Contributing to Others, Contributing to Oneself: Perceptions of Generativity and Health in Later Life

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Objectives. To examine whether perceptions of generativity predict the likelihood of increases in levels of impairment in activities of daily living (ADLs) or of dying over a 10-year period in older adults aged 60–75 from the Study of Midlife in the United States (MIDUS).

Method. Perceptions of generativity and current generative contributions as well as select sociodemographic, health status, health behavior, and psychosocial factors, assessed at a baseline exam, were examined as predictors of change in ADL disability level or mortality over the 10-year period between the baseline and follow-up waves of the MIDUS Study.

Results. Greater levels of generativity and generative contributions at baseline predicted lower odds of experiencing increases in ADL disability (2 or more new domains of impairment; generativity odds ratio [OR] = 0.93 and generative contributions OR = 0.87), or of dying (generativity OR = 0.94 and generative contributions OR = 0.88), over the 10-year follow-up in models adjusted for sociodemographics and baseline health and disability. Associations remained relatively unchanged with the inclusion of different sets of health behavior and psychosocial variables in analytic models.

Discussion. Findings indicate that greater perceptions of generativity are associated with more favorable trajectories of physical functioning and longevity over time in older adults.

Key Words: Aging—Disability—Generativity—Mortality—Usefulness.

GENERATIVITY, that is, concern and activity dedicated to contributing to the well-being of others, especially younger generations, is postulated to be an important developmental goal of midlife and beyond (Erikson, 1950, 1997/1982). Although generative desires and behavior are thought to peak in midlife when generative role demands and resources (social, economic, cognitive) are greatest, accumulating evidence suggests that generative desire and activity remain high for some older adults (see McAdams, 2001; Stewart & Vandewater, 1998). Desires to be useful to and to contribute to others are often cited motivations for social and productive engagement in later life (Narushima, 2005; Okun, 1994). Such engagement is a key component of many models of successful aging (Depp & Jeste, 2006; Fischer, 1995; Rowe & Kahn, 1998) and is linked to better cognitive and physical well-being in older adulthood (Adams, Leibbrandt, & Moon, 2010; Gottlieb & Gillespie, 2008).

Older adults' *perceptions* of important components of generativity (e.g., feeling needed and useful) may also be linked to health trajectories in later life. Not feeling needed by others predicted greater risk of institutionalization and death (for a period of 5–10 years) in older Finnish birth cohorts (aged 75–85; Pitkala, Laakkonen, Strandberg, & Tilvis, 2004). Similarly, rural-dwelling French (aged ≥60) and Japanese (aged ≥65) elders with low (vs. high) feelings of social usefulness were more likely to experience increases in activities of daily living (ADLs) impairment or to die over 4- to 6-year follow-ups (Grand, Grosclaude, Bocquet,

Pous, & Albarede, 1988, 1990; Okamoto & Tanaka, 2004). These associations were replicated in analyses of high-functioning older Americans (aged 70–79 years). Among older adults initially disability-free, those with low (vs. high) feelings of social usefulness were more likely to show increases in ADL disability or to die (more than 7.5 years), and those with persistently low or declining feelings of usefulness experienced shorter longevity (Gruenewald, Karlamangla, Greendale, Singer, & Seeman, 2007, 2009).

The current analyses add to these prior investigations by examining whether self-perceptions of generativity predict risk of disability increase or mortality for a 10-year period in a national sample of older adults (aged 60–75 years) from the Study of Midlife in the United States (MIDUS). An important limitation of much of the prior research in this area is the use of samples of high-functioning elders or from select geographic locales (e.g., rural dwelling). Another limitation of previous research is the limited measurement of generativity components (i.e., feeling needed, feeling useful to others). The present investigation examines the health correlates of generativity using both an indicator of perceived level of current contributions to others and a brief version of the widely used Loyola Generativity Scale (McAdams & de St. Aubin, 1992) that taps multiple generativity components (having made important contributions to others, feeling needed, having socially-valued skills). An additional contribution of the present investigation is the examination of three potential pathways through which we hypothesize

perceptions of generativity may be linked to physical health outcomes: (a) health-related behavior, (b) social and productive engagement, and (c) affective well-being. Those who feel more generative may take better care of themselves to maintain their ability to contribute, engage in more social and productive activity, and experience greater affective well-being, all of which may be paths to better physical well-being.

METHOD

Participants

MIDUS is currently a two-wave [MIDUS I (MI): 1995–1996; MIDUS II (MII): 2004–2006] longitudinal study of factors associated with healthy aging in a national sample of adults (aged 25 to 74 at baseline). At both waves, participants completed telephone (MI $n = 7,108$; MII $n = 4,963$) and mail (MI $n = 6,325$; MII $n = 4,032$) surveys. Given our focus on links between generativity and health in older adulthood, the current analyses focus on the subset of MIDUS participants aged 60–75 at baseline ($n = 1,353$).

Measures

Unless otherwise stated, study variables were assessed at the MI baseline.

Perceived generativity.—Perceived generativity was calculated as the sum of six items assessing agreement on a 4-point scale ranging from 1 (*not at all*) to 4 (*a lot*), with indicators of past and current generative desires and behaviors (made unique contributions to society, feel others need you, have skills to pass along, many come to you for advice, like to teach others, have a good influence on others; scale alpha = 0.84) taken from the Loyola Generativity Scale (McAdams & de St. Aubin, 1992). A second measure assessed perceptions of current generative contributions by asking respondents to rate their current level of contribution to the welfare and well-being of others, including friends, family, and the community, using an 11-point scale from 0 (*worst possible*) to 10 (*best possible*).

Sociodemographic and health status covariates.—Sociodemographic covariates included age, sex, educational attainment (≤high school, ≥some college), and race/ethnicity (coded as White or non-White due to the small proportion of non-White participants; 3.6% Black or African American, 2.4% multirace, 0.7% other). Indicators of health status included body mass index (BMI) and the total number of nine health conditions (hypertension, heart disease, stroke, neurological disorder, diabetes, cancer, autoimmune disease, lung problems, and AIDS) experienced in the last year or ever (for heart disease and cancer).

Behavioral and psychosocial covariates.—Physical activity level was assessed as a summary of the frequency (6-point scale: 1 [*never*] to 6 [*several times a week or more*])

measure of moderate and vigorous (frequency weighted by 1.5) physical activity. Smoking status was coded as non-, ex-, or current smoker. Social contact variables included presence of marital or marital-like partner and frequency of contact with nonhousehold family members and friends (8-point scale: 1 [*never/hardly ever*] to 8 [*several times a day*]) and neighbors (6-point scale: 1 [*never/hardly ever*] to 6 [*almost every day*]). Emotional and instrumental support provision (hours per month) were assessed across multiple recipients (spouse/partner, parents, in-laws, children/grandchildren, other family, close friends, others). Productive activity variables included volunteer activity (hours per month) and paid employment (1 [*yes*], 0 [*no*]). Affective well-being was assessed as the average frequency (5-point scale: 1 [*none of the time*] to 5 [*all of the time*]) of five negative emotions (e.g., nervous, worthless, sad) experienced in the last month.

Change in disability and mortality occurrence.—Activities of daily living impairment at both MIDUS assessments was measured as the total number of six ADLs that participants reported "a lot" of difficulty in performing: lifting or carrying groceries, bathing or dressing, climbing several flights of stairs, walking several blocks, bending, kneeling or stooping, and moderate physical activity (e.g., vacuuming). Mortality status was obtained through National Death Index (NDI) searches through 2006 and next of kin reports during MII follow-up. Disability change and mortality information were combined into a four-category outcome variable: no change or slight improvement in ADL disability (from baseline), small disability increase (1–2 new impairments), moderate to large disability increase (≥3 new impairments), or death over the follow-up.

Analyses

Complete data for measures examined in analyses, MI and MII disability, and mortality occurrence over the follow-up were available for 855 of the 1,353 individuals aged 60 and older at baseline (313 were missing data on one or more measures, 285 neither participated in the MII exam nor were identified in NDI searches). Comparisons of those included and excluded from analyses on the basis of missing data indicated no significant differences for study variables except those included were more likely to be college educated, men, married, and to have lower negative affect and slightly higher levels of perceived generative contributions. Multinomial logistic regressions were used to examine the odds of each disability change or mortality outcome category over the follow-up as a function of baseline generativity. The baseline model included baseline ADL disability, health, and sociodemographic covariates. Five additional models added different sets of baseline covariates reflecting hypothesized paths through which generativity may be linked to health outcomes: (a) health behaviors, (b) social

Table 1. Sociodemographic, Psychosocial, Behavioral, and Health Characteristics of Study Sample

	N	%	M (SD)	Possible range
Sociodemographic variables				
Age (baseline)	855		66.17 (4.19)	60–75
Sex				
Male	416	48.65		
Female	439	51.35		
Race or ethnicity				
White	799	93.45		
Non-White	56	6.55		
Education				
High school or less	374	43.74		
Some college or greater	481	56.26		
Baseline health status variables:				
# Major health conditions	855		0.55 (0.87)	0–9
None	535	62.60		
One	213	24.90		
Two or more	107	12.50		
Body mass index	855		26.81 (5.06)	
# of ADL impairments at baseline	855		0.52 (1.23)	0–6
None	678	79.30		
One or two	99	11.60		
Three or more	78	9.10		
Health behavior variables:				
Physical activity level	855		10.88 (3.31)	2.5–15
Smoking status				
Current	134	15.67		
Ex-smoker	369	43.16		
Nonsmoker	352	41.17		
Social contact variables				
Married or marriage-like cohabitating partner				
Yes	615	71.93		
No	240	28.07		
Frequency of family contact	855		6.03 (1.47)	1–8
Frequency of friend contact	855		5.64 (1.52)	1–8
Frequency of neighbor contact	855		5.33 (1.11)	1–6
Provide social support variables				
Emotional support (hours per month)	855		42.62 (66.26)	
Instrumental support (hours per month)	855		5.04 (15.14)	
Productive engagement variables				
Hours per month volunteer	855		6.95 (15.26)	
Work for pay				
Yes	223	26.08		
No	632	73.92		
Affective well-being variable				
Negative affectivity	855		1.42 (0.54)	1–5
Perceived level of generativity	855		16.62 (3.97)	6–24
Perceived level of current generative contributions	851		6.65 (2.33)	0–10
Change in health status over follow-up				
No change or slight decrease in ADL impairment	449	52.64		
Small increase in ADL impairment	77	9.03		
Moderate to large increase in ADL impairment	118	13.60		
Died	211	24.74		

Note. ADL = activities of daily living.

activity, (c) social support provision, (d) productive activity, and (e) affect. A final model included baseline model covariates and significant covariates ($p \leq .10$) from previous models. Analyses accounted for clustering by family membership given the presence of twin and sibling participants in the sample. STATA (v.11) was utilized for analyses.

RESULTS

Descriptive statistics for study variables are presented in Table 1. Approximately a quarter of the sample died, a little under a quarter showed small or moderate to large disability increases, and approximately half showed no change or slight improvements in ADL impairment.

Inspection of associations between generativity measures and study covariates (data not shown) indicated that those who felt more generative had more frequent social contact, provided more support to others, volunteered more, were more physically active, had lower levels of negative affect, were more likely to be married and college educated, and less likely to smoke. Only perceived current generative

Table 2. Odds (95% CI) of Disability and Mortality as a Function of Perceived Level of Generativity in Multivariable Models Including Sociodemographic, Psychosocial, Behavioral, and Health Covariates

	Change in health status over 10-year follow-up		
	Slight increase in ADL disability (1 new ADL)	Moderate to large increase in ADL disability (2+ new ADLs)	Died
Perceived generativity			
Baseline model	0.95 (0.89, 1.02)	**0.93** (0.88, 0.98)	**0.94** (0.90, 0.98)
Add health behavior covariates	0.95 (0.89, 1.02)	**0.94** (0.89, 0.99)	**0.96** (0.91, 1.00)
Add social contact covariates	0.96 (0.89, 1.02)	**0.93** (0.88, 0.98)	**0.94** (0.90, 0.99)
Add give support covariates	0.95 (0.89, 1.01)	**0.93** (0.88, 0.98)	**0.94** (0.90, 0.99)
Add productive activity covariates	0.95 (0.89, 1.01)	**0.92** (0.89, 0.99)	**0.95** (0.91, 0.99)
Add affective well-being covariate	0.96 (0.90, 1.02)	**0.93** (0.88, 0.99)	**0.95** (0.91, 0.99)
Final multivariate model	0.95 (0.89, 1.02)	**0.94** (0.88, 0.99)	0.96 (0.92, 1.01)
Current generative contributions			
Baseline model	**0.88** (0.80, 0.97)	**0.89** (0.81, 0.97)	**0.88** (0.81, 0.96)
Add health behavior covariates	**0.88** (0.80, 0.96)	**0.88** (0.81, 0.97)	**0.90** (0.83, 0.98)
Add social contact covariates	**0.89** (0.80, 0.98)	**0.87** (0.80, 0.96)	**0.89** (0.82, 0.97)
Add give support covariates	**0.87** (0.80, 0.96)	**0.87** (0.80, 0.96)	**0.89** (0.81, 0.96)
Add productive activity covariates	**0.87** (0.79, 0.96)	**0.88** (0.80, 0.96)	**0.90** (0.83, 0.98)
Add affective well-being covariate	**0.89** (0.81, 0.97)	**0.88** (0.80, 0.96)	**0.89** (0.82, 0.96)
Final multivariate model	**0.88** (0.80, 0.97)	**0.89** (0.81, 0.98)	**0.91** (0.83, 0.99)

Note. ADL = activities of daily living. Baseline model includes age, sex, race, educational attainment, BMI, and number of ADL limitations and major/chronic health conditions (continuous) at baseline. The health behavior model adds physical activity frequency and smoking status. The social contact model adds presence of marital or marital-like partner and frequency of contact with family, friends, and neighbors. The productive activity model adds volunteerism and engagement in paid employment. The give support model adds frequency of provided emotional and instrumental support. The affective well-being model adds negative affect. The final multivariate model includes baseline model covariates and significant psychosocial, behavioral, and health status covariate predictors from previous models (presence of marital or marital-like partner, frequency of provided emotional support, physical activity level, number of chronic health conditions, BMI, and smoking status). Bold font indicates p values for coefficients are ≤.05.

contributions showed weak negative associations with baseline ADL impairment and BMI, and neither generativity measure was significantly associated with baseline health condition burden. The two generativity measures were moderately correlated ($r = 0.43$).

As documented in Table 2, for both generativity measures, greater perceptions of generativity at baseline predicted significantly lower odds of increased ADL disability or mortality over the follow-up (odds of slight increase in disability as a function of the multi-item generativity measure was not significant), when accounting for baseline health, disability, and sociodemographic factors. The inclusion of different sets of health behavior, social and productive engagement, and affective well-being covariates led to little change in odds ratio (OR) estimates for generativity predictors. However, for the multi-item generativity measure, estimates for mortality were reduced to marginal significance in models including health behavior covariates and in the full multivariate model.

Supplementary Analyses

Analyses were repeated with missing values estimated (via STATA's Imputation by Chained Equations algorithm) with three imputation approaches: (a) A model imputing all missing data except missing outcome data, (b) A model additionally imputing missing outcome data, and (c) A model incorporating outcome variable information in the imputation process but excluding cases with missing outcome data from analyses. Analyses using all three approaches

(10 imputed datasets utilized in each approach) produced a very similar pattern of results to those obtained with complete case analyses.

Discussion

Results indicate that older adults in their 60s and 70s with greater self-perceptions of generativity were less likely to experience increases in ADL disability or to die as they aged into their 70s and 80s. These findings are consistent with previous research linking components of generativity (feeling useful, feeling needed) and disability and mortality outcomes in older adulthood (Grand et al., 1988, 1990; Gruenewald et al., 2007, 2009; Okamoto & Tanaka, 2004; Pitkala et al., 2004). An important contribution of the present investigation is the documentation of these associations in a national sample of older Americans, as most previous investigations have examined select samples of older adults (e.g., high-functioning older Americans, rural-dwelling Japanese or French elders). Although there is no reason to expect that links between generativity perceptions and health should be unique to these populations, replication in a national sample further bolsters the hypothesis that feeling generative may be health-enhancing in older adulthood.

The measure of perceived level of current generative contributions showed a stronger association with likelihood of disability increase and mortality as compared with results for the multi-item perceived generativity scale, although both were associated with better outcomes. This could indicate that strong associations for one or more generativity

subcomponents are masked by averaging across the multiple scale indicators. However, supplementary analyses indicated similar OR estimates for disability and mortality outcomes for each of the individual scale indicators, albeit some point estimates were nonsignificant or marginally significant (data not shown). Another possibility may be that the measure of perceived level of current generative contributions best captures a component of generativity that is an active ingredient in promoting better health in later life. Additional research with investigations designed to more comprehensively measure different generativity components and trajectories of health in later life is needed to address these questions.

Although greater perceptions of generativity were associated with a more favorable profile on psychosocial and behavioral measures, the magnitude of associations between generativity perceptions and disability and mortality risk remained relatively unchanged when accounting for these covariates in analyses. Greater perceptions of generativity also predicted lower risk of increased disability and mortality when accounting for sociodemographic factors and baseline disability and health condition burden. On the one hand, these findings indicate that associations between generativity and disability and mortality are not confounded by these other factors. However, it also indicates that more research is needed to understand the pathways through which perceptions of generativity may be linked to physical health over time.

One important limitation of the present investigation is that even though the MIDUS sample is a national sample, the representation of those at the extremes of the socioeconomic spectrum and of racial ethnic minorities is lower than in the general U.S. population. Such characteristics are not uncommon for national telephone and mail surveys, but do raise the possibility that results may not generalize to all older Americans. In addition, although there were relatively few differences between those included and excluded from analyses due to missing data, the two groups did differ on some variables (e.g., education, negative affect, perceived generative contributions). These differences raise the concern that study findings may be dependent on characteristics of the analytic sample (e.g., associations may be stronger in those who are more advantaged). However, the similar pattern of results for analyses with missing data imputed with multiple approaches does suggest that results may not be limited to the analytic sample. A final limitation is that measures of perceived generativity were limited to a single baseline assessment. Identifying the health correlates of change in these perceptions over time is an important objective of future research with the MIDUS cohort.

In summary, the current investigation indicates that older adults in their 60s and 70s who feel more generative are less likely to show increases in physical disability or to die as they age into their 70s and 80s. These findings suggest that health promotion scientists and society at large may want to devote further attention to understanding factors that maintain and enhance perceptions of generativity in later life.

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