

HRS REVIEW: PSYCHOSOCIAL VARIABLES

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Introduction

Psychosocial factors were not prominent in the original conceptualization of the Health and Retirement Study (Juster & Suzman, 1995). Nonetheless, with the limited measures available, many HRS investigators have included psychological and social factors in their analyses. To anchor evaluation of this realm in substantive scientific agendas, I review a wide array of HRS publications that have, *or could*, profitably incorporate psychosocial factors. In all of these, it is fair to say there is need for improved assessment. The topical areas covered are organized as follows: (a) health behaviors, (b) socioeconomic factors, race/ethnicity, and health, (c) family roles/relationships and health, (d) planning for retirement and subjective probabilities, and (e) voluntary/involuntary job loss and their consequences. Within each, I describe how psychosocial variables were brought into the scientific agendas, or address how they might be utilized to advance substantive areas. My review also notes linkages with findings from MIDUS, another national survey of aging having notable depth in behavioral and psychosocial assessment (although limited coverage of economic factors).

A. Health Behaviors

HRS investigators have generated numerous findings regarding the health behaviors of sample respondents. These demonstrate the adverse health consequences of heavy smoking, excessive drinking, and low prevalence of health-promoting behaviors (diet, exercise, weight management). Importantly, HRS researchers have also begun to identify the factors (personal, social, environmental) that contribute to positive behavior change in key areas (e.g., smoking cessation).

(1) **Smoking.** Addressing the link between health beliefs and health behavior, Scheonbaum (1997) investigated whether smokers from HRS understand the mortality effects of smoking – do they realize that smoking will likely shorten their lives? For never, former, and current light smokers, reported survival expectations were found to be close to actuarial predictions. However, among current heavy smokers, reported expectations of reaching age 75 were nearly twice as high as actuarial predictions. Thus, heavy smokers significantly underestimate the risk of premature mortality linked with smoking. Similar findings have been generated with data from MIDUS (Ayanian & Cleary, 1999), showing that only 39% to 49% of heavy smokers (more than 40 cigarettes per day) believe that they have a higher than average risk of myocardial infarction or cancer, respectively. Because smoking remains one of the most preventable causes of heart disease and cancer, these findings call for additional research, such as the need to determine whether the perceptions of heavy smokers reflect a true lack of understanding of health risks, or a form of indifference or denial. Different public health interventions would follow from each. Alternatively, the data underscore that many heavy smokers *do* understand that smoking will likely compromise their future health. Among this group, there is need to probe the reasons why they have not attempted, or been unable to quit. Such inquiry might be a useful area for select, in-depth qualitative interviews (perhaps as an experimental module).

Focusing on links to health outcomes, Ostbye, Taylor, and Jung (2002) used HRS and AHEAD data to analyze the effect of smoking on disability, impaired mobility, health care utilization, and self-reported health. Smoking was strongly related to mortality and ill health, with similar relative effects in the middle-aged and the elderly.

Within the HRS, there were dose-response relationships between smoking and ill health. Importantly, persons who had quick smoking in the last 15 years prior to the survey were no more likely than never smokers to experience ill health, thus underscoring the benefits of smoking cessation.

On the topic of cessation, Wray, Herzog, Willis, and Wallace (1998) incorporated a rich array of behavioral and psychosocial variables to understand those who stopped smoking following heart attack. Controlling for a variety of health factors, they found that education positively influences the decision by middle-aged adults to quick smoking following heart attack. They then asked how education has this effect, by considering its influence on other intervening psychological (cognitive ability, future orientation) and social environment factors (having a spouse that smokes, working in a blue collar job). Unfortunately, these variables were not significant in predicting who stopped smoking after heart attack. *However*, when contrasting those who smoked in 1992 with those who had previously quit, they found not only that was education significantly linked to past quitting, but that its effect dropped out once other variables (e.g., cognitive ability, spouse smokes, net worth, health insurance, obesity, exercise, drinking, depression) were added to the model.

The latter study illustrates the comprehensive models that can be employed in longitudinal analyses of specific HRS health behaviors, or health outcomes. The investigation also demonstrated the value of bringing psychosocial variables to the question of smoking cessation. That such variables were not informative in the specific context of heart attack may have been due to the limited nature of the psychosocial variables available. Good candidates for enriching psychosocial assessment would

include personality traits (e.g., neuroticism, extraversion) as well as measures of optimism, coping strategies, sense of control, and well-being. All have been extensively studied as mediators or moderators of diverse health outcomes (Ryff & Singer, 2000). In addition, greater depth in the assessment of supportive social factors (e.g., quality of spousal relationship, quality of social relational ties outside of marriage) would be extremely valuable. Such variables would substantially enrich numerous areas of HRS research, as will be noted below.

(2) **Alcohol Consumption.** Perriera and Sloan (2002) used a 6-year period of HRS data (men only) to examine links between excess alcohol consumption and health outcomes. Heavy drinking (5+ drinks per day) at baseline quadrupled the risk of developing functional impairments, and a problem drinking history increased the onset of depression, psychiatric problems, and memory problems (controlling for smoking and other baseline factors). These interesting findings point to important avenues of further inquiry – namely, who are the heavy drinking men (and women) in HRS? What are their demographic, psychosocial, and behavioral profiles? Are they disproportionately men at the low end of the SES hierarchy, or might heavy drinking defy an SES gradient? What are the occupational and marital histories of heavy drinkers? Note, the same kinds of questions could also be usefully asked of the heavy smokers in HRS.

Probing links between life events and alcohol consumption, Perreira and Sloan (2001) used four waves of HRS to examine changes in drinking that co-occurred with and followed major stresses in domains of health, family, and employment. Most persons (68%) did not change their use of alcohol over the 6 year period. However, when changes occurred, they were related to several life events, even after controlling for

various factors (problem drinking history, social support, coping skills). Specifically, hospitalization and onset of a chronic condition were associated with decreased drinking. Retirement was associated with increased drinking. Widowhood was associated with increased drinking, but only for a short time. Getting married or divorces were associated with both increases and decreases in drinking with a complex lag structure.

Three observations are pertinent to this study: (1) the laudable attempts to control for particular psychosocial factors were hampered by limited measures – social support was measured by quantity only (e.g., frequency of church attendance, frequency of visits with neighbors), thereby ignoring *quality* of social relationships; coping skills were measured with a single item (respondents self-reported satisfaction with how they handle problems in life). Much better instruments are available in both areas. (2) A relevant next round of analyses in this area would not control for psychosocial variables, but use them in substantive inquiries to see if they afford protection (or risk) against increased drinking after critical life events. (3) The retirement finding calls for further analysis – who shows increased drinking following retirement and why? Are those in high status positions more prone to this problem, given their loss of power and authority? Other useful predictors of post-retirement drinking could include assessments of whether retirees are engaged in purposeful activities (e.g., volunteer roles, part-time work), or are bored and lacking meaningful engagements in life.

Finally, Ostermann and Sloan (2001) used four waves of HRS to examine the effects of alcohol use on disability and income support for the disabled. They found that a history of problem drinking, especially when combined with recent heavy drinking, was associated with greater prevalence and incidence of limitations in home and/or work

tasks. The alcohol-related higher rates of limitations did not, however, translate to greater likelihood that heavy and problem drinkers would receive income support from SSDI or SSI. The covariates in this study were extensive (smoking status, age, gender, race, education, marital status, health problems, emotional or psychiatric problems). Future analyses, as noted above, could make greater substantive use of these control factors to probe more deeply the issue of problem drinking in later life. Such work would clarify the sociodemographic, familial, occupational, and psychosocial pathways to this behavior having clear adverse consequences for multiple aspects of health.

(3) **Health Promoting Behaviors.** Nothwehr and Stump (2000) investigated the dietary habits, exercise, weight management, and smoking status of HRS respondents with Type 2 diabetes (using the first and third waves of the study). Their overall finding was that the prevalence of these behaviors, which are critical to the management and prevention of complications related to the disease, was disappointing – health promoting behaviors actually declined over the 4-year period of investigation. The authors called for more longitudinal research to understand the reasons why people begin and/or discontinue health-promoting behaviors. Paralleling the research on smoking cessation, it would be useful to know the sociodemographic and psychosocial profiles of those who *do* manage their Type 2 diabetes well. Is education a key predictor, with its effects possibly manifest through various psychosocial factors (e.g., cognitive abilities, optimism, sense of control, coping, well-being, quality social support)?

Summary. A general thread running through the above studies is that poor health behaviors (heavy smoking, heavy drinking) contribute to numerous forms of ill health. Although many individuals have difficulty changing these behaviors, there is notable

variation. Some do quit smoking, for example, although cessation profiles reveal a steep educational gradient (see Warner, 2000; Singer & Ryff, 2001a, pp. 155-156). Big surveys like HRS can usefully advance knowledge of the sociodemographic and psychosocial profiles of those who successfully change their health behaviors, as illustrated by the Wray, Herzog, Willis, & Wallace (1998) contrast between current smokers and former smokers. Although education appears to increase the likelihood of accurately understanding one's health risks, it is clear that many additional influences are relevant. These include surrounding life stresses (chronic and acute), and numerous psychosocial factors (e.g., personality traits, coping skills, sense of control, well-being, social support, religion/spirituality). Further, it is likely that these multiple levels of influence come together *in different ways* for different individuals; thus, underscoring the need for conceptual and analytic approaches that specify *diverse pathways* to particular outcomes.

A final point pertains to co-occurring phenomena. How many people in HRS are both smoking and drinking to excess? What are their sociodemographic and psychosocial profiles? Similarly, to what extent are some individuals confronted with co-occurring life events/stressors (e.g., retirement, economic loss, caregiving)? On the health side, it is well-established that comorbidity increases with age (Juar & Stoddard, 1999; see also Fultz, 2001). Future analyses of HRS could fruitfully investigate comorbidities of later life, along with co-occurring risk factors (e.g., social inequalities, life stressors, compromising health behaviors) that precede them (Singer & Ryff, 2001a). That is, beyond models that control for all else to sharpen the focus on single health behaviors or single health outcomes, there is need for integrative analyses that put co-

occurring phenomena together. Person-centered analyses may be valuable tools to achieve this end (Singer & Ryff, 2001b).

B. Socioeconomic Factors, Race/Ethnicity, and Health

(1) **SES and Health**. HRS and AHEAD investigators have contributed to the growing literature on social inequalities in health. On the scope of economic inequality, Smith (1997) used AHEAD to document that those households in the top 10th percentile of the wealth distribution have 2,500 times as much wealth as those in the lowest 10th percent. On the links between inequality and health, an important clarification from HRS has been the demonstration that in older populations the correlation between health and household income reflects causation from health to SES (Smith, 1998). New health events (major and minor) have quantitatively large effects on wealth accumulation among those in their fifties, via diverse pathways, such as change in medical costs and occupational factors (e.g., probability of staying at work, change in earnings). This alternative causal scenario runs contrary to the purported direction of SES → health effects examined in much prior research, which tends to emphasize the long-term impact of early life deprivation as well as cumulative prolonged exposure to adverse situations.

Regarding the hypothesized links between stressful events and physiological processes, such as allostatic load, Smith (1999) noted that economists can contribute importantly to the conceptualization and measurement of permanent and transitory changes in income and unemployment, which may compromise major categories of life stressors. There are numerous other life stressors to include in these pathway formulations as well. A particular strength of MIDUS is its comprehensive array of both chronic (e.g., caregiving, work/family spillover, childcare difficulties, unemployment)

and acute (e.g., divorce, remarriage, job change, deaths, relocation) stressors as well as daily stressors (e.g., work overloads, family arguments, traffic problems). Also included are perceptual stressors, such as “perceived inequality” and “perceived discrimination.” These probe subjective experiences of having fewer opportunities in life relative to others, or of being treated unfairly. The latter incorporates both major acute events of discrimination (e.g., being denied a bank loan) as well as chronic experiences (e.g., receiving poor service in a restaurant). Perceived inequality has been linked with compromised well-being, such as lower levels of self-acceptance and purpose in life (Ryff, Magee, Wing, & Kling, 1999), while perceived discrimination has been linked with increased risk for depression and anxiety (Kessler, Mickelson, & Williams, 1999).

Bringing a relational perspective to SES and health, Wilson (2001) used the 1992 wave of HRS to demonstrate a strong association between socioeconomic status and the prevalence of health problems among married couples in late midlife. SES was highly associated with the joint occurrence of health problems among married partners. The author called for greater attention to the interaction between health, SES, and interpersonal relationships. This point is well-taken, given the large literature on social relationships and health (Berkman & Kawachi, 2000; Ryff & Singer, 2001). A critical direction for future research is to differentiate the ways in which the social relational world may be toxic and contribute to the stress of daily life (Repetti, Taylor, & Seeman, 2002) versus comprise important strengths and buffers against life stressors (Cohen, Underwood, & Gottlieb, 2000), including the strain of inequality (see Markus, Ryff, Curhan, & Palmersheim, in press; Ryff, Singer, & Palmersheim, in press). Persistent economic adversity from childhood through adulthood has been linked with increased

risk for high allostatic load, but this risk is notably reduced among those who have had persistently good social relationships (with parents in childhood and a significant other in adulthood; Singer & Ryff, 1999).

Although not explicitly focused on social inequalities in health, Baker, Sudano, Albert, Borawski, and Dor (2001) studied the uninsured and their related health risks. They documented that lack of health insurance is associated with an increased risk of decline in overall health (using data from 1992 to 1996, and adjusting for differences in base-line socioeconomic status, health, and health-related behavior between the insured and uninsured). Continuously uninsured participants were 63% more likely than privately insured participants to have a decline in their overall health between 1992 and 1996 and 23% more likely to have a new physical difficulty that affected walking or climbing stairs (i.e., difficulty with mobility). What are the mechanism accounting for these effects – cognitive abilities, life stress, anxiety, allostatic load, barriers to care? Understanding the psychosocial profiles of the uninsured would surely advance this important area.

(2) **Race/Ethnicity and Health.** Racial differences in health have featured prominently in HRS, given the valuable oversampling of African Americans and Hispanics. Using 1992 HRS data, Kington and Smith (1997) compared rates of chronic diseases among whites, African Americans, and Hispanics. Their central finding was that socioeconomic status plays a relatively small role in explaining differences in the *prevalence of chronic disease* across these groups, but that among those with chronic disease, SES does play a critical role in explaining racial/ethnic differences in the *ability to function*. Regarding psychosocial assessment in this inquiry, there is room for

improvement: depression as an outcome was measured with a single item, and life stressors and social support were measured with by marital status and satisfaction with one's financial situation, friendships, and handling problems in life. Better instruments are available in all areas. Despite racial differences in the prevalence and incidence of almost all major health outcomes (hypertension, diabetes, stroke, disability), they found little evidence that health risk behaviors play a substantial role in accounting for racial differences in health. As such, they suggested greater future focus on dimensions of the macro-environment, such as living in crowded, low-income neighborhoods characterized by high rates of violence, crime, and drugs. Alternatively, it could be argued that better measurement of behavioral and psychosocial factors would help account for the racial differences in health. As noted above, perceived discrimination, a chronic stressor known to influence mental health (Kessler, Mickelson, & Williams, 1999), may be particularly important to consider. Offsetting psychosocial strengths may also important to bring into these kinds of analyses.

Hayward, Crimmins, Miles, and Yang (2000) further probed the significance of socioeconomic status in explaining the racial gap in chronic health conditions. They found that the racial gap in health is spread across all major chronic diseases and disabling conditions and also demonstrated that socioeconomic conditions, not health risk behaviors (smoking, drinking, diet, exercise), are the primary origins of the racial stratification in health. As such, the authors suggest that short-term public health policies focused on health behaviors (smoking, alcohol consumption, obesity, and exercise) are unlikely to resolve racial disparities in health. Instead they call for greater evaluation of "institutional racism" (inferior education, economic uncertainty, discrimination) as well

as greater research on childhood effects, work environments and community involvements. Importantly, they stressed that racial differences for any particular disease outcome, are likely to be the result of differences in *combinations* of experience over the life cycle. Many of the potential influences on racial differences in health discussed in this article (e.g., ability to control everyday life circumstances, stress, social ties, nature of work and family environment) are not part of extant HRS measures. But they could be added as important new areas of assessment.

The emotional health of immigrants have also been a focus. Mills and Henretta (2001) used AHEAD data to show that gender, education, number of years in U.S. residency, and language acculturation are significant predictors of self-reported depressive symptoms. Hao and Johnson (2000) used the 1992 wave of HRS to show that economic factors (income, wealth) and human capital variables (education, work experience, length of U.S. residence, health) are important determinants of emotional health (defined multidimensionally using the CES-D items as well as various life satisfaction assessments) for both immigrants and natives. Religious affiliation and participation were, however, found to be more beneficial for immigrants. A further study (Buckley, Angel, & Donahue, 2000) focused on immigrant women and how they utilize various support systems as they approach retirement age. Demographic characteristics, such as being Hispanic and having low education, were strong risk factors for poor health. However, reliance patterns across resource domains did not differ significantly by nativity. For both native and foreign born women, economic and familial resources significantly lessen the risk of poor health. Finally, Angel, Buckley, and Sakamoto (2001) investigated whether the health disadvantage observed for immigrants lessens

with increased time spent in the country (thereby supporting theories of assimilation), or increases with duration of residence (thereby supporting theories of cumulative disadvantage). Using Waves 1 and 2 of HRS, their analyses revealed that after controlling for SES factors, foreign-born individuals were at higher risk for poor emotional health than their native-born counterparts. Although aging immigrants displayed worse health than the native-born population, this disadvantage was mediated by duration of residence (young age at migration).

Summary. HRS investigators have made important contributions in demonstrating that the links between SES and health are likely to be reciprocal, with greater prominence of health effecting wealth in the later years. Alternatively, efforts to probe the long-term mechanisms through which inequality impacts health, particularly in the context of racial disparities, calls for more comprehensive pathways approaches. Additional psychosocial assessment, particularly in areas of chronic and acute life stresses, perceived inequality and perceived discrimination, sense of control, coping strategies, well-being, and quality of social relationships, would be extremely valuable. It is worth noting that high levels of perceived discrimination are evident, not just among racial minorities in the U.S., but also among the socioeconomically disadvantaged and women.

MIDUS investigators have documented educational gradients in diverse health outcomes (mental and physical) (Marmot, Ryff, Bumpass, Shipley, & Marks, 1997), and further examined an array of behavioral (e.g., smoking) and psychosocial factors (e.g., family relationships, work characteristics, sense of control, perceived inequality) that might account for the educational gradient in health and disease (Marmot, Fuhrer, Ettner,

Marks, Bumpass, & Ryff, 1998). No single factor explained educational differences in health outcomes, but the total contribution of all factors in accounting for the gradient was substantial. Related findings have been that sense of control moderates the relationship between income and self-reported health and well-being: low-income respondents with a high sense of control reported levels of health and well-being comparable to high income respondents (Lachman & Weaver, 1998). Bringing in health behaviors, Grzywacz and Marks (2001) examined SES and racial/ethnic differences in exercise and subsequently accounted for these differences by such factors as work/family spillover and job characteristics.

The take-home message – in HRS, MIDUS, and beyond – seems fairly clear: it will be *combinations of many intervening factors* that advance understanding of how social inequalities in health come about. This is a call for integrative frameworks that combine multiple levels of analysis (biological, economic, environmental, psychological, social).

A final point regarding these growing literatures is the observation that “the vast majority of variation in individual health is within socioeconomic groups, not between them” (Smith, 1999, p.164). Williams (2001) has made a similar point regarding the dramatic heterogeneity that exists within each of the major racial/ethnic categories. These observations call for a new inquiries about “off-diagonals” – i.e., those at the low end of the socioeconomic hierarchy who are in good health as well as those at the upper end who are not. The former comprise a kind of resilience that needs to be explained (Ryff, Singer, & Palmersheim, in press). The addition of new measures to HRS, such as those described above, would facilitate these agendas.

C. Family Roles/Relationships and Health

Family structure has been a central area of assessment in HRS (Soldo & Hill, 1995), and considerable research has been conducted on the links between family life and health (mental and physical). Most of this work pertains to role occupancy (e.g., whether one is married, or has children, or has multiple roles), although some studies have dealt with transitions between roles (e.g., conjugal loss). Others have considered links between living arrangements and health, or probed how family and economic realms are connected.

(1) **Parenthood and Multiple Roles.** Speaking to the rapid growth of the childless elderly population, Zhang and Hayward (2001), investigated possible negative effects of childlessness on psychological well-being. The two dimensions of well-being were considered: loneliness (operationalized with a single item) and depression (operationalized with a short-form version of the CES-D). Sex differences were prominent in the pattern of findings. Divorced, widowed, and never married men who were childless had significantly higher rates of loneliness compared to women in comparable circumstances, and divorced and widowed men who were childless also had higher rates of depression than women in comparable circumstances. As men almost never show higher rates of depression than women, these are quite remarkable findings. It is important to note, however, that the absence of negative outcomes (loneliness, depression) is not equivalent to the presence of well-being (Ryff, 1989; Ryff & Keyes, 1995), which is what the study was purportedly about. Emphasizing the distinction, research on parenting has shown that having children is linked higher levels of meaning and life purpose compared to nonparents (Umberson & Gove, 1989) and further that

numerous aspects of parental well-being (self-acceptance, environmental mastery, purpose in life) are linked with how adult children have turned out (Ryff, Schmutte, & Lee, 1996). Thus, more explicit assessment of well-being could substantially enrich analyses of the consequences of childlessness for positive psychological functioning.

Multiple roles and well-being among mid-life women was the focus of another HRS investigation (Reid & Hardy, 1999). The article juxtaposed role strain and role enhancement theories in evaluating depressive symptoms (short-form CES-D) associated with the roles of wife, mother, paid worker, and informal caregiver. They also included limited assessments of role demands and satisfactions. Although the number of roles was linked with depressive symptoms, once role demand and satisfaction ratings were controlled, number of roles had no effect. They concluded: “Our results highlight the importance of women’s perceptions of the quality of their roles in relation to their overall well-being.” In other words, it is role quality, not occupancy per se, that this linked with psychological outcomes. Unfortunately, their analyses were limited by the fact that the survey did not include specific measures of satisfaction with the informal caregiver role or with the role of parent. In addition, the analyses of depressive symptoms could have been accompanied by assessments of psychological well-being (e.g., purpose in life, self-acceptance, environmental mastery, personal growth), which would have clarified whether multiple roles are linked with positive outcomes.

Cochran, Brown, and McGregor (1999) brought a racial perspective to the analysis of multiple role participation and depressive symptoms. Using African American and white women aged 55 to 61 from HRS, they found racial differences in the social roles of marriage, employment, grandmother, caregiver, and volunteer. African

American women were less likely to occupy roles of marriage and employment, and more likely to occupy roles of grandmother and caregiver than white women. Older African American women reported significantly higher depressive symptoms than white women, and the employment role was found to have a more powerful influence on diminishing depressive symptoms for African American than white women. In the absence of a spouse and/or employment, African American women who are caregivers and grandmothers may also be more likely to face economic hardship, which is also linked with greater likelihood of depressive symptoms. They call for a more comprehensive measure of the volunteer role, which should go beyond church participation to reflect participation in senior centers, community organizations, and advocacy groups.

(2) **Marital Status.** Earle, Smith, Harris, & Longino (1998) found that married women were less likely to report symptoms of depression than their unmarried counterparts, but the mental health benefits of marriage were greater for men than women. Moreover, other variables such as marital satisfaction, self-rated health, and employment status, were more powerful predictors of emotional well-being in midlife than marital status per se. Women who reported marital dissatisfaction were five times more likely to be depressed and their male counterparts were 3.5 times more likely to be distressed than respondents of the same gender who were happily married. Again, this kind of inquiry would be enriched by instruments that assess, not just emotional ill-being, but also psychological and emotional well-being. More detailed assessments of marital quality (e.g., the nature of positive and negative emotions experienced with spouse) would substantially enhance these analyses. Given the prominence of social support

influences on how individuals negotiate their way through life later challenges (retirement, health problems, caregiving), good relationship measures would enhance these realms of inquiry as well.

Moving to physical health, Pienta, Hayward, and Jenkins (2000) used data from HRS to evaluate how marriage is associated with major chronic illnesses, functional limitations, and disability. Their findings document that marriage benefits health across a broad spectrum of chronic disease conditions, functional problems, and disabilities. Moreover, they reported that the benefits of marriage are widely shared across demographic groups (men and women, whites and blacks, groups defined by duration of marriage). A limitation of their cross-sectional analyses was the inability to address whether selectivity into marriage (or remarriage), or the resources of marriage itself, contributes to the observed morbidity patterns. Their analyses would undoubtedly have been sharpened by assessments of marital quality – thereby permitting assessment of whether the greatest health benefits accrue to those who are not just married, but deeply and richly connected to their partners.

Capitalizing on the cross-time analyses in AHEAD, Turvey, Carney, Arndt, Wallace, and Herzog (1999) described the association between conjugal loss and both syndromal depression (short-form of Composite International Diagnostic Interview (CIDI) and depressive symptoms (short-form CES-D) in adults aged 70 and older. Controlling for pre-loss depressive symptoms, they found that the rate of syndromal depression in the newly bereaved was nearly nine times as high as the rate for married individuals, and the rate of depressive symptoms was nearly four times as high. In addition, some widows and widowers experienced high levels of depressive symptoms up

to 2 years after the loss of their spouses. Neither demographic variables nor variables concerning the nature of the spouse's death predicted bereavement-related depression. What other variables might mediate or moderate the relationship between spousal loss and depression? Presumably, quality of the prior marital relationship would be key, but other personal characteristics (e.g., coping strategies, optimism, well-being, life engagement) and social factors (e.g., quality of relationships with children and friends, community involvement) are also likely to be relevant.

Townsend, Miller, and Guo (2001) brought a couples perspective to the analysis of depressive symptomatology in middle-aged and older adults, arguing that symptom levels are likely to covary in close relationships. Using HRS and AHEAD data, they found that husbands' and wives' depressive symptoms were moderately correlated – knowledge of the symptom level of one spouse predicts approximately one quarter of the variance in the other spouse's symptom level. Greater variability was evident at the individual than the couple level of analysis. Gender (being female) and race/ethnicity (and their interaction) also predicted depressive symptoms. The interaction revealed no significant gender differences in blacks, moderate differences in whites, and large differences in Mexican Americans. Importantly, they also found that net worth was an independent predictor of depressive symptoms after controlling for income and other predictors. Drawing on Smith's (1997) observation that racial/ethnic differences in wealth are much larger than differences in income, they called for future studies that would explore the pathways through which assets such as housing equity and savings are linked to depressive symptoms.

Reiterating prior suggestions regarding the need to explicate pathways to particular health outcomes, it would be useful to adopt this approach to the study of high depressive symptomatology in later life. What are the sociodemographic characteristics, occupational and familial histories, and psychosocial profiles of men and women who are depressed as they move across the later decades of life? The above study investigated interactions between only two such characteristics (gender and race/ethnicity), but multi-way interactions with other variables are likely as well. Again, person-centered analyses, using such techniques as recursive partitioning (Singer & Ryff, 2001b), could be usefully applied to these questions.

(3) **Living Arrangements**. Waite and Hughes (1999) used HRS data to probe the links between living arrangements and multiple measures of physical, cognitive, and emotional functioning in late midlife. Married couples living alone or with children showed the highest levels of functioning, whereas single adults living in complex households (e.g., unmarried living with others) showed the lowest levels. Functional deficits for those in complex households were reduced, but not eliminated when demographic characteristics and household resources and demands were taken into account. They found few differences by gender and race/ethnicity in the links between living arrangements and functioning. A key point was the pattern of poor functioning evident among those in arguably the most demanding and least supportive household arrangements. Because Blacks and Hispanics show lower levels of functioning than whites and are more likely to live in complex households, they may be particularly disadvantaged.

Recently, Hughes and Waite (2002) extended their work on links between living arrangements and health using longitudinal data. They found prospective links between household structure and self-rated health, mobility limitations, and depressive symptoms. Married couples living alone or with children only were the most advantaged, while single women living with children were disadvantaged on all health outcomes. They suggested that persons living in particular household structures experience demands that exceed their coping resources. “We propose that living in situations where demands exceed resources may increase the stress response, lead to poorer health behaviors, reduce the time available for self-care, and inhibit access to health care” (p.16). This is an intriguing hypothesis for which no measures were available. As stated by the authors, “Unpacking the black box of household is an important priority for future research” (p.17). So doing will require new assessments of household demands and coping resources, some of which may be usefully pursued in experimental modules.

(4) Family Life and Economic Well-Being. A final category of studies resides at the interface of family life and economic well-being. Illustrative of this realm is research from AHEAD on transfer behavior within the family (McGarry & Scheoni, 1997). In light of proposed reductions in public assistance programs, they underscored the importance of understanding the mechanisms whereby families provide support for their members. Using AHEAD, they showed that intra-family transfers are compensatory, and disproportionately directed toward less well-off members. In a given year, adult children in the lowest income category are 50% more likely to receive a financial transfer from their parents, and on average receive over \$300 than their siblings who are in the highest income categories. These analyses control for unobserved

differences across families. In addition, they find no evidence that parents provide financial assistance to their children in exchange for caregiving. How do these economic transfers impact the quality of parent-child relationships (both among children who do, and do not, receive such support) as well as the quality of spousal relationships?

Who do parents count on to provide care? Norgard & Rodgers (1997) compared patterns of in-home care among elderly black and white Americans (using AHEAD), and found that compared to whites, Black elders were less likely to receive in-home assistance, and more likely to use informal sources of home care. Mellor (2001) used AHEAD to probe the question of whether parents forego the purchase of long-term care insurance and instead rely on child-provided care in old age. Results did not suggest that caregiver availability discourages parents from obtaining market-purchased insurance for long-term care needs. That is, expectations about future caregiver availability in the form of family and friends have no significant effect on actual ownership of long-term care insurance. However, there are SES angles on this issue: Insurance for long-term care is of greater value to those with assets to protect from the spend-down process required to become eligible for Medicaid. Their models included controls for age, income, net worth, education, all of which, along with other psychosocial factors (e.g., sense of control), point to potentially interesting interaction analyses that would clarify who does, and does not, have long-term care insurance.

Finally, Holden and Kuo (1996) used the first wave of HRS to document links between marital histories and economic well-being. Women and blacks were found to spend a higher percentage of their lifetime outside of marriage than do men and whites. Those who have experienced divorce or widowhood have significantly lower incomes

than couples in first marriages. Also, currently widowed households and couples in which the prior marriage of one spouse had ended in widowhood are no better off than their divorced peers. The study thus underscores the long-term economic consequences of past and future marital dissolution.

Summary. Across all the areas covered in this section on aspects of family life and health, there is pressing need for assessment of relationship quality – between husbands and wives, parents and children, significant partners, and friends. As demonstrated by HRS investigators and others, it is not mere occupancy of particular family roles that matters for health and well-being, but the quality of one’s experience within such roles. Gender and racial/ethnic differences in the links between family roles (single, multiple) and living arrangements will likely persist as prominent areas of research, and these would also be significantly enhanced by assessments of the quality of family roles and relationships. The cross-time dynamics – transitions between role statuses (e.g., from married to widowed or divorced, from working to retired) will also be extremely valuable forums for tracking future changes in health and well-being.

Most HRS research has focused on depressive symptomatology as the key dependent variable. This is not equivalent to assessing psychological well-being – as one would expect, the two are negatively correlated, but there are substantial numbers of people who are not depressed, and yet also do not have high levels of psychological well-being (Singer, Ryff, Carr, & Magee, 1998). That is to say, the absence of ill-being does not guarantee the presence of well-being. On the assessment of satisfaction within particular roles, HRS has lacked complete coverage across roles. In addition, many measures in these areas of assessment have changed over time (see memo from M.

Szinovacz to R. Suzman, 7/07/02), making it difficult for investigators to track cross-time changes.

The instruments in MIDUS offer numerous avenues for expanding HRS assessments in these areas. Included are measures of multiple dimensions of psychological well-being (e.g., purpose in life, self-acceptance, mastery, personal growth, positive relations with others, autonomy), assessments of positive and negative affect, measures of adult personality development (generativity) and social responsibility (community involvements, civic engagements, volunteering). Using data from both MIDUS and the National Survey of Families and Households (NSFH), extensive findings have been generated on links between family roles and psychological well-being, dysphoria, and generativity (Marks, Bumpass, & Jun, in press) as well as how continuity and change in marital statuses maps onto multiple aspects of psychological well-being. How family life is linked with profiles of adult social responsibility has also been extensively investigated (Rossi, 2001). These domains of assessment would be a rich addition to the singular focus on emotional ill-being in HRS.

It would also be valuable to see greater connection between these family-related topics and SES and health inquiries. What are the conditions (including socioeconomic) under which familial roles and relationships contribute to strain and stress versus constitute important buffers against early morbidity and mortality. The above-described couples perspective on likelihood of depression (Townsend, Miller, & Guo, 2001) and illness (Wilson, 2001) both implicated socioeconomic status (income or wealth) was implicated. Alternatively, marriage has been linked with health benefits (Pienta, Hayward, & Jenkins, 2000), and others have demonstrated the protective influence of

good quality social relationships vis-à-vis inequality (Ryff, Singer, & Palmersheim, in press; Singer & Ryff, 1999). Both the salubrious and risk-side of family life need further investigation and clarification.

D. Planning for Retirement and Subjective Probabilities

Many HRS investigations include a future orientation. For example, planning for retirement has been of interest, and respondents have also been asked to report their expectancies for various life outcomes (e.g., age of retirement, chances of living to particular ages). Examples of these will be briefly noted, followed by observations from various subfields of psychology that also deal with assessments of the future.

Ekerdt, DeViney, and Kosloski (1996) distinguished five generic types of retirement plans, including plans to retire completely, retire partially, change jobs, never retire, and uncertainty about retirement. This work would be usefully augmented by analyses of who makes what kind of plan? That is, what are the sociodemographic, occupational/familial, and/or psychosocial profiles of those who never plan to retire, or are uncertain about their plans? Moreover, what are the consequences of such plans, not only in terms predicting actual retirement behavior, but in forecasting a “good retirement” (defined not just in terms of economics, but also with regard to physical and mental health). Bernheim, Forni, Gokhale, and Kotlikoff (2000) address how much Americans should save for retirement, but positive adaptation to this life transition is not likely a function of only economic resources. Planning for life post-retirement, for example, would also seem important in making a successful move out of one’s work life. Has HRS included questions about intended life plans after retirement?

Kosloski, Ekerdt, and DeViney (2001) provide some insight into the above queries by their study of whether certain job-related gratifications reduce retirement planning. Jobs high in intrinsic rewards and positive social relations were, in fact, related to less planning, regardless of how planning was defined. Jobs high in ascendance (work requires learning new things and keeping up with the pace of others) were, in contrast, related to increased planning of certain types. They suggested that information about work-related rewards may be useful for targeting individuals who might benefit from retirement planning programs, developing programs to help workers realize more complex retirement plans, and assisting employers who hope to retain older workers. Relevant next questions are who has intrinsically rewarding work and positive social relations on the job? What are the sociodemographic and psychosocial profiles of such individuals? Moreover, who are the individuals who manage to find intrinsically rewarding activities and quality social relations *post-retirement*?

Boeri and Baunach (2001) used the second wave of HRS (1994) to examine effects of education on full-time work, part-time work, and full retirement, controlling for demographic and contextual variables (only respondents aged 50 to 70). Their findings showed that education was a significant positive determinant of employment among this age group, suggesting that early retirement trends could reverse, as the most educated cohorts in American history reach retirement age.

Focused on retirement expectations, Honig (1996) used first wave of HRS to investigate subjective probabilities of working full time after age 62 on samples of married men and women across three groups (whites, African Americans, Hispanics). Factors included in the models included health, health insurance, pension, Social

Security, spouse's health and work status, job stress and repetitive tasks. Differences by race and gender were found. Honig (1998) also identified the factors influencing older women's expectations of working after age 62 (e.g. expected wage and non-wage compensation such as employer-provided health and disability insurance, and pension income). Like earlier generations, wives are also influenced by their husbands' plans, suggesting a tendency toward joint retirement.

Hurd and McGarry (1995), in contrast, have studied subjective probabilities future length of life, that is, about one's chances of living to the age 75 or to 85. They found that respondents' subjective probabilities are good approximation to actual population probabilities. Moreover, their subjective probabilities vary in systematic and reasonable ways with diseases, socioeconomic status, self-assessed health, and indicators of family longevity. Similarly, Holden, McBride, & Perozek (1997) examined how personal characteristics and health conditions influence expectations about nursing home use, and found subjective expectations to be quite close to known probabilities of lifetime use. There were marked differences in the determinants of expectations for women and men that also conformed to actual behavior. Married men, for example, who are likely to die before their spouses, have relatively low expected probabilities of nursing home use. Women, in contrast, take into account the number of children when forming expectations. Health conditions have a stronger effect on the expectations of men than women. Other factors, such as family history of nursing home use, family structure, and education, are strongest predictors of nursing home expectations for women.

Summary. The above studies document sociodemographic variations in planning for retirement, and further demonstrate that subjective probabilities in various areas (e.g.,

chances of living to particular ages, likelihood of nursing home use) are close to actual population probabilities. Nonetheless, it is likely that numerous dimensions of individual differences influence responses to these kinds of questions. From a psychological perspective, personality characteristics such as neuroticism, on the one hand, or optimism, on the other, may well account for notable variance in self-reports of what the future holds. Sense of control and depression are also likely components of construing what lies ahead. Moreover, psychological studies of goal orientations document that some are tenacious in their future strivings, while others are flexible and accommodative (Brandstadter, Wentura, & Rothermund, 1999). These differences have also been shown to vary systematically with age. (Note, MIDUS includes scales to assess these various orientations). Psychologists have also clarified that not all future pursuits lead equally to well-being. Ryan, Sheldon, Kasser, and Deci (1995), for example, showed that external goals (e.g., money, fame, good looks) are associated with poorer mental health than pursuits related to needs for competence, relatedness, and autonomy.

Perhaps most importantly, psychologists have clarified that many people are not realistic in their future expectations – that is, they are prone to “positive illusions” in which they paint rosy pictures about their own future performance on certain tasks as well as their future health. Although economists may underscore the veridicality of subjective probabilities (i.e., their close fit with population probabilities), psychological research makes a notably different point – namely, that positive illusions (e.g., unwarranted optimism about the future) are pervasive. More interesting, psychological studies show that such distorted future outlooks actually influence subsequent objective outcomes (e.g., survival). Taylor, Kemeny, Reed, Bower, & Gruenewald (2000), for

example, demonstrated that those who are HIV positive *and* have illusory expectations about how long they will live (i.e., their expectations exceed medical prognoses) *actually live longer* than AIDS patients with realistic future expectations. Viewed collectively, scientific findings on how human construe their futures is an area ripe for cross-disciplinary exchange.

E. Voluntary/Involuntary Job Loss and Their Consequences

The retirement transition and its impact on health is ostensibly the *sine qua non* of HRS. Successful negotiation of this life change clearly implicates economic resources, but there are other critical ingredients to “positive retirement” as well. Psychological and social phenomena are likely to play major roles in understanding how this major life transition unfolds. Briefly noted below are illustrations of HRS studies in this area.

Involuntary job loss was studied with the 1992 and 1994 waves of HRS (Gallo, Bradley, Siegel, Kasl, 2000), showing negative effects on both physical functioning and mental health (after controlling for baseline status and sociodemographic factors). Among displaced workers, reemployment was positively associated with both follow-up physical functioning and mental health. Thus, the authors argued for a causal relationship between job loss and morbidity among older workers. There are likely wide individual differences in how job loss is handled. Psychosocial factors (e.g., coping skills, sense of control, optimism, neuroticism, quality social support) are likely moderators or mediators of the health impacts of job loss.

Gallo, Bradley, Sigel, and Kasl (2001) linked involuntary job loss to subsequent alcohol consumption using 1992 and 1994 waves of HRS. After baseline alcohol consumption and various SES and illness-related covariates were controlled, involuntary

job loss was not associated with number of daily drinks consumed at follow-up.

However, among those who did not consume alcohol at baseline, individuals who suffered involuntary job loss were twice as likely as continuously employed individuals to start drinking at follow-up. However, the magnitude of the change was quite modest.

Shultz, Morton, & Weckerle (1998) investigated push (e.g., poor health) and pull (e.g., leisure interests) factors on decision to retire and adjustment after retirement. Both influenced the decision to retire. Once retired, negative (push) factors were more salient in distinguishing between the two groups of retirees. Those who perceived the retirement to be voluntary had higher life satisfaction scores and rated themselves as healthier (mentally and physically) than those who perceived their retirement as involuntary

Daly and Bound (1996) investigated responses of workers and their employers to onset of work-limiting health impairments. Results indicated that many workers who suffer from health limitations are directly accommodated by their employers, and that those who do not receive direct accommodation frequently adapt to their limitations by altering their job demands or changing jobs. Findings point to potential for adjustments on both sides of the market: by employers, in the form of accommodation, and by employees, in the form of job change.

Are health problems determinants of retirement? Dwyer & Mitchell (1999) found that health problems influence retirement plans more than do economic variables. Specifically, men in poor overall health expected to retire one to two years earlier, an effect that persists after correcting for potential endogeneity of self-rated health problems. There was no evidence to support the justification hypothesis – i.e., that those who dislike their work might exaggerate their health problems and retire sooner.

Is retirement depressing? Charles (1999) observed that the raw correlation between retirement and well-being is negative, but noted that this does not imply causation because people with idiosyncratically low well-being or people facing transitory shocks which adversely affect well-being might disproportionately select into retirement. He used discontinuous retirement incentives in the Social Security System, and changes in laws affecting mandatory retirement and Social Security benefits to estimate the exogenous effect of retirement on happiness and found that the direct effect of retirement on well-being is positive (once the fact that retirement and well-being are simultaneously determined is accounted for). Well-being was measured with two questions – whether the respondent was recently been feeling depressed or lonely.

Summary. In general, there does not appear to have been extensive investigation of the effects of retirement on health and well-being, although involuntary job loss has been examined in some detail. What proportion of HRS respondents who have retired show positive adjustment, post-retirement? Moreover, what are the key ingredients to successful retirement transitions? Is good health and well-being after retirement more strongly accounted for by SES factors (education, income), or psychological factors (e.g., planfulness, sense of control, optimism), or social factors (e.g., spousal support, meaningful engagements)? Particularly promising for probing positive adjustment to retirement are assessments of “productive activities.” Luoh and Herzog (2001) asked whether older adults derive health benefits from performing the productive activities of volunteer and paid work. Using cross-time data to deal with causal ordering between productive activities and health, they found that volunteer and paid work performed by at least 100 annual hours by AHEAD Wave 3 were related to subsequent good health and

survival by Wave 4, even after preexisting health status at Wave 2 and potential confounding factors were controlled. They called for more work on the mechanisms involved, referring to positive identity and high well-being as promising directions for clarifying how productive activities influence good health. This suggests fruitful interface with assessments of psychological well-being (e.g., purpose in life, self-acceptance). Researchers at the Wisconsin Mind/Body Center are currently probing the physiological substrates (e.g., neural circuitry, allostatic load, immune function) of these aspects of positive life quality. HRS could usefully advance knowledge of the environmental influences (e.g., socioeconomic factors, productive activities) that contribute to high levels of purpose and self-regard.

Conclusions and Recommendations

When multiple disciplines were brought together to create the Health and Retirement study, the primary players were economics, sociology, epidemiology, and demography (Juster & Suzman, 1995). Psychology was notably absent. Nonetheless, as described above, a great deal of HRS inquiry has incorporated psychosocial factors. In addition, many HRS investigators have, in the discussion sections of their publications, acknowledged the limitations of the dataset in these areas. Still, the HRS horse has been out of the barn for many years, thus complicating the question of how much psychosocial assessment, if any, should be added to the investigation at this late date. The answer seems bound to future plans for the study – if extensive future waves are planned, then strengthening the psychosocial assessments makes enormous sense, as these measures will significantly enhance a wide array of substantive scientific agendas. Assuming such

a future lies ahead, I have organized my recommendations for psychosocial refinements according to the following key points.

- **THE NEED FOR BETTER MEASURES WITHIN EXISTANT AREAS**

Family structure has been a core area of assessment since the inception of HRS (Soldo & Mills, 1995). However, the focus has been overwhelmingly on quantitative features of family life (e.g., frequency of contact, geographic proximity, economic resources of family members, giving of instrumental support) across a large number of relationships (e.g., children, grandchildren, parents, stepparents, siblings), not *quality* of family relationships. The only assessment of relationship or role quality has been a single-item measure of satisfaction, applied to select areas (e.g., health, financial situation, friendships, marriage, family life, life as a whole).

Much better instruments for assessing relationship quality could substantially strengthen the HRS. Needed are measures of multiple aspects (e.g., support, affect, strain) of diverse relationships (spouse, family, friends). To illustrate possibilities therein, I will bring to the Arizona meeting copies of the MIDUS assessments in the social relational realm.

- **NEED FOR NEW AREAS OF ASSESSMENT**

Across the above areas of analysis, I have repeatedly made the point that HRS needs to improve its assessment of positive aspects of mental health. While the study has included extensive work on the measurement of depressive symptoms and depressive episodes (Fonda & Herzog, 2001; Turvey, Wallace, & Herzog, 1999), the measurement of the psychological well-being has been deficient. Other major surveys (MIDUS, NSFH, WLS) all now include assessments of multiple aspects of well-being, and as noted above,

these have become prominent variables in scientific products. HRS would do well to include similar measures.

Beyond measurement of well-being, I have tried to make a case for numerous other individual difference variables (e.g., personality traits, sense of control, optimism, coping strategies, goal orientations) that are center-stage in psychological studies of aging (Ryff, Kwan, & Singer, 2001). My review identifies many areas of inquiry that could fruitfully employ these variables, which are frequently employed as moderators or mediators of the links between various antecedents (SES, race/ethnicity, role statuses, etc.) and health outcomes. The assessments of perceived inequalities and perceived discrimination would also be valuable additions. I will bring instruments from MIDUS to the meeting to illustrate the above areas of assessment.

Obviously, HRS cannot absorb all of these new psychosocial areas into its future data collection. Those that are deemed central across multiple substantive areas should be added to the core assessments. Others, however, might be added to the study through experimental modules, as for example, in the topical module on childhood health (Blackwell, Hayward, & Crimmins, 2001). Similar topical modules might be developed to probe the role demands and resources that have been hypothesized to link living arrangements to health outcomes (Hughes & Waite, 2002), or to obtain the missing areas of role demands and satisfactions linked to depressive symptoms (Reid & Hardy, 1999).

I note there was a previous module that attempted to bring personality traits into HRS (Swallen & Hurd, 1997). The findings did not support a strong influence of personality, either on demographic or economic behaviors. However, the measures used were questionable and incomplete – assessments of 3 of the 5 major factors of personality

(neuroticism, agreeableness, openness) were excluded. The analyses also lacked a compelling conceptualization of how personality and economics might be meaningfully linked.

- **NEED FOR MORE INTEGRATIVE PATHWAY ANALYSES**

On the “big” topics that garner scientific attention across major surveys of aging (e.g., how social inequalities and race/ethnicity contribute to later life morbidity and mortality), there is growing recognition that single-variable explanations will not reign supreme, and thus, that future analyses must incorporate complex combinations of variables that include co-occurring risk and protective factors as well as co-occurring health outcomes (i.e., comorbidity). This awareness adds to the rationale for strengthening the psychosocial assessments within HRS, as a realm that will also contribute importantly to variance explained. My review also emphasizes “pathway” approaches, pursued with person-centered methods, as promising future directions for HRS.

- **INCREASED INTERPLAY BETWEEN ANALYTIC AGENDAS**

In reviewing HRS products across multiple areas of inquiry, I was struck by the lack of interplay among them. The social inequalities investigators exist in distinct zones from the family relationship, subjective probabilities, or retirement planning researchers. This is not a fault of the study. On the contrary, it speaks to the appeal of HRS to investigators across many substantive areas. At the same time, there may be considerable untapped synergies between these diverse areas. To promote greater exchange among HRS users, it may be valuable to host conferences designed to get, for example, those who study social inequalities in health interacting more substantively with those who study social relationships and health. As noted in my review, social relationships have been

conceptualized and studied as both health assets and sources of stress. SES and race/ethnicity may be critical factors in predicting where the social world is a protective buffer and where it is vulnerability or risk factor.

- **RECOVERY FUNCTIONS: TRACKING THE DYNAMICS OF LATER LIFE CHALLENGES**

Increasing numbers of HRS publications exploit the longitudinal strengths of the study to obtain sharper understanding of change processes and causal dynamics (e.g., Gallo, Bradley, Sigel, & Kasl, 2001; Hughes & Waite, 2002; Ostermann & Sloan, 2001; Perreira & Sloan, 2001; Smith, 1998; Turvey, Carney, Arndt, Wallace, & Herzog, 1999; Wray, Herzog, Willis, & Wallace, 1998). Because so many HRS respondents are likely dealing with numerous later life challenges (e.g., retirement, involuntary job loss, caregiving, death of spouse, relocation, acute health events), a promising and neglected area pertains to recovery from later life challenge. That is, under what conditions and for what kinds of individuals, is it possible to regain health and well-being following adverse events? Clark, Stump, and Wolinsky (1998) used HRS data to examine recovery from mobility difficulties. Further inquiries dealing with the resilience of HRS respondents would contribute a useful counterpoint to the prevailing emphasis what predicts illness, disability, and death. Psychosocial variables are likely to be prominent in understanding later life resilience (Ryff, Kwan, & Singer, 2001).

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(* Indicates publication from HRS and/or AHEAD)

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