The Meaning of Older Adults' Health Appraisals: Congruence With Health Status and Determinant of Mortality

Elaine A. Borawski,[1] Jennifer M. Kinney,[2] and Eva Kahana[3]

[1]Department of Epidemiology and Biostatistics and [3]Department of Sociology, Case Western Reserve University.
[2]Gerontology Program, College of Health and Human Services, Bowling Green State University.

This study explored open-ended responses regarding attributions underlying health appraisals made by older adults, resulting in five categories (physical health, attitudinal/behavioral, externally focused, health transcendence, non-reflective). The older the respondents, the less likely they were to focus on physical aspects of their health. Health optimists were the most likely to make attitudinal/behavioral or health transcendent attributions, while poor-health realists were most likely to mention physical health aspects and least likely to make attitudinal or behavioral attributions. While poor-health realists were at the highest risk of dying within a three-year period, health optimists were significantly less likely to die than poor-health realists, in spite of sharing similar health status. Respondents who were unable to identify underlying attributions were significantly more likely to die than were those identifying any other attribution. In conclusion, health attributions provide unique insight into the complex relationship between older adults' health appraisals, health status, and mortality.

IN recent years, investigators have become increasingly interested in the perceptions that older adults have regarding their physical health. This interest has been stimulated by research documenting that older adults' subjective appraisals of their health are oftentimes inconsistent with more objective health indicators (Cockerham, Sharp, and Wilcox, 1983; Levkoff, Cleary, and Wetle, 1987; Maddox and Douglas, 1973; Palmore and Luikart, 1972) and, perhaps more significantly, that appraisals of health appear to be far more important to continued health and survival than is the actual state of one's physical health (Chipperfield, 1993; Idler and Kasl, 1991; Maddox and Douglas, 1973).

Early gerontologists were the first to document inconsistencies between older adults' global evaluations of their health (e.g., rating one's health from "excellent" to "poor") and more objective health indicators (e.g., number of chronic conditions, sick days, medications, functional limitations; Maddox, 1962; Peck, 1968; Shanas et al., 1968). Moreover, these differences have been found whether the objective indicators were based on self-reports or clinical assessment (e.g., Ford et al., 1988; Maddox and Douglas, 1973). However, the nature of these discrepancies has been inconsistent across investigations. While some research indicates that older adults overestimate their health (Cockerham, Sharp, and Wilcox, 1983; Ferraro, 1980; Fillenbaum, 1979; Maddox and Douglas, 1973; Shanas et al., 1968), and that older adults are, for the most part, "health optimists," other studies suggest that certain older adults underestimate their health (Goldstein, Siegel, and Boyer, 1984; Levkoff, Cleary, and Wetle, 1987; Palmore and Luikart, 1972; Peck, 1968; Shanas et al., 1968), thereby earning the label of "health pessimists."

Although these early studies highlighted the complexity of global health appraisals, their significance to the lives of older adults was not fully realized until a series of epidemiological studies identified self-assessed health as a major predictor of mortality among older adults (Hooker and Siegler, 1992; Idler and Kasl, 1991; Kaplan, Barell, and Lusky, 1988; Kaplan and Camacho, 1983; Mossey and Shapiro, 1982; Wolinsky and Johnson, 1992). A striking commonality of these methodologically sophisticated studies is the highly robust relationship found between self-assessed health and mortality, even after controlling for an exhaustive array of potential confounds such as demographic and socioeconomic factors, physical health status, functional health status, family health history, health behaviors, drug use, and psychosocial factors.

Moreover, emerging from these studies is the finding that not only are those with poorer health appraisals at a higher risk of dying, but those who are able to maintain positive appraisals of their health in the face of poor objective health may actually reduce their risk of mortality. This led Chipperfield (1993) to suggest that the explanatory value of subjective health is maximized when considered in relation to more objective self-reported health indicators, such as the number of chronic conditions. In her study of older Canadians, Chipperfield classified individuals as "well" (i.e., no chronic conditions), "typical" (i.e., 1 to 3 conditions), and "ill" (i.e., 4 or more conditions) and then cross-classified the three groups with their self-assessed rating of health. Examining the associations between the different patterns of congruence and mortality, she found that "well" older adults who were health pessimists (i.e., self-assessed health less favorable than objective status) were at higher risk of mortality, whereas pessimism did not place "typical" older adults at risk. Moreover, among both "typical" and "ill" older adults, health optimists (i.e., self-assessed health exceeded objective status) exhibited lower rates of mortality.

While the concept of health congruence is useful in gaining a clearer understanding of the linkages between self-rated health and mortality, the mechanism underlying this relationship remains unclear. We suggest that to further elucidate links between subjective health appraisals and mortality, we must look beyond the traditional health or medical explanations and expand our conceptualization to the broader social meaning of health appraisals, as well as their social context as expressed in social structural variables such as gender and age. Thus, the current research explored the rationale and meaning underlying older adults' health appraisals. That is, older adults were encouraged to reflect on their reasons for assessing their health in a particular manner (e.g., "excellent"; "fairly healthy"). This inquiry was conducted using an open-ended, qualitative format in order to allow older adults to individually define the context in which they view their health.

Lay Perceptions of Health

Researchers have long acknowledged that subjective health appraisals include more than the physical aspects of health (e.g., Hooker and Siegler, 1992; Liang, 1986); however, with a few notable exceptions (Krause and Jay, 1994; Strain, 1993; Williams, 1983), lay meanings of health have received relatively little attention in the gerontological literature (Blaxter, 1990). Krause and Jay (1994), in a qualitative study of the health appraisals made by individuals of all ages, found that older respondents were more likely to use health problems as a referent for their global health appraisal while younger subjects focused on health behaviors. Strain (1993), using forced-choice categories, examined how older adults felt that their age peers and younger people defined good health. She found that older adults believed that age peers defined good health as the ability to perform activities, while younger age groups defined health as a general sense of well-being. While these studies have provided a useful first step in gaining a better understanding of the value of health among the elderly, they are limited in several ways. First, with the exception of Krause and Jay (1994), these studies rarely link the meaning of health to the older person's own health appraisal. Second, none of the above mentioned studies address the incongruence with other self-rated health measures or explain how these attributions relate to long-term outcomes such as mortality.

The purpose of this research was to explore the attributions underlying older adults' global health appraisals and to address the above limitations through the following research objectives:

(1) Document the types and characteristics of attributions underlying health appraisals among a sample of older adults.

(2) Explore the social context in which health attributions arise (i.e., whether attributions differ by age or gender).

(3) Examine the role of attributions in understanding the (in)congruence between health appraisals and objective health status.

(4) Determine whether health attributions provide unique insight into the predictive relationship between global appraisals of health and mortality among older adults.

Social Context of Health Appraisals: Age and Gender

Age is frequently employed as the explanatory variable for discrepancies between health appraisals and more objective health indicators, whether comparing older adults to younger adults or making comparisons within the older population itself. For example, some researchers have reported that the older the respondents, the poorer their health appraisals (Levkoff, Cleary, and Wetle, 1987). Others have found that, at any given level of objective health status, the older the respondents, the better their self-assessed health (Ferraro, 1980; Idler, 1992; Stoller, 1984). A number of plausible explanations for these findings have been reported in the literature. First, some researchers (Idler, 1992; Maddox, 1962; Shanas et al., 1968) suggest that the tendency for older adults to be health optimists might be explained in terms of reference group theory, whereby older adults rate their health favorably when comparing themselves to age peers, in spite of having specific health problems. Others have suggested that older adults are likely to normalize their symptoms, assuming that difficulties are age-related, rather than indicative of physical illness (Williamson et al., 1964). Alternatively, Leventhal (1984) and Verwoerdt (1981) suggest that an accumulation of stressors facing older adults leads them to become preoccupied with bodily symptoms, thereby behaving as health pessimists. Finally, Idler (1992), drawing from Peck's (1968) developmental work, suggests that some older people are able to change the meaning of the concept of health from a disease or functioning definition to one that is based on other personal or social characteristics (i.e., intellectual abilities, spiritual qualities, social relationships). Based on this literature, we anticipated that older respondents would be more likely than their younger counterparts to attribute their health perception to aspects unrelated to their actual health status, such as their outlook on life, their social relationships, or in comparison to others.

With respect to gender and health, research has amply documented differences between men and women. While men have significantly higher mortality rates, women experience higher rates of morbidity, disability, and health service use, and are more likely to identify and report physical conditions and bodily symptoms (Pennebaker, 1982; Verbrugge, 1985). Nonetheless, research has also documented that among older adults, women tend to provide more positive self-assessments of their health, despite the fact that they tend to have more objective problems than men (Ferraro, 1980; Fillenbaum, 1979). Thus, while it is likely that men and women perceive their health and its underlying attributions differently, the nature of these differences is as yet unknown.

Attributions and Health Congruence

The work of Chipperfield (1993) and others (e.g., Idler and Kasl, 1991) has highlighted the value of maintaining positive views of one's health in spite of health problems. However, it remains unclear as to what distinguishes two individuals with similar health status but different subjective appraisals (e.g., optimists vs poor-health realist). Our third research objective concentrates on this question by exploring the attributions provided by members of four health congruent groups (i.e.,

good-health realists, pessimists, optimists, and poor-health realists). More specifically, we were interested in determining whether there were differences between the four groups in: (a) the nature of the attributions identified, and (b) the valence of the attributions (i.e., whether attributions were positive or negative in nature). Based on the work of Peck (1968) and others (Leventhal, 1984; Maddox, 1962), we anticipated that health optimists would be more likely to ignore aspects of their physical health and focus instead on personal or social characteristics, while in contrast, health pessimists would be less inclined or able to change their focus from their conditions or physical functioning.

Attributions, Health Congruence, and Mortality

The final objective of this research was to examine, at two levels, the extent to which health attributions contribute a better understanding of the relationship between self-rated health and mortality. First, we examined health attributions as predictors of mortality in order to determine whether, as a group of variables, they accounted for risk in mortality beyond that explained by global health appraisals, objective health indicators, and health congruence measures assessed in previous investigations (e.g., Chipperfield, 1993; Idler and Kasl, 1991; Wolinsky and Johnson, 1992). The second level of inquiry focuses on specific attributions and the relative impact each has on the risk of mortality among older adults.

All of the major epidemiological studies that have focused on the relationship between health appraisals and mortality (Chipperfield, 1993; Hooker and Siegler, 1992; Idler and Kasl, 1991; Kaplan, Barell, and Lusky, 1988; Kaplan and Camacho, 1983; Mossey and Shapiro, 1982; Wolinsky and Johnson, 1992) have included a set of covariates when examining the association between two major variables. While specific operationalizations differ slightly across studies, the covariates generally included are demographic variables (i.e., age, sex, marital status), measures of "objective" health status (i.e., chronic conditions, medications, functional status), health behaviors (i.e., exercise, smoking, drinking); family health history and psychosocial factors (i.e., well-being, social support). Therefore, in order to enable comparisons between the results of the current research to these earlier studies, a set of similar covariates (i.e., age, gender, marital status, education, parental longevity, smoking, exercise, body mass index, psychosocial well-being) were employed as a baseline model. The rationale for each of these variables has been extensively discussed in the previous studies, and therefore, interested readers are encouraged to refer to the original studies for the theoretical and empirical justification for the inclusion of these variables.

METHODS

Sample

The sample comprised 885 adults over the age of 73 who were residing in one of three retirement communities on the west coast of Florida. These respondents are part of an ongoing, longitudinal investigation of the late-life adaptation of elderly migrants as they approach very old age and

face increasing frailty. Based on the larger study aims (Kahana and Kahana, 1996), participation in the study required respondents, at the time of recruitment, to be: (a) age 72 or older, (b) living in Florida at least nine months of the year, and (c) to be, in their opinion, sufficiently healthy to be able to complete a 90-minute, face-to-face interview.

Using computerized resident listings provided by the managers/owners of the retirement communities, households were randomly contacted by telephone to determine whether a member of the household met the eligibility criteria. For those households where more than one member was eligible for participation, a systematic procedure of selecting one or more members for participation was utilized (Kish, 1965). The total resident population of the three communities was 5,204 households, in which 3,905 households were randomly selected before the predetermined 1,000 study sample was reached. Among the households initially contacted, 48.9 percent ($n = 1909$) were excluded due to known ineligibility, including 25.8 percent due to age, 15.5 percent due to residency, and 7.6 percent due to poor health. In addition, 13.4 percent ($n = 522$) households were contacted but refused participation; however, many of these contacts were severed prior to eligibility being established. Finally, 14.5 percent ($n = 566$) of households were unable to be reached, even after as many as five attempts, including letters, phone calls, and/or personal visits by interviewers. The final sample comprised 1,000 respondents, representing 908 households, who completed full, face-to-face interviews in their homes or occasionally at a place of their convenience. Based on those households reached (including all refusals; $n = 1430$), the response rate at baseline was 63.5 percent; however, excluding the estimated ineligible households among the refusals, the response rate increases to 77.3 percent (908/1175).

The data reported in this study are drawn from the second wave of data collection, conducted in 1989, one year after the baseline data were collected. Excluding 32 deaths and three proxy interviews, 889 or 92.1 percent of the original sample of 1,000 respondents completed the second, face-to-face interview. Four respondents were excluded from the study due to missing data, thus resulting in a total sample of 885.

As part of the ongoing, longitudinal project, respondents are contacted and reinterviewed annually with in-home, face-to-face interviews. Noninterviewable status (i.e., death, institutionalization) of all respondents is verified each year through contact with kin or a contact person predesignated by the respondent. The mortality data employed in this report were collected through the fifth year of data collection in 1992, thus representing a 3-year span. In this time frame, 79 of the 885 respondents (8.9%) had died.

Table 1 provides a demographic description of the study sample, as well as the measures used in the subsequent mortality analyses. The mean age of respondents was 80.25 ($SD = 4.8$; range $= 73-98$); 65.9 percent of the sample was female, and 45.6 percent of respondents were married. The sample was fairly well educated, with over 86 percent having at least a high school education, and nearly one quarter of the sample (24.4%) having earned a college degree. All respondents were Caucasian, reflecting residential populations of Florida retirement communities.

Table 1. Measures and Description of Sample (N = 885)

Variable	Mean (SD) or n (%)		Range
Demographics			
Age (yrs)	80.25	(4.80)	73–98
Age (n/%)			
<75	83	(9.4%)	
75–79	356	(40.2%)	
80–84	291	(32.9%)	
85+	155	(17.5%)	
Gender (female)	583	(65.9%)	
Marital status (nonmarried)	481	(54.4%)	
Education (yrs)	13.48	(2.76)	1–23
Global Health Appraisal			
Very healthy	214	(24.2%)	
Healthy	375	(42.4%)	
Fairly healthy	272	(30.7%)	
Sick or very sick	24	(2.7%)	
Objective Health Status (n/%)			
1 + "very severe" or 2 + "severe" conditions	160	(18.1%)	
Frequent and intense pain	138	(15.6%)	
5 + prescription meds	128	(14.5%)	
Frequent and intense shortness of breath	66	(7.5%)	
Health Status Index (n/% of problems)			
None	577	(65.2%)	
One	169	(19.1%)	
Two	101	(11.4%)	
Three	31	(3.5%)	
Four	7	(0.8%)	
Control Variables (used in mortality models)			
Mother's age at death or current age	75.81	(15.55)	19–106
Father's age at death or current age	71.19	(15.15)	22–102
Current smoker (n/%)	38	(4.3%)	
Past smoker (n/%)	400	(45.2%)	
Regular exercise (n/%)	439	(49.6%)	
Body mass index (wt/ht^2)	24.08	(3.78)	12.41–41.99
Life satisfaction	11.80	(3.16)	5–25

Measures

Health appraisal and underlying attributions. — Self-assessed global health was measured by having respondents indicate on a 5-point scale whether they "consider themselves to be *very healthy, healthy, fairly healthy, sick,* or *very sick.*" Immediately following this forced-choice question, respondents were asked to explain the reason(s) for their appraisal (i.e., "could you tell us why you feel this way?"). Subjects' responses were recorded verbatim. Fifty randomly selected cases were initially examined to develop the coding scheme for categorizing the open-ended responses. The remaining cases were then independently coded, compared, and reconciled by two of the authors, with an inter-rater reliability of 98.5 percent.

Physical health status. — In order to conceptualize health from a health congruence framework (Chipperfield, 1993), a measure of physical health status was needed to cross-classify with respondents' global health appraisals. In this study, four indicators were used to identify respondents with significant health problems: chronic medical conditions; use of prescription drugs; reported frequency and intensity of pain; and shortness of breath. In comparison to single indicators traditionally used (e.g., number of chronic conditions), the use of multiple indicators provides a better estimation of the severity of health conditions, and also captures those respondents who rarely see a physician (Liang, 1986; Rosencranz and Pihlblad, 1970). For each of the above indicators, respondents were classified as having significant health concerns (coded 1) or not (coded 0), based on the criteria described in the following sections.

Chronic conditions. — Respondents indicated whether they had each of 20 common chronic conditions included in the Older Americans Resource Study (OARS; Duke University, 1978). For each occurring condition, respondents reported whether it had been diagnosed by a physician and then rated the severity of the condition along a 4-point scale ranging from *not at all* (1) to *very severe* (4). Respondents were considered to have significant health concerns in subsequent analyses if they had one or more condition that they considered to be very severe, or two or more conditions that they considered to be severe. This method was chosen over the more commonly used measure of disease (i.e., total number of conditions) because of its ability to distinguish those individuals with highly critical and perhaps life-threatening conditions (i.e., cancer, heart disease) from those with multiple, but less severe, conditions.

Medications. — Respondents who indicated that they took five or more prescription medications during the past month were considered to have significant health concerns in subsequent analyses. This cutoff point was considered a conservative quantity based on published estimates from the OARS (Fillenbaum, 1979) that the average number of medications consumed by community-living elders in one month was 2.3, as compared to 3.6 by institutionalized elders.

Pain. — Two questions assessed the extent to which respondents were in pain. First, respondents indicated the frequency of pain experienced in the past year on a 5-point scale ranging from *never* (1) to *always* (5). Those respondents who indicated that they were in pain then rated the severity of their pain on a scale ranging from *no pain* (1) to *unbearable pain* (10). Respondents who indicated that they were frequently or always in pain (i.e., 4 or higher on the first question) *and* had pain of moderate intensity (i.e., 5 or greater on the second question) were considered to have health problems in subsequent analyses. This method was utilized in order to distinguish acute episodes of pain from more intensive, chronic pain experiences (Mechanic and Angel, 1987).

Shortness of breath. — Shortness of breath, which is often considered in the medical literature to be indicative of underlying cardiopulmonary difficulties (Scanlon, 1978), was measured by two items. First, respondents indicated the

frequency with which they experienced shortness of breath on a 5-point scale ranging from *never* (1) to *always* (5). Second, respondents indicated along a 5-point scale ranging from *none* (1) to *very much* (5) the degree of shortness of breath they experienced when climbing a flight of 10 stairs. Those respondents who frequently or always experienced shortness of breath (i.e., 4 or 5 on the first scale) and who experienced much or very much difficulty climbing stairs (i.e., 4 or 5, on the second scale) were considered to have health problems in subsequent analyses.

Based on the criteria described above, a health status measure was then created by summing the number of indicators of poor health, ranging from 0 to 4.

Control variables. — Demographic control variables included in the study were age, gender (male = 0, female = 1), years of education, and marital status (married = 0, non-married = 1). In addition, a number of variables were included as control variables in the mortality analysis, including health behaviors, parental longevity, and psychosocial well-being.

Health behaviors included regular exercise, smoking history, and a measure of obesity. Exercise was assessed as a dichotomous variable based on whether the respondent reported engaging in aerobic type exercise at least three times a week. Smoking history was assessed with two dichotomous measures based on whether the respondent reported being a current or past smoker. Finally, a body mass index (i.e., current self-reported weight in kilograms divided by height in meters squared) was used as a measure of obesity. As a crude measure of family health history, we used parental longevity with mother's and father's age at death or, for the eight respondents with living parents, the parent's current age. Finally, Diener and associates' (1985) five-item Satisfaction with Life Scale was used as our measure of psychosocial well-being.

Analytic Strategy

Both descriptive and multivariate techniques were employed to address the four research objectives. First, basic descriptive statistics were used to describe the type and frequency of health attributions provided by respondents. Next, to determine the influence of age and gender on the type of health attributions, we conducted a series of binomial logistic regression analyses. In these analyses, physical health-focused attributions (e.g., conditions, symptoms) served as the reference group, and age, gender, and the closed-ended health appraisal served as predictor variables. The third research objective entailed the development of the four health congruence groups based on the cross-classification of global health appraisals and objective health status (e.g., disease, medications). Chi-square analyses were then conducted to determine whether the attributions provided by members of the four groups differed with respect to the types and valence of the attributions made.

In the last set of analyses, a series of hierarchical logistic regression models of three-year mortality were conducted to examine the role of health attributions in explaining the linkages between global health appraisals and mortality. To do so, a two-stage analytic strategy was employed. First, the

over-all value of health attributions in the mortality model was assessed by comparing the two alternative sets of models previously documented in the literature: (a) the direct effects of objective vs subjective health on mortality (e.g., Idler and Kasl, 1991; Wolinsky and Johnson, 1992) and (b) the interaction effects of objective and subjective health (measured by health congruence) on mortality (Chipperfield, 1993). As stated earlier, a model consisting of demographics, family history, health behavior, and psychosocial variables served as a baseline for all comparisons. By decomposing the effects and examining the change in the likelihood ratio chi-square (G^2) credited to inclusion or exclusion of health attributions in the various models, we were able to determine the unique contribution of health attributions to the risk of mortality.

The second analytic stage focused more specifically on the individual health attributions and their relative effect on the predicted risk of mortality. That is, coefficients and odds ratios were examined based on the final steps of the hierarchical logistic regression models to identify the effects of health attributions, baseline variables, and covariates on the risk of three-year mortality.

RESULTS

Health Appraisals and Attributions

As shown in Table 1, respondents considered themselves to be relatively healthy, with 66.6 percent of respondents viewing themselves as *healthy* or *very healthy*, and only 2.7 percent as *sick* or *very sick*. While men and women did not differ statistically in their appraisals, older respondents tended to provide poorer health appraisals ($\chi^2 = 27.16, p < .001$), although the relationship was nonlinear in nature (results not shown). For example, less than 17 percent of those under age 75 viewed themselves as "very healthy" as compared to 27 percent of those aged 85 and older. However, for the remaining categories (i.e., healthy, fairly healthy, sick) the relationship between age and health perception was in the expected direction. That is, compared to older respondents, those under age 75 were more likely to view themselves as "healthy," while individuals age 85 + are more likely to view themselves as "fairly healthy" or "sick" than their younger counterparts.

Table 2 displays the first-mentioned attributions respondents made regarding their current health appraisals. Attributions fell into five global categories that we label *physical health focused, health-transcendent, attitudinal/behavioral, externally focused,* and *nonreflective.* Subsumed under the global categories are more specific attribution types, some having both positive and negative dimensions.

Although respondents were encouraged to provide multiple attributions, fewer than 20 percent of the respondents gave responses that fell into more than one global category (see Table 3). Due to this prevalence of single attributions and the analytic advantage of having mutually exclusive categories, only the first attribution mentioned by respondents is used in our analyses. However, further descriptions of multiple attributions are provided in Table 3A and 3B, with the various combinations listed by the first-mentioned attribution.

Table 2. First-Mentioned Attributions Underlying Health Appraisals ($N = 885$)

Health Attributions	n	%	Examples
Physical Health Focused	**516**[a]	**58.3**	
Medical/Health conditions			
Positive	160	18.1	Have few/no problems or conditions; nothing wrong with me; recovering from illness; don't take medications
Negative	77	8.7	I have arthritis, heart troubles, etc. . . .; I need to take medications; had surgery/hospitalized
Physical symptoms			
Positive	120	13.6	No/little pain; I feel good/great; nothing bothers me; no complaints; have lots of energy
Negative	40	4.5	Have pain, problems with breathing; don't feel good/as good as used to; tired/worn out
Functional capacities			
Positive	89	10.1	Able to do what I want; not confined; I'm ambulatory, able to exercise and get around
Negative	30	3.4	Can't do what I want/used to do; I'm declining; slowing down; can't walk as good as I used to
Health Transcendence	**83**	**9.4**	I'm fine except for. . . .; in spite of my. . . . I'm doing great; I do what I can; I cope with it
Attitudinal/Behavioral	**171**	**19.3**	
Psychological			
Positive	106	12.0	Have a good attitude; don't let things bother me; I'm doing great for my age; I think healthy/positive
Negative	13	1.5	What can I expect for my age; nothing I can do about it; have a bad attitude
Life style/Health promotion			
Positive	50	5.6	I exercise; eat right; don't smoke or drink; keep active and on the go; take care of myself
Negative	2	0.2	Don't get enough exercise; not as active as I used to be; I'm lazy
Externally Focused[b]	**81**	**9.2**	
External validation (positive)	63	7.1	Doctors tell me I'm healthy; I'm doing better than others my age/around here; others tell me I look good
Social support (positive)	1	0.1	I have a great spouse/family/friends
External causes (positive)	17	1.9	I'm lucky, feel fortunate; I thank God, genetics
Nonreflective	**34**	**3.8**	Just because I am; I just feel that way; I'm just okay

[a]Bolded numbers refer to the n's and percentages of the global categories, totaling 885 (100%). Non-bolded, subgroup percentages sum to the respective global categories.

[b]No respondents gave negative, externally focused reasons as their first response.

The criteria used to identify attributions as positive or negative differed by global category. For example, in the physical health focused category, attributions were viewed as positive if a specific condition, symptom, or limitation was *absent*, while negative responses in this category reflected the *presence* of a condition, symptom or limitation. Conversely, in the attitude/behavior category, positive attributions were those which reflected the presence of a positive outlook or health promotional behavior while a negative attribution in this category reflected a negative outlook or life-style characteristic. While it was theoretically possible for both dimensions to be included in the externally focused category, no respondents gave negatively oriented external attributions (e.g., doctors tell me I'm very ill) as their first response.

Returning to Table 2, the first global attribution category conforms to traditional definitions of health, encompassing the subcategories of medical conditions, physical symptoms, and functional capacities (Liang, 1986; World Health Organization, 1958). As previously discussed, this category represents the traditional view of health and thus serves as the comparison group for all other attributional categories.

For the purpose of brevity we refer to this baseline category as *health-focused* throughout the remainder of this article.

The second global attribution category includes individuals who, while acknowledging that they have health problems or concerns, appear to have the ability to transcend them when appraising their health. Respondents in this category routinely identified a litany of problems, but in the same sentence concluded, "but I'm doing great" or ". . . and I'm coping just fine." For example, one individual stated, ". . . in spite of everything, I feel good. Like a leaky house, only the roof has problems, the rest of the house is fine." The third global attribution category involves attitudes and behaviors. Subsumed in this category are respondents who attributed their physical health rating to their psychological outlook, as well as to their life style; in particular, health-promoting behaviors. The fourth global category includes attributions based on influences external to the individual. These respondents view their health in relation to what others think or perceive (i.e., external validation), in terms of their social relationships (i.e., social), or causes external to themselves that they have little influence or control over (e.g., due to luck, genetics, God). The fifth

Table 3. Description of Multiple Attributions Provided by Respondents

A. Distribution of Multiple Attributions		
Attribution Combination	n	%
Health-Focused Only	436	49.3
Health-Focused + Att/Beh	58	6.6
Health-Focused + External	16	1.8
Health + Att/Beh + External	6	0.7
Attitude/Behavioral Only	104	11.8
Att/Beh + Health-Focused	49	5.5
Att/Beh + External	15	1.7
Att/Beh + Health + External	3	0.3
Externally Focused Only	65	7.3
External + Health-Focused	9	1.0
External + Att/Beh	4	0.5
External + Health + Att/Beh	3	0.3
Health Transcendent	83	9.4
Nonreflective	34	3.8
	885	100.0

B. Redundancy in Attributions Within Global Categories		None	One	Two	Three +	Total
Number of health-related attributions	n	305	450	117	13	885
	(%)	34.5	50.8	13.2	1.5	100.0
Number of attitudinal/behavioral attributions	n	643	193	42	7	885
	(%)	72.7	21.8	4.7	0.8	100.0
Number of externally focused attributions	n	763	116	6	—	885
	(%)	86.2	13.1	0.7	—	100.0

and final global category includes a group of individuals who were unable to provide a specific reason, attribution, or explanation for their global health appraisal, even with additional probing by the interviewer. The typical response by this group of individuals was "just because I am" or "no reason, I'm just [healthy]." Thus, we categorize these respondents as *nonreflective* in terms of the attributions underlying their physical health appraisals.

Of the five global attribution categories, the health-focused attributions were provided by three-fifths (58.3%) of respondents. The next most frequently cited responses were attitudinal or behavioral, which were identified by approximately one-fifth (19.3%) of respondents. Nearly 20 percent of the respondents' attributions were either externally focused or reflected the ability to transcend their health status. Finally, approximately 4 percent of respondents failed to provide attributions concerning their perceived health status.

As stated earlier, individuals were encouraged to provide multiple reasons for their health appraisal. For descriptive purposes, Table 3 provides an overview of the multiple attributions provided by respondents (A), as well as the redundancy that emerged within global categories (B). As shown in Table 3A, over 80 percent of respondents provided attributions that fell within a single global category. However, among the combinations of multiple attributions given, the most common (65% of those providing multiple responses) was a health-focused attribution coupled with an attitudinal or behavioral quality (e.g., "I don't take any

medications, I eat well and exercise regularly). In addition, 185 (20.9%) respondents provided multiple responses within a single global category (e.g., "I take care of myself, don't smoke or drink and have a good attitude in life"), as displayed in Table 3B.

Age and Gender Differences in Health Attributions

Based on the global categories provided by respondents, our second research question focused on the role of age and gender in the type of attributions provided by older adults, particularly in distinguishing health-focused attributions from other attributions. As stated earlier, a series of binomial, logistic regression analyses were conducted to examine whether gender and age distinguished each of the four nonhealth-focused categories (i.e., attitude/behavioral, external, health transcendence and nonreflective) from the health-focused responses (i.e., medical, functional, symptoms).

Our results (not shown) yielded very few differences. For example, men and women did not differ significantly in any of the global categories. That is, women were no more (or less) likely to attribute their health appraisal to physical health reasons (e.g., conditions, symptoms) than were men. In terms of age, we found only one significant difference: Older respondents were significantly more likely to provide attitudinal or behavioral attributions than attributions based on conditions, symptoms, or functioning ($b = .066$, $SE = .018$, $p < .001$). However, age was not a factor in distinguishing externally focused, health-transcendent or non-reflective attributions from health-focused responses.

Attributions and Health Congruence

The next research question focused on the congruence between respondents' global health appraisals and their objective health status. As outlined earlier, our measure of health status was based on four indicators of poor health: chronic conditions, medications, pain, and shortness of breath. Table 1 presented the distribution of respondents across the four criteria and the summary index. Individuals experiencing any one criterion ranged from 7.5 percent (shortness of breath) to 18.1 percent (health conditions).

Individuals were subsequently classified as having significant health problems (i.e., meeting at least one criterion) or not, and then cross-classified by their global health appraisal (Table 4). We found that among the respondents who met none of the criteria for poor health ($n = 577$), the vast majority were congruent in their perception, with 80.4 percent viewing themselves as "healthy" or "very healthy." On the other hand, 19.5 percent were considered "health pessimists" based on their perception of being only "fairly healthy" to "very sick," in spite of having no major health problems. Among those with significant health problems ($n = 308$), 59.4 percent were congruent in their perception, viewing themselves as "fairly healthy" to "very sick," while 40.6 percent were labeled as "health optimists" based on their perception of being "healthy" or "very healthy" in spite of having major health problems.

We were next interested in determining whether members of the four groups differed with respect to (a) the types of attributions they reported and (b) the extent to which they generated positive vs negative attributions. Tables 5 and 6 present the results of these descriptive analyses.

Our results reveal that health optimists were the least

Table 4. Congruence Between Health Appraisals and Objective Health

Health Appraisal	Physical Health Index (No. of Poor Health Indicators)	
	None	One or more
Very healthy and healthy	Good-Health Realists 464 (80.4%)	Health Optimists 125 (40.6%)
Fairly healthy, sick, and very sick	Health Pessimists 113 (19.5%)	Poor-Health Realists 183 (59.4%)
Total	577 (100%)	308 (100%)

Table 5. Global Attributional Categories of Health Appraisals as a Function of Health Congruence

Attributions[a]	Good-Health Realist ($n = 464$)		Health Pessimists ($n = 113$)		Health Optimists ($n = 125$)		Poor-Health Realists ($n = 183$)		χ^2	p-value
	n	(%)	n	(%)	n	(%)	n	(%)		
Health-focused	269[b]	(58.0)	71	(62.8)	46	(36.8)	130	(71.0)	39.96	<.001
Health transcendence	28	(6.0)	8	(7.1)	24	(19.2)	23	(12.6)	23.19	<.001
Attitudinal/Behavioral	92	(19.8)	20	(17.7)	37	(29.6)	22	(12.0)	14.99	<.01
Externally focused	52	(11.2)	9	(8.0)	14	(11.2)	6	(3.3)	10.77	<.01
Nonreflective	23	(5.0)	5	(4.4)	4	(3.2)	2	(1.1)	5.55	

[a]Attributional categories include: Health-Focused: medical, symptoms, and functional ability (positive and negative combined); Attitudinal/Behavioral: psychological, lifestyle (+ and –); Externally Focused: external validation, social support, external causes (positive only).

[b]Only n (%) of respondents providing first-mentioned attribute is displayed in table. To determine nonresponse, subtract from 885 (100%).

Table 6. Valence of Attributional Categories as a Function of Health Congruence ($N = 851$[a])

Attributions	Good-Health Realists ($n = 464$)		Health Pessimists ($n = 113$)		Health Optimists ($n = 125$)		Poor-Health Realists ($n = 183$)	
	n	(%)	n	(%)	n	(%)	n	(%)
Positive attributions	429	(97.3)	67	(62.0)	109	(90.1)	84	(46.4)
Negative attributions	12	(2.7)	41	(38.0)	12	(9.9)	97	(53.6)
χ^2, p-level			248.02 $p < .001$					

[a]Respondents unable to provide health attributions (nonreflective) excluded from analysis ($n = 34$).

[b]Positive attributions include positive reference to attitudes, behavior, conditions, functioning, external factors, or the ability to transcend health problems (health transcendence). Negative attributions include negative references to condition, function, attitude, or behavior.

likely to identify health-focused attributions and the most likely to mention attitudinal/behavioral and health transcendent attributions (Table 5). In contrast, individuals with similar health problems, but poorer health appraisals (i.e., poor-health realists) were the most likely to focus on conditions, symptoms, or functioning and the least likely to mention attitudinal/behavioral or externally focused attributions.

Next, we examined the prevalence of positive and negative attributions among the four health congruence groups and found striking results (see Table 6). In this analysis, we grouped all positive-oriented and health transcendent attributions together and found that the two groups sharing similar health appraisals (e.g., health pessimists and poor-health realists) were more similar than those sharing objective health status (e.g., health pessimists and good-health realists). For example, 54 percent of poor-health realists and 38 percent of health pessimists provided attributions that were negative in nature, as compared to only 3 percent of good health realists and 10 percent of health optimists.

Health Perception, Attributions, and Mortality

The final objective of the study was to examine the unique contribution of health attributions in predicting 3-year mortality. The analyses involved a number of hierarchical logistic regression models with a set of covariates (e.g., demographics, health behaviors, well-being) serving as the baseline model. Table 7 presents the alternative models of mortality that were tested. In the first four models, we examined the relative impact of health attributions in models similar to those tested by Chipperfield (1993), where health is measured in terms of congruence between subjective appraisals and more objective measures of health status. In these models, the four health congruence groups were dummy coded with the good-health realists serving as the excluded, reference group. Similarly, the global attribution categories were dummy coded with the health-focused attributions (i.e., conditions, symptoms, functioning) serving as the reference group. Table 8 provides the mortality rates for each of the health congruence groups, as well as each attributional type.

As shown in Panel A of Table 7, health attributions made a unique contribution to the mortality risk model not only as a substitute for health congruence (Model 3; Δ G^2 over base model $= 17.49, p < .001$), but also as a contributor above and beyond the effect of health congruence (Model 4; Δ G^2 over Model 3 $= 14.89, p < .01$).

In contrast to the inherent interaction model explored above, the next set of four hierarchical models (Panel B, Table 7) focused on the direct effects of health appraisals, objective health status, and health attributions on mortality (e.g., Idler and Kasl, 1991; Wolinsky and Johnson, 1992). In these models, objective health status was measured with the individual variables previously used to create the health congruence groups (i.e., chronic conditions, pain, medications, shortness of breath). The global health appraisal measure was recoded into three dummy variables with respondents who reported being "very healthy" serving as the reference group.

As shown in the bottom panel of Table 7, two interesting results emerged. First, as found in the above models, health attributions had a unique effect on mortality above and beyond the inclusion of health status and subjective health appraisals (Model 8; Δ G^2 over Model 6 $= 14.76, p < .01$). Second, and perhaps more importantly, our results suggest that when substituted for closed-ended health appraisals, health attributions had a stronger effect on mortality (Model 7; $G^2 = 104.89$) than did closed-ended health appraisals (Model 6; $G^2 = 98.00$) (Δ $G^2 = 6.89$, df $= 2, p < .05$).

The final analyses involve the specific effects of the independent variables on the risk of three-year mortality in the baseline model (Model 1) and the final steps of the

Table 7. Alternative Models of Mortality: Role of Health Status, Self-Reported Health, Health Congruence, and Health Attributions

		Overall Model		Model Improvement	
		G^2	(df)	G^2	(df)
(A) Role of Health Congruence vs Health Attributions					
Model 1:	Demographics, family history, health behavior,				
(Baseline)	and well-being	68.00***	(11)		
Model 2:	Baseline + health attributions	81.77***	(16)	13.77**	(5)
Model 3:	Baseline + health congruence	85.49***	(14)	17.49***	(3)
Model 4:	Baseline + health attributions + health congruence	100.38***	(19)	18.61***[a]	(3)
				14.89***[b]	(5)
(B) Role of Health Status, Closed-Ended Health Appraisal and Health Attributions					
Model 5:	Baseline + health status	87.72***	(15)	19.72***	(4)
Model 6:	Baseline + health status + health appraisal	98.00***	(18)	10.29*[c]	(3)
Model 7:	Baseline + health status + health attributions	104.89***	(20)	17.17**[c]	(5)
Model 8:	Baseline + health status + health appraisal	112.76***	(23)	14.76***[d]	(5)
	+ health attributions			7.87*[e]	(3)

[a]Improvement over Model 2.
[b]Improvement over Model 3.
[c]Improvement over Model 5.
[d]Improvement over Model 6.
[e]Improvement over Model 7.
$*p < .05; **p < .01; ***p < .001.$

Table 8. Three-Year Mortality Rates by Health Congruence Groups and by Attributional Type

	Deaths/Total	%
Health Congruence Groups		
Good Health realists	23 / 464	4.9
Health pessimists	10 / 113	8.8
Health optimists	10 / 125	8.0
Poor health realists	36 / 183	19.7
Attributional Types		
Condition/Symptom/Function	48 / 516	9.3
Attitudinal/Behavioral	16 / 171	9.4
Health transcendence	5 / 83	6.0
Externally focused	2 / 81	2.5
Nonreflective	7 / 34	20.6

hierarchical models presented above (Models 4 and 8). Table 9 displays the results of three models: (a) the baseline model composed of demographics, family history, health behaviors, and psychosocial well-being (Model 1); (b) the baseline model with the effects of health congruence and health attributions (Model 4); and (c) the baseline model with the effects of health status, health appraisal, and health attributions (Model 8).

In the baseline model, factors related to a higher risk of mortality included older age, being male, shorter maternal life span, being a past smoker, and lower psychosocial well-being. When health congruence and health attributions were added to the model (Model 4), we found that in comparison to good-health realists, individuals who had health problems and correspondingly viewed their health poorly (poor-health realists) were at a significantly higher risk of dying (b = 1.505, χ^2 = 17.51, $p < .001$). Specifically, they were four and a half times as likely to die (odds ratio = 4.50). On the other hand, even though health optimists shared similar objective health with the poor-health realists, their risk of dying was not found to be significantly different than the reference group (b = .579, χ^2 = 1.79, $p < .181$). Moreover, when each health congruence group served as reference (results not shown), we found that the poor health realists were also significantly more likely to die than were the health pessimists (b = 1.09, χ^2 = 6.26, $p < .01$, odds ratio = 2.98) and perhaps most importantly, than were the health optimists (b = .926, χ^2 = 4.45, $p < .034$, odds ratio = 2.53).

With respect to the individual health attributions, only one attributional category contributed uniquely to Model 4: the nonreflective responses (b = .151, χ^2 = 9.19, $p < .01$). That is, individuals who did not make any attributions regarding their health appraisals were four and half times as likely to die as were those individuals who gave health-based responses (odds ratio = 4.52). Although individuals who provided attitudinal/behavioral, external, or health transcendent attributions were at a lower risk of dying than were those who gave health-focused attributions, these differences did not reach statistical significance.

In the final model (Model 8, Table 9), the health status (i.e., chronic disease, pain, shortness of breath, and medications) and health appraisal variables were substituted for the

health congruence measures. Similar to Model 4, the only baseline variables that remained significant once the health variables were introduced were older age, being male, and shorter maternal life span; the effects of smoking and life satisfaction were no longer significant. With respect to the health status variables, only being in frequent and intense pain was significantly related to a higher risk of dying (b = .778, χ^2 = 5.06, $p < .05$, odds ratio = 2.18). At each decreasing level of self-appraised health, the risk of dying increased when contrasted with the "very healthy" response category. That is, respondents who reported themselves to be "sick" or "very sick" were 6.64 times as likely to die, and those who viewed themselves as "fairly healthy" were 2.88 times as likely to die as were those who reported themselves to be "very healthy." While respondents who viewed themselves as "healthy" were at a higher risk of dying than were the "very healthy," these differences only approached significance ($p < .07$). Finally, the effects of individual health attributions in Model 8 were very similar to those found in Model 4. Again, only the nonreflective attributions were found to be significantly related to a higher risk of dying when compared to the health-focused attributions.

DISCUSSION

With the identification, through epidemiological studies, of global appraisals of health as better predictors of mortality among older adults than more objective health status, speculation arose as to the mechanism(s) underlying this phenomenon. Authors of these studies acknowledged that their work did not address this issue, and suggested that an alternative approach to health measurement was necessary to explicate the underlying relationship between self-assessed health and mortality. Specifically, Idler and Kasl (1991) highlighted the importance of qualitative research that would capture "the content of articulated health perceptions" (p. 64). Our research addressed this challenge by exploring the attributions underlying older adults' perceptions of their health status. Our results document that older adults are capable of elaborating the attributions underlying the assessment of their health, and that these diverse attributions provide unique insight into the complex relationship between older adults' health and their global assessment of it. Furthermore, the underlying attributions appear to make a unique contribution in the modeling of mortality risk among older adults; however, the finding is driven by a single attribution category (i.e., nonreflective) and therefore should be interpreted with caution.

This study offers several additional contributions to the literature. First, we employed an open-ended format that permitted respondents to freely generate the attributions underlying their global self-assessed health. The utility of this format is highlighted when results from our research are compared to the results reported in prior research (Strain, 1993), where respondents' attributions were restricted to prescribed categories. That is, while Strain found that fewer than 3 percent of respondents provided definitions of health beyond the forced-choice categories (i.e., general well-being, absence of symptoms, and ability to perform activities), our respondents identified numerous attributional categories.

Table 9. Effect of Demographics, Health Behaviors, Health Congruence
and Health Attributions on Three-Year Mortality Among Older Adults

	Model 1 (baseline) Demographics, Family History, Health Behaviors and Psychosocial Well-Being			Model 4 Baseline Model + Health Congruence + Health Attributions			Model 8 Baseline Model + Health Status + Health Appraisal + Health Attributions		
	b	χ^2	Odds Ratio	b	χ^2	Odds Ratio	b	χ^2	Odds Ratio
Control Variables									
Age	0.138***	28.859	1.148	0.129***	22.805	1.137	0.136***	23.427	1.145
Gender (female)	−0.663*	4.613	0.515	−0.929**	7.936	0.395	−1.008**	8.478	0.365
Education	−0.030	0.453		−0.044	0.931		−0.043	0.868	
Marital status (nonmarried)	0.058	0.038		0.222	0.508		0.215	0.463	
Mother's age at death or current age	−0.016*	4.248	0.984	−0.018*	4.810	0.983	−0.018*	4.672	0.982
Father's age at death or current age	0.004	0.266		0.007	0.569		0.005	0.271	
Smoker (current)	0.5655	0.875		0.548	0.772		0.404	0.395	
Smoker (past)	0.583*	4.293	1.791	0.513	3.054		0.482	2.620	
Regular exercise	−0.436	2.652		0.003	0.000		0.111	0.132	
Body mass index	−0.025	0.477		−0.032	0.772		−0.047	1.576	
Life satisfaction	−0.102**	7.491	1.107	−0.068	2.882		−0.048	1.284	
Health Congruence[a]									
Health pessimist				0.412	0.939				
Health optimist				0.579	1.790				
Poor-health realist				1.505***	17.505	4.504			
Health Attributions[b]									
Attitude/Behavior (positive)				−0.193	0.264		−0.280	0.519	
Attitude/Behavior (negative)				0.133	0.031		0.167	0.050	
Externally focused				−1.255	2.383		−1.299	2.472	
Health transcendence				−0.786	2.262		−0.733	1.902	
Nonreflective				1.509**	9.193	4.524	1.512**	9.076	4.536
Physical Health Status									
Chronic diseases							0.013	0.134	
Pain							0.778*	5.063	2.178
Shortness of breath							0.666	2.762	
Medications							0.486	1.929	
Subjective Health Appraisal[c]									
Healthy							0.820	3.087	
Fairly healthy							1.059*	4.581	2.883
Sick/Very sick							1.894**	6.979	6.644
Intercept	−12.779***	21.575		−11.853***	17.425		−12.348***	16.902	
Model G^2, (df), p-value	68.001 (11) $p < .001$			100.382 (19) $p < .001$			112.762 (23) $p < .001$		

[a]Reference category = Good-health realists.
[b]Reference category = Health-focused attributions.
[c]Reference category = Very healthy.

Furthermore, and consistent with claims by gerontological health researchers that health should be conceptualized as a multidimensional construct (Liang, 1986; Ware, 1986), our data reveal that many older adults' health definitions transcend externally imposed or medically defined health criteria, and include both proactive beliefs and social contextual factors in their definitions. That is, nearly 40 percent of the respondents in the current research attributed their health to nonphysical health factors. Thus, while researchers have traditionally focused on medical and/or functional aspects of health, many older adults' perceptions are based on more nontraditional factors such as their attitudes, health habits, and validation of their health status by others. Despite the multidimensionality of attributions across respondents, it is noteworthy that even though respondents were encouraged to provide multiple responses, over 80 percent gave responses that fell within one global category; these responses tended to focus on very specific aspects, such as their health habits or their functional abilities. Thus, while there is evidence for the multidimensionality of attributions underlying the health appraisals of older adults as a group, the attributions provided by individual older adults tended to be unidimensional in nature.

Another important finding of our study was that even among our age-restricted sample, older respondents were more likely to make nonhealth-focused attributions than were younger respondents. Specifically, older respondents were more likely to attribute their global self-assessed health

to their attitudes or to proactive behaviors that they engaged in. These results provide empirical support for what Peck (1968) referred to as the late-life developmental stage of bodily transcendence vs bodily preoccupation, whereby older individuals are faced with the challenge of transcending their physical symptoms and health-related problems. Peck theorized that to successfully resolve this developmental challenge, older adults may modify their conceptualization of health from a more traditional, physical/functional definition to one based on personal or social characteristics.

The diversity of health expectations and attributions is especially striking given the relatively advanced age of our respondents, who ranged in age from 73 to 98 years. Our findings suggest that even in the ninth and tenth decades of life, when frailty might be seen as normative, many older adults continue to experience and expect good health, and maintain optimistic health appraisals in the face of poor health. Despite the classification of nearly 40 percent of respondents as having health problems, in general, respondents were more likely to make positive than negative attributions. These results support the findings by others that poor health perceptions are not synonymous with age (Ferraro, 1980; Idler, 1992; Stoller, 1984), and extend this finding to an older group of respondents than is typically studied.

When examined in the context of the congruence between self-assessed health and more objective, albeit self-reported indicators of health status, the importance of nonhealth-focused attributions is highlighted. Of the older adults who were in poor objective health, those who nonetheless appraised their health positively (i.e., health optimists) were significantly more likely to transcend their health problems. They accomplished this psychologically by identifying positive attitudinal and behavioral factors, rather than focusing on their physical health as the attributions underlying their health appraisals. Further, when compared to poor-health realists, health optimists were more likely to validate their health appraisals by comparing themselves to others or by relying on what significant others (e.g., physicians) told them about their health status. On the other hand, almost three-fourths of the poor-health realists appraised their health in terms of medical conditions, functional ability, or symptomatology. We also found that although health pessimists did not differ from the good-health realists in terms of the types of attributions they reported (e.g., health vs nonhealth focused), they were more likely to identify negative attributes than were either the good-health realists or the health optimists. These findings suggest that the ability to appraise one's health positively in face of objective impairment is associated with a conceptualization of health that extends beyond the traditional definitions that encompass medical/health conditions, physical symptoms, and functional capacities (Liang, 1986). These findings also provide evidence that it is possible, as suggested by Peck (1968), for older adults to achieve the resolution of the developmental stage of bodily transcendence versus bodily preoccupation.

Our results also appear to corroborate the findings of others. For example, with respect to the relationship between health congruence and mortality, our findings support those reported by Chipperfield (1993) that suggest that

individuals who are able to appraise their health positively in spite of health problems (i.e., health optimists) were at no greater risk of dying than were good-health realists or health pessimists, and more importantly, were significantly less likely to die than were poor-health realists, in spite of their shared poor objective health status. Poor-health realists, on the other hand, were at a significantly higher risk of dying than any other group, with the highest risk being four and a half times as likely to die as the good-health realists. Thus, our results verify that, for these older respondents, holding positive appraisals of one's health in face of objective health problems potentially has beneficial consequences with respect to mortality.

The final analyses on mortality revealed a number of other interesting findings. First, on the more global level, it appears that health attributions do provide a unique contribution to our understanding of the risk of mortality among older adults. That is, attributions explain additional risk in mortality, above and beyond that which is explained by physical health status *and* global health appraisals. Interestingly, these attributions appear to have the strongest effect when considered in the model of direct effects of subjective and objective health, rather than health congruence, and particularly when considered as a substitute for global health appraisals.

However, when we examined our data to identify the specific types of attributions that were responsible for the increased risk of mortality among older adults, we were surprised to find that the only attributions that had a consistent and strong effect on mortality were nonreflective attributions. That is, older adults who were unable (or chose not) to provide a discernible reason for their health appraisal were four and a half times as likely to die than were older adults who provided health-based attributions. Even more importantly, this finding was sufficiently robust to emerge in all of the models tested, and regardless of what attributional category served as the reference category. Even when health attributions were considered alone with the baseline variables (i.e., excluding health status, health appraisal, or health congruence measures), the related risk of dying for the nonreflective individuals remained relatively unchanged and, while the effects of the other attributional categories on mortality risk increased, none reached statistical significance. However, due to the relatively small number of respondents in the nonreflective category ($n = 34$) and the unexpected nature of this finding, the following interpretation is only speculative and requires further examination.

With respect to demographic characteristics, nonreflecting individuals did not differ from individuals who generated attributions, nor did they differ on other variables that might be linked to illness or mortality such as cognitive functioning (e.g., SPMSQ, Pfeiffer, 1975), education level, coping strategies (e.g., denial, avoidance, emotional), or health behaviors (e.g., smoking, drinking). However, in terms of objective health indicators, nonreflectors did report significantly fewer conditions ($p < .03$) than did their counterparts.

It is possible that these individuals tend to deny, or are not capable of, acknowledging any negative aspect of their health, and this denial/inability manifests in detrimental consequences, ether directly through irresponsible behavior,

or indirectly through physiological mechanisms. Some researchers have found denial to have a positive effect on the adaptation to health conditions (Hackett and Cassem, 1973; Meyerowitz, Heinrich, and Schag, 1983); however, others have reported that denial is associated with failure to seek medical care, and to observe medical regimens and diet restrictions (Croog, Shapiro, and Levine, 1971; Krantz and Deckel, 1983). A related explanation derives from the work of Pennebaker, Hughes, and O'Heeron (1987; also Berry and Pennebaker, 1993). Pennebaker and colleagues maintain that the inability to express thoughts and emotions is strongly related to underlying physiological mechanisms which are believed to be related to disease and long-term health (Blackburn, 1965; Kissen, 1966; Pennebaker, Hughes, and O'Heeron, 1987). As such, it is possible that the inability to articulate the reasons underlying one's health appraisals may represent inadequate self-disclosure, thereby placing these individuals at a higher risk for disease and mortality. We intend to pursue these possible explanations in our subsequent waves of data collection and analyses to further explore the personal, social, and psychological characteristics that might distinguish these at-risk individuals from other respondents in the study.

Several aspects of our sampling strategy limit the generalizability of our findings. First, data collection was conducted in three retirement communities on the west coast of Florida. While our sample appears to be representative of the population of older adults who reside in such retirement communities (Edmondson, 1987), relative to the general population of older adults, our sample is restricted in that it is composed of well-educated, relatively wealthy, Caucasian older adults. Thus, it is possible that the high levels of education among respondents enabled them to better articulate the attributions underlying their health appraisals and, further, that these demographic variables influenced the relationships among the various indicators of health and mortality. Thus, the generalizability of these findings to other groups of older adults might be limited.

Second, reflecting retirement community norms of high activity and independence (Borawski-Clark, 1992), our sample is relatively healthy and active considering their advanced ages. It is also acknowledged that nearly 8 percent of potential respondents initially contacted at baseline were excluded from the study due to self-assessed health problems. However, respondents in this study are far from being free of illness or limitation. For example, respondents reported an average of 3.68 chronic conditions, with those age 85+ reporting an average of 4.23 conditions. While not severely limited, 23 percent of respondents reported having difficulty with at least one ADL (e.g., bathing, dressing) or IADL (e.g., shopping, cleaning) task, with 35 percent of respondents age 85+ reporting difficulty. Thus, while extreme cases of illness and frailty may be underrepresented in this sample, the sample does not represent a homogeneous group in terms of health and illness.

Taken together, the findings of this research point to the heuristic value of more extensive research exploration into health attributions and the meaning of health to older adults. That is, our results suggest that older adults' interpretation of age-related frailty may play an important role in the

accommodations that they make to health changes and may shape the risks of further health decline or even death. Future research is needed to further specify the interpretive context of health and aging. Such studies could also seek to link health attributions to specific health and social behaviors, including exercise, preventive health care utilization, and social activity.

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