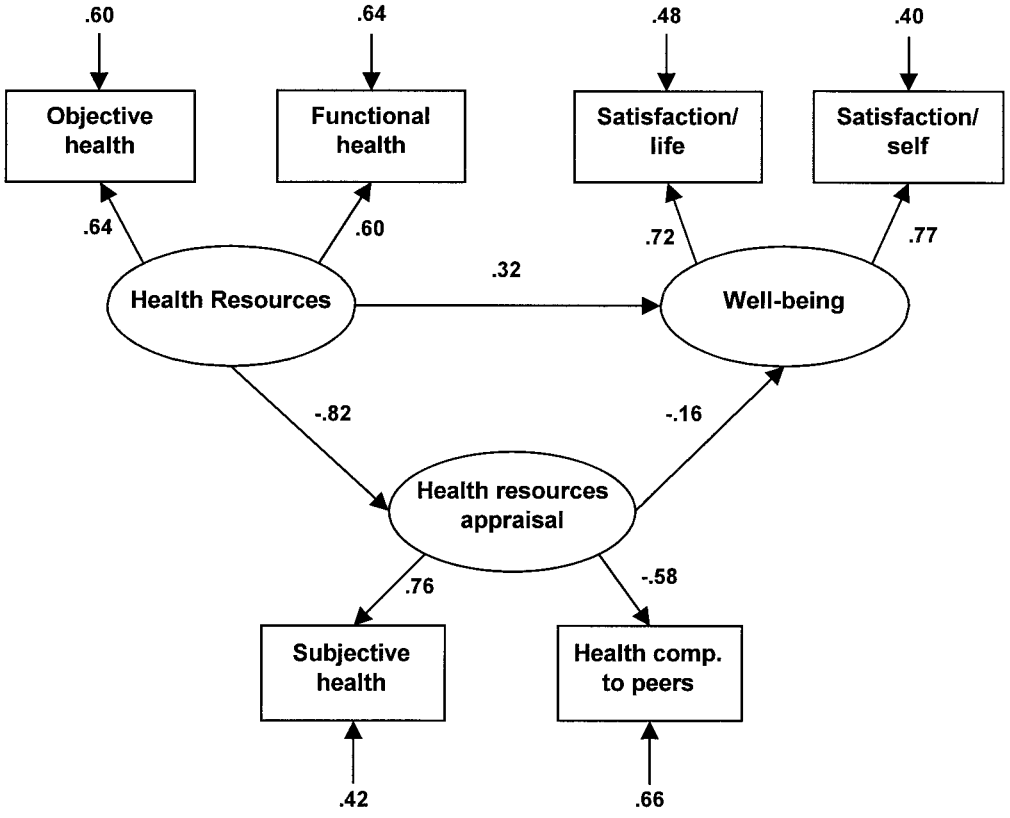

Fig. 1. Health resource model.

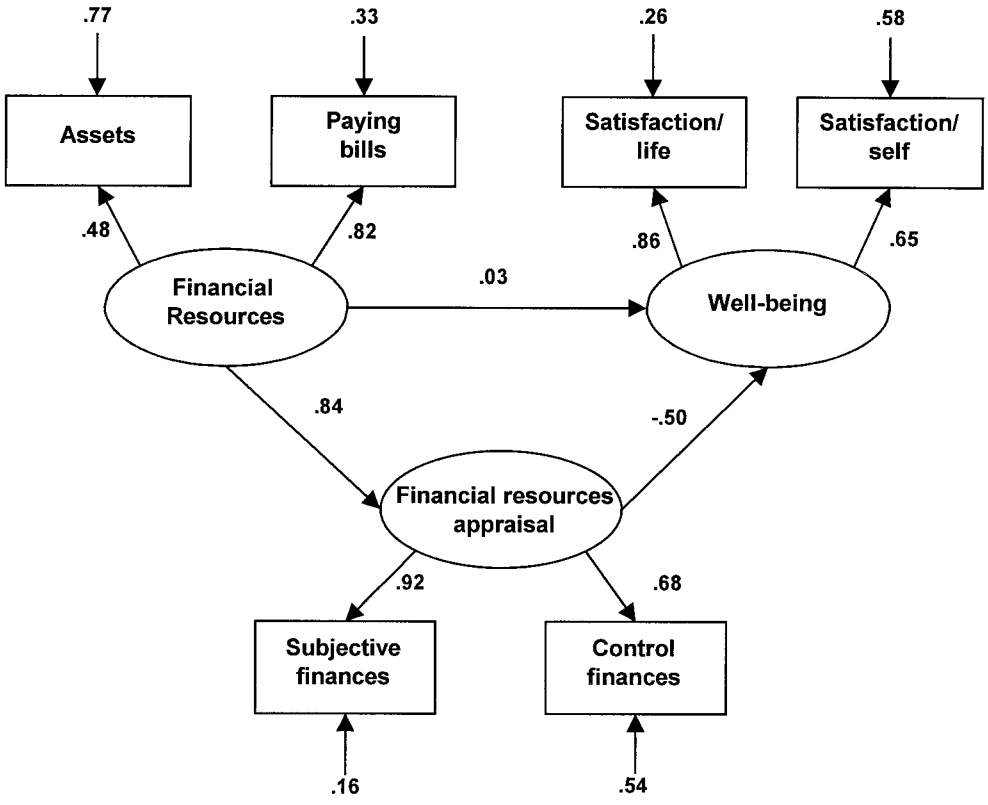

Fig. 2. Financial resource model.

models demonstrate that available health resources are strongly related to an adequate resource appraisal, but there is only a weak mediating effect of resource appraisal on well-being. Based on the models and the inspection of total and indirect effects, available financial and social resources affect well-being mainly through the mediation of their positive appraisal. The interrelationships among available resources, resource appraisal, and well-being does seem to differ between the different types of resources examined.

Overall, the mediating financial, social, and health resource models demonstrate powerful relationships between available resources and well-being in middle-aged adults. Factor loadings for the models are displayed in Table IV. The models suggest that in the case of health resources, resource appraisal mediates little of the positive effect of available resources on well-being. For financial and social resources, model fit improvements and inspection of the total and indirect effects suggest that resource appraisal completely mediates the effects of available resources on well-being.

DISCUSSION

The present findings make a number of important points about the role of the subjective appraisal of health resources, financial resources, and social resources for the relation between available resources and well-being that have not been examined in middle adulthood. First, the subjective appraisal of resources is mediating the influence of some of the available resources on well-being. Indeed, for financial and social resources, structural-equation modeling could demonstrate that the interrelationships among the constructs of available resources, resource appraisal, and well-being are best explained by a mediating model that had a significantly better fit to the data than a nonmediating model. The inspection of direct and indirect effects supports this interpretation. The indirect effect of financial resources on well-being was of about the same size as the total effect of available financial resources on well-being. In other words, practically all of the effect of available financial resources were mediated by the appraisal of financial resources. Similarly, only the indirect effect of the available

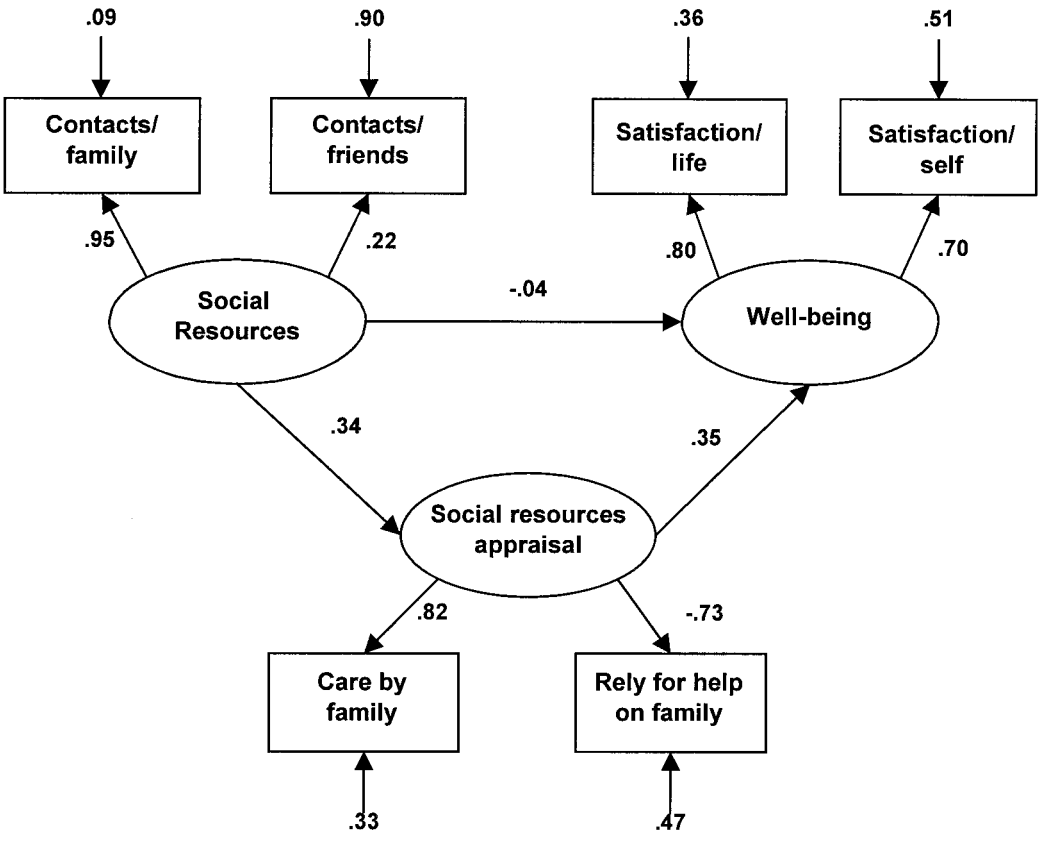

Fig. 3. Social resource model.

social resources was significant, not the total effect. In other words, for social resources the subjective appraisal was most important for well-being, not the actually available social resources. However, there was a slight indirect effect of the available social resources mediated by social resource appraisal.

Second, despite mean age differences in the indicator variables, for all types of resources there were no age differences between young, middle-aged, and young-old adults with respect to the structural relations between resources, resource appraisal, and well-being. This suggests that the importance of resource appraisal as a mediator between available resources and well-being is generalizable across a wide adult age range. Empirical testing is still needed to examine if age differences might emerge when older adults are included in the comparison. Such differences are reported in a meta-analysis of differences in the strength of relations between samples with a mean age above and below 70 years (Pinquart & Sörensen, 2000). With the current sample it is likely that even the oldest participants are not extremely low on health, financial, or social resources. Limitations in the adaptation to losses might not become evident until extremely low levels of resources are found (Staudinger, 2000). Therefore, age differences might only be expected with very old adults having severe resource limitations that are then likely to lead to different structural interrelations between the constructs.

Third, there are differences in the role of resource appraisal depending on the type of resource examined. For the health resources examined, although the mediating model had a good fit, the structural-equation mediating model did not lead to a significant improvement of fit compared to the more parsimonious nonmediating model. In addition, inspecting the direct and indirect effects from the mediating model (see Table V) suggests that there is a strong direct effect of available health resources on well-being, and only a weak indirect effect mediated by the subjective appraisal of health resources. In other words, in contrast to financial and social resources, the available health resources affect well-being mostly directly. Although the subjective health

Table VI. Factor Loadings and Uniqueness for Mediating Models

Measure and variable	Unstandardized factor loading	*SE*	Uniqueness
Health resource model			
Health resources			
Objective health	.64	.02	.41
Functional health	.61	.02	.37
Health resource appraisal			
Subjective health	.76	.05	.58
Health compared to peers	−.58	.04	.34
Well-being			
Satisfaction with life	.72	.03	.52
Satisfaction with self	.77	.03	.60
Financial resource model			
Financial resources			
Assets	.48	.02	.23
Paying bills	.82	.02	.67
Financial resource appraisal			
Rating financial situation	.92	.06	.84
Control financial situation	.68	.04	.46
Well-being			
Satisfaction with life	.86	.03	.74
Satisfaction with self	.65	.03	.42
Social resource model			
Social resources			
Contacts with family	.95	.12	.91
Contacts with friends	.22	.03	.05
Social resource appraisal			
Care by family	.82	.03	.67
Help by family	.73	.03	.53
Well-being			
Satisfaction with life	.80	.04	.64
Satisfaction with self	.70	.04	.49

resource appraisal seems to be strongly related to the available health resources, the appraisal does not seem to affect well-being. There also seem to be differences between financial and social resources. Whereas for financial resources practically all of the effects of available resources is mediated by the subjective resource appraisal, for social resources the strongest effect on well-being seems to be exerted by the subjective resource appraisal.

Fourth, the findings are particularly relevant from an intervention perspective. The results suggest that interventions aiming at increasing the current level of well-being need to be tailored to the resource-specific interrelations between available resources, resource appraisal, and well-being. For example, in the health domain it seems most effective to increase the level of available health resources, that is, to improve the current level of health. It does not seem effective to change the appraisal of available health resources, probably because it is already quite accurate. From a life-span perspective this implies that efforts directed at preventing health symptoms through adequate health behaviors early in life should have long-term effects on the level of well-being, which, in turn, should result in better health resources. For the financial domain it seems most effective to increase both the level of available resources and the subjective appraisal of the available resources. In brief, one needs to have the financial resources and one needs to appraise these resources as positive. Finally, for the social domain to improve the level of well-being it seems most effective to change the appraisal of the available social resources, not the amount of actually available resources, that is, social contacts. The findings also suggest that for still other types of resources differential patterns of interrelations between available resources, subjective appraisal, and well-being (and other outcome variables) may exist. Therefore, it seems a prerequisite for interventions and preventive measures aiming at increasing levels of well-being across the adult lif-espan to closely examine at which of the constructs these efforts will be most effective. In addition, future research examining levels of available resources, their appraisal, and well-being in different domains over multiple measurement points could help to clarify differential developmental trajectories with respect to resources and well-being from middle to old age.

Although we feel our results are an important contribution to the study of available health, financial, and social resources, their appraisal, and well-being in young, middle-aged, and young-old adults, we must admit several limitations of our approach. Because we have been working with cross-sectional data, it could not be determined if the interrelations also apply to changes in the constructs used. Only when changes in the available resources are related to changes in the appraisal of the resources and/or changes in the level of well-being can one infer that the subjective appraisal of available resources truly mediates the effects of available resources on well-being. Still, the mediating role of resource appraisal could be clearly established for financial and social resources based on the total and indirect effect of resources on well-being. The findings might be limited to the kinds of resources and the types of indicators examined. If other types of resources like cognition, personality, or attitudes were included in the model, the variance in well-being explained by the availability of resources and by resource appraisal might change substantially. The same might be true for the use of different indicator variables, for example, if other social resource appraisals such as that of close friends are examined. Close friends may be viewed as more

caring and more reliable in times of crisis than family members. Although ideally one would have liked the appraisal variables to match the resource variables, this kind of data was not available in the database used for the analysis. Therefore, the exact relation within a model using contacts with close friends instead of contacts with family members still needs to be empirically determined. Overall, it might be the case that with the use of more indicators of different resources, any number of resource-specific structural relations might emerge. However, the examination of other resource-specific interrelations between resource availability, resource appraisal, and well-being still awaits empirical testing. However, this does not alter or diminish the implications of our findings. In any case, future research applying a longitudinal design and using additional indicators of different types of resources will help to further clarify the structural relationships among different types of resources, resource appraisal, and well-being, and its developmental changes.

ACKNOWLEDGMENT

The research reported here was carried out with support from the John D. and Catherine T. MacArthur Foundation Research Network on Successful Midlife Development.

REFERENCES

Aldwin, C. M., Sutton, K. J., Chiara, G., & Spiro, A. III, (1996). Age differences in stress, coping, and appraisal: Findings from the Normative Aging Study. *Journal of Gerontology: Psychological Sciences*, *51B,* P179–P188.

Baltes, M. (1995). Dependency in old age: Gains and losses. *Current Directions in Psychological Science*, *4,* 14–19.

Borchelt, M., Gilberg, R., Horgas, A. L., & Geiselmann, B. (1999). On the significance of morbidity and disability in old age. In P. B. Baltes & K. U. Mayer (Eds.), *The Berlin Aging Study: Aging from 70 to 100* (pp. 403–429). New York: Cambridge University Press.

Bosworth, H. B., & Schaie, K. W. (1997). The relationship of social environment, social networks, and health outcomes in the Seattle Longitudinal Study: Two analytical approaches. *Journals of Gerontology: Psychological Sciences*, *52B,* P197–P205.

Bowling, A., Farquhar, M., & Grundy, E. (1996). Associations with changes in life satisfaction among three samples of elderly people living at home. *International Journal of Geriatric Psychiatry*, *11,* 1077–1087.

Chappell, N. L., & Segall, A. (1989). Health, helping networks and well-being. *Journal of Aging Studies*, *3,* 313–324.

Chiriboga, D. A. (1997). Crisis, challenge, and stability in the middle years. In M. E. Lachman & J. B. James (Eds.), *Multiple paths of midlife development* (pp. 293–322). Chicago: University of Chicago Press.

Diener, E., & Suh, M. E. (1998). Subjective well-being and age: An international analysis. *Annual Review of Gerontology and Geriatrics*, *17,* 304–324.

Diener, E., Suh, E. M., Lucas, R., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, *125,* 276–302.

Fernandez, M. E., Mutran, E. J., & Reitzes, D. C. (1998). Moderating the effects of stress on depressive symptoms. *Research on Aging*, *20,* 163–182.

Fielding, R., & Tang, Y. E. (1995). Health care utilization as a function of subjective health status, job satisfaction and gender among health care workers in Guangzhou, Southern China. *Social Science and Medicine*, *41,* 1103–1110.

Gall, T. L., Evans, D. R., & Howard, J. (1997). The retirement adjustment process: Changes in the well-being of male retirees across time. *Journals of Gerontology: Psychological Sciences*, *52B,* P110–P117.

Harlow, R. E., & Cantor, N. (1995). To whom do people turn when things go poorly? Task orientation and functional social contacts. *Journal of Personality and Social Psychology*, *69,* 329–340.

Harlow, R. E., & Cantor, N. (1996). Still participating after all these years: A study of life task participation in later life. *Journal of Personality and Social Psychology*, *71,* 1235–1249.

Hobfoll, S. E. (1985). Limitations of social support in the stress process. In I. G. Sarason & B. R. Sarason (Eds.), *Social support: Theory, research, and applications* (pp. 391–414). Dordrecht, The Netherlands: Martinus Nijhoff.

Holahan, C. J., & Moos, R. H. (1994). Life stressors and mental health. In W. R. Avison & I. H. Gotlib (Eds.), *Stress and mental health: Contemporary issues and prospects for the future* (pp. 213–238). New York: Plenum.

Holahan, C. J., Moos, R. H., & Bonin, L. (1997). Social support, coping, and psychological adjustment: A resource model. In G. R. Pierce & B. Lakey (Eds.), *Sourcebook of social support and personality: The Plenum series in social/clinical psychology* (pp. 169–186). New York: Plenum.

House, J. S., Landis, K. R., & Umberson, D. (1988). Social relations and health. *Science*, *241,* 540–545.

Jöreskog, K., & Sörbom, D. (1996). *LISREL 8: User's reference guide.* Chicago: SSI.

Katz, P. P., & Alfieri, W. S. (1997). Satisfaction with abilities and well-being: Development and validation of a questionnaire for use among persons with rheumatoid arthritis. *Arthritis Care and Research*, *10,* 89–98.

Krause, N. (1997). Anticipated support, received support, and economic stress among older adults. *Journal of Gerontology: Psychological Sciences*, *52B,* P284–P293.

Krause, N., & Jay, G. (1991). Stress, social support, and negative interaction in later life. *Research on Aging*, *13,* 333–363.

Lachman, M. E., & James, J. B. (1997). *Multiple paths of midlife development* . Chicago: Chicago University Press.

Lachman, M. E., & Weaver, S. L. (1998). The sense of control as a moderator of social class differences in health and well-being. *Journal of Personality and Social Psychology*, *74,* 763–773.

Lawton, M. P., & Lawrence, R. H. (1994). Assessing health. In M. P. Lawton & J. A. Teresi (Eds.), *Annual review of gerontology and geriatrics: Focus on assessment techniques* Vol. 14, (pp. 23–56). New York: Springer.

Leventhal, H., Benyamini, Y., Brownlee, S., Diefenbach, M., Leventhal, E. A., Patrick-Miller, L., et al. (1997). Illness representations: Theoretical foundations. In K. J. Petrie & J. A. Weinman (Eds.), *Perceptions of health and illness: Current research and applications* (pp. 19–45). Singapore: Harwood Academic Publishers.

Lewin, K. (1938). The conceptual representation and measurement of psychological forces. *Contributions to Psychological Theory*, *1*(4), 247.

Lusk, J., MacDonald, K., & Newman, J. R. (1998). Resource appraisals among self, friend and leader: Implications for an evolutionary perspective on individual differences. *Personality and Individual Differences*, *24,* 685–700.

Martin, M., Grünendahl, M., & Martin, P. (2001). Age differences in stress, social resources and well-being in middle and older age. *Journal of Gerontology: Psychological Sciences*, *56,* P214–P222.

McQuaide, S. (1998). Women at midlife. *Social Work*, *43,* 21–31.

Moos, R. H., Fenn, C. B., Billings, A. G., & Moos, B. S. (1989). Assessing life stressors and social resources: Applications to alcoholic patients. *Journal of Substance Abuse*, *1,* 135–152.

Morton, K. R., & Worthley, J. S. (1995). Psychology graduate program retention, completion and employment outcomes. *Journal of Instructional Psychology*, *22,* 349–353.

Murberg, T. A., Bru, E., Svebak, S., Aarsland, T., & Dickstein, K. (1997). The role of objective health indicators and neuroticism in perceived health and psychological well-being among patients with chronic heart failure. *Personality and Individual Differences*, *22,* 867–875.

Pearlin, L. I., Aneshensel, C. S., Mullan, J. T., & Whitlatch, C. J. (1995). Caregiving and its social support. In R. Binstock & L. George (Eds.), *Handbook on aging and the social sciences* (pp. 283–302). San Diego, CA: Academic Press.

Pearlin, L. I., & Skaff, M. M. (1996). Stress and the life course: A paradigmatic alliance. *The Gerontologist*, *36,* 239–247.

Perrig-Chiello, P., & Staehelin, H. B. (1996). Elderly women and health: Objective and subjective health and health behavior in retired female workers and employees. *Zeitschrift fur Gerontopsychologie und Psychiatrie*, *9,* 195–205.

Perrig-Chiello, P., & Staehelin, H. B. (1999). Health control beliefs in old age: Relationships with subjective and objective health and health behaviour. *Psychology, Health and Medicine*, *4,* 83–94.

Pinquart, M., & Sörensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective well-being in later life: A meta-analysis. *Psychology and Aging*, *15,* 187–224.

Rook, K. S., & Schuster, T. L. (1996). Compensatory processes in the social networks of older adults. In G. R. Pierce, B. R. Sarason, & I. G. Sarason (Eds.), *Handbook of social support and the family* (pp. 219–248). New York: Plenum.

Simons, R. L., & West, G. E. (1985). Life changes, coping resources, and health among the elderly. *International Journal of Aging and Human Development*, *20,* 173–189.

Staudinger, U. (2000). Many reasons speak against it, yet many people feel good: The paradox of subjective well-being. *Psychologische Rundschau*, *51,* 185–197.

Staudinger, U., Fleeson, W., & Baltes, P. B. (1999). Predictors of subjective physical health and global well-being: Similarities and differences between the United States and Germany. *Journal of Personality and Social Psychology*, *76,* 305–319.

Stevens, N. (1995). Gender and adaptation to widowhood in later life. *Ageing and Society*, *15,* 37–58.

Strawbridge, W. J., Shema, S. J., Balfour, J. L., Higby, H. R., & Kaplan, G. A. (1998). Antecedents of frailty over three decades in an older cohort. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, *53B,* S9–S16.

Taylor, S. E., & Aspinwall, L. G. (1996). Mediating and moderating processes in psychosocial stress: Appraisal, coping, resistence, and vulnerability. In H. B. Kaplan (Ed.), *Psychosocial stress: Perspectives on structure, theory, life-course, and methods* (pp. 71–110). San Diego, CA: Academic Press.

Thomae, H. (1987). Conceptualizations of responses to stress. *European Journal of Personality*, *1,* 171–192.

Thomae, H. (1970). Theory of aging and cognitive theory of personality. *Human Development*, *13,* 1–16.

Vanderzee, K. I., Buunk, B. P., & Sanderman, R. (1995). Social comparison as a mediator between health problems and subjective health evaluation. *British Journal of Social Psychology*, *34,* 53–65.

Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High risk children from birth to adulthood.* New York: Cornell University Press.

Wrosch, C., Heckhausen, J., & Lachman, M. E. (2000). Primary and secondary control strategies for managing health and financial stress across adulthood. *Psychology and Aging*, *15,* 387–399.

Zarit, S. H., Johansson, L., & Jarrott, S. E. (1998). Family caregiving: Stresses, social programs, and clinical interventions. In I. H. Nordhus & G. R. VandenBos (Eds.), *Clinical geropsychology* (pp. 345–360). Washington, DC: APA.