

**PREDICTORS AND CHARACTERISTICS OF
SUCCESSFUL AGING AMONG MEN:
A 48-YEAR LONGITUDINAL STUDY**

JERRY F. WESTERMEYER, PH.D.

Adler School of Professional Psychology, Chicago, Illinois

ABSTRACT

To explore dimensions of successful aging, 71 men were selected for healthy adjustment and were prospectively studied in young adulthood (average age 20) and reassessed in 32-year and 48-year follow-ups. Despite an increase of medical problems, most men maintained healthy adjustment in early old age. At both follow-ups, successful young adult predictors of favorable overall outcome included good peer social adjustment, an absence of troubled parental discipline, and an absence of immature defensive behaviors when angry. However, young adult factors were more predictive of outcomes in middle age than in early old age, as predictor effect sizes decreased between the first follow-up and the second follow-up 16 years later. Findings support the possibility of both favorable and unfavorable changes in the second half of life that may diminish the impact of some young adult characteristics and family environments on adjustment in early old age.

Important theoretical issues in human development involve the prediction and course of successful aging from young adulthood to middle age and older adulthood. Long-term prospective studies have suggested complicated patterns of development with both the possibility of continuity and discontinuity in select areas of outcomes (Friedman & Martin, 2011; Kohlberg, Ricks & Snarey, 1984; Schaie, 1994; Vaillant, 2002, 2003a; Vaillant & Mukamal, 2001).

The predictive variables explored in human development research may encompass a range of different perspectives (Baltes, Mayer, Helmchen, & Steinhagen-Thiessen, 1999). Some investigations have emphasized internal individual factors driving the self through ordered stages of development (Erikson, 1950/1963; Kohlberg, 1968) or biologic factors exerting a major effect on lives (Barker, Eriksson, Forsen, & Osmond, 2002). The universal aspects of human nature, often manifested in genetic/biological factors, may play a large role in predicting and sequencing ordered development across different cultures or historical periods. For example, all human societies exhibit a period of vulnerable childhood followed by relatively independent adulthood (LeVine & New, 2008).

In contrast, other investigations have emphasized external socio-historical events that may shape a social context in driving unique development (Cohler, Hostetler, & Boxer, 1998; Elder, 1974, 1998; Fogel, 2004). Some investigators have emphasized individual narratives in creating a context unique to cohorts or cultures (Cohler et al., 1998; McAdams, 2006).

Although longitudinal research may better identify temporal precedents or causal associations in development than cross-sectional methods, predictive processes still may involve complicated associations or interactions among variables making it difficult to infer causality. Internal factors involving genetics, other biologic factors, and individual choice may interact with external stressors or socio-cultural factors to influence complex patterns of development. For example, research has established the influence of genetic and biological factors in interactions with stressors on developing mood, psychotic, addiction, and personality disorders (DiLalla, 2004; Gottesman & Gould, 2003; Kendler, Jaffee, & Romer, 2011). Theorists are increasingly advocating for multi-factorial and multi-disciplinary approaches that incorporate diverse internal and external variables in research from different domains including biology, history, anthropology, sociology, and psychology (Baltes et al., 1999; Fukuyama, 2011; Grinker & Westermeyer, 1985).

In addition to potentially complex interactions among prognostic factors, predictors may be salient for different phases of the life cycle. Vaillant and associates have suggested that the power of predictors from the early phases of the life cycle may decline with age (DiRago & Vaillant, 2007; Vaillant, 2002). Important factors from this perspective include life experiences and individual choices that may diminish the impact of early life predictors across the life span. In contrast, Barker and associates have suggested a “sleeping effect” in physical health and mortality, in which early child predictors become more powerful across the life span (Barker & Clark, 1997; Barker et al., 2002). Important factors from this perspective include biological assessments such as malnutrition and low birth weight, which may be associated with historical events such as wars, famines, and epidemics, and which may influence subsequent illnesses and lower mortality decades later (Floud, Fogel, Harris, & Hong, 2011; Fogel, 2004).

Although longitudinal research has increased, relatively few prospective, long-term studies of aging have examined the comparative efficacy of young adult predictors on subsequent life phases (Friedman & Martin, 2011; Vaillant & Mukamal, 2001). The current study builds on an earlier prospective assessment of a sample of young men selected for health (Grinker, Grinker, & Timberlake, 1962) and studied 32 years later in midlife (Westermeyer, 1998, 2004) by again reassessing the group in a long-term, 48-year follow-up when the men averaged 69 years of age. As emphasized by prominent developmental researchers such as Schaie (1994) and Vaillant (2002), prospective, longitudinal design offers opportunities for more accurate prediction and observation of life-span developmental patterns than do cross-sectional or retrospective assessments. Most importantly, the two follow-up assessments in the current study permit an exploration of the comparative predictive efficacy of young adult factors on outcomes in middle age and early old age.

However, this follow-up research is limited by at least two major factors. First, the study is restricted to predictive measures developed years earlier rather than employing more modern measures. Although physiological factors studied by Barker to explore a sleeper effect were not used in this research, important family, developmental, and symptom variables were investigated. Second, selection criteria made in the 1950s limit the representativeness of the sample. The most important limiting factor was gender, as only men were selected for study. Other limiting factors include education, age, and historical cohort. The men were selected as healthy college and graduate students primarily from a small, Christian, Midwestern college. Furthermore, they came from the same birth cohort, and consequently potential cohort effects (Elder, 1998; Whitbourne, Sneed, & Sayer, 2009) were not explored. Nevertheless, such college educated men are representative of a large minority of individuals, and the exploration of new factors in a more homogeneous sample controls for the effects of some demographic factors in a moderately sized sample.

The major questions in this research are:

1. How have men originally selected for health in young adulthood adjusted from midlife to early old age?
2. What changes in specific assessments occur between midlife and early old age?
3. What are the important young adult predictors of adjustment in middle age and early old age?
4. To what extent does the efficacy of young adult predictors increase or decrease for outcomes between middle age and early old age?

METHOD

Sample

The sample initially included 94 men who were prospectively studied as functioning undergraduate and graduate students in 1958 and 1959 (Grinker,

1963; Grinker et al., 1962; Grinker & Werble, 1974). The men were selected for healthy adjustment, displaying no major psychopathology at the initial evaluation.

All the men were high school graduates, and most (90%) were from intact, two-parent families when they were initially evaluated. All but three of the 94 men were recruited from a small, Midwestern, Christian college. The college often trained young men and women for employment in the Young Men's Christian Association (YMCA). The Christian orientation of the school emphasized values of service to others in social agencies (Grinker et al., 1962). Many of the men were recruited to attend the college by personnel of the YMCA, and 71% of the men had planned for careers in the YMCA.

Attrition

Of the 94 men studied in 1959, 87 (93%) were reassessed at the 32-year follow-up when they averaged 53 years of age (Westermeyer, 1998, 2004). For the second, 48-year follow-up, 71 (75%) men were located and completed a questionnaire, and an additional 15 (16%) men had died, accounting for a total of 86 (91%) men of the original sample. Although the death rate is a key aspect of long-term outcome, it was not explored in this study. Of the eight (9%) surviving men lost to the 48-year follow-up, one refused participation and seven could not be located.

In 1959, the 71 men who completed the 48-year follow-up averaged 20.3 years of age, and 63 (89%) of the 71 men were not yet married. Sixty-four (90%) men were white, four (6%) were African American, and three men were from other racial groups. Sixty-three men (89%) were from various protestant denominations. The men originated from all parental social classes, with 39 (55%) men from parental social classes I to III and 32 (45%) men from social classes IV and V based on father's education and occupation (Hollingshead & Redlich, 1958).

Initial 1959 Assessment

The 1959 questionnaire completed by all of the men assessed demographic information, parental and family relationships, friendships, physical health and illness, coping, attitudes, activities, symptoms, and personality characteristics (Grinker et al., 1962). Eleven predictors were chosen for study that assessed: (a) psychiatric symptoms and defensive behaviors; (b) academic performance; (c) social competence; (d) initial family environment; and (e) physical symptoms. The 11 predictors were defined as follows (with data for the 71 men in the study).

Psychiatric Symptoms and Defensive Behaviors When Angry

The questionnaire contained two checklists of symptoms experienced when respondents were depressed or anxious and one checklist of defensive behaviors

when respondents were angry (Westermeyer, 1998). Each symptom or behavior was checked as present or absent, and present symptoms or behaviors were summed into an overall score for each scale. Depressive symptoms consisted of 15 items including loss of appetite, sleeplessness, and feeling hopeless ($M = 3.6$; $SD = 2.8$, range 0 to 10). Anxiety symptoms consisted of 12 items including heart palpitations, sweating, and dry mouth ($M = 2.2$; $SD = 1.8$, range 0 to 7). Defensive behaviors consisted of nine items including four behaviors that emphasized withdrawal or passive aggressive behavior when angry (i.e., withdraw, become silent, brood, tearful) and five behaviors suggesting acting out or impulsive actions when angry (i.e., shout, hit, fight physically, throw things, argue verbally) ($M = 2.4$, $SD = 1.6$, range 0 to 7). The behaviors when angry fit passive aggressive and acting out definitions of immature ego mechanisms of defense (Vaillant, 1977/1995, 1993).

Academic Performance

Academic performance was based on a 5-point retrospective, 1959 self-report rating of high school class standing from lowest level (1) to the highest level (5) ($M = 3.2$, $SD = 0.92$) and years of education completed ($M = 17.3$, $SD = 1.9$, range 13 to 22). Years of education were assessed at the 32-year follow-up, although the majority of men had completed their education in early adulthood.

Social Competence

Social competence in 1959 was assessed by the Peer Social Adjustment Scale and identified mentor relationship. The Peer Social Adjustment Scale assessed capacity for friendships with peers. It was based on the summary score of favorable, self-reported responses to 17 separate checklist items prospectively assessing current peer relationships in 1959 ($M = 14.1$; $SD = 2.9$; range 4 to 18) (Westermeyer, 2004). The split-half reliability using the Spearman-Brown correction for this scale was .77. Mentor relationship was based on an open-ended question in which respondents were asked to identify a mentor. Forty-nine (71%) of 69 men identified a specific mentor, and 20 (29%) men failed to identify a mentor in 1959.

Initial Family Environment

Several 1959 questionnaire items assessed various aspects of the family environment when the men lived with their parents. Three assessments of initial family environment—Warm Family Environment, Troubled Parental Discipline, and Love from Father—were explored as predictors. The rating for Warm Family Environment was a summary of six dichotomous, forced-choice questionnaire items based on the men's perceptions of a positive, emotionally warm home life (e.g., home life happy and peaceable) when growing up ($M = 5.1$,

$SD = 1.4$, range 0 to 6; split-half reliability using the Spearman-Brown correction = .81) (Westermeyer, 2004).

Troubled Parental Discipline assessed perceptions of fair and consistent discipline in the home and was based on the summary score of six forced-choice items rating problematic (i.e., upsetting, unfair, unpredictable, inconsistent) parental discipline in childhood and adolescence ($M = 1.7$; $SD = 1.4$; range 0 to 5) (Westermeyer, 2004). The split-half reliability using the Spearman-Brown correction for this scale was .78.

The men retrospectively rated the love they received from their father as an adolescent according to a 5-point Love From Father Scale ranging from “no love” (1) to “very much love” (5) received ($M = 3.4$, $SD = 1.0$). The men completed a similar rating of love received from their mothers, which was not used because of restricted variability in positive responses. Problematic alcohol drinking among fathers, which was rated from an open-ended question regarding father’s worst trait, was explored in relation to other predictors and not subsequent outcomes.

Physical Symptoms

The men were asked in 1959 if they were ever bothered “often,” “sometimes,” or “not at all” by 11 physical symptoms (e.g., headaches, allergies). Symptoms present often or sometimes were summed into an overall rating ($M = 2.4$; $SD = 1.7$, range 0 to 6; split-half reliability using the Spearman-Brown correction = .84.) (Westermeyer, 2004).

32-Year and 48-Year Follow-up Assessments

The 71 men were first assessed at an average age of 20.3 years ($SD = 2.7$, range = 17 to 29) in 1959 and reassessed in the first follow-up 32-years after the initial evaluation ($M = 32.2$ years, $SD = 1.4$, range 31 to 35) when they averaged 52.7 years of age ($SD = 2.9$, range 48 to 61) (Westermeyer, 1998, 2004). They were again reassessed in a 48-year follow-up ($M = 48.1$ years, $SD = 0.8$, range 47 to 50) when they averaged about 69 years of age ($M = 68.6$, $SD = 2.7$, range 64 to 77).

At the second follow-up, 70 men were assessed by mail and one man by personal interview using the same questionnaire. The outcome data of 16 men assessed at the first follow-up but not at the second follow-up were excluded from analyses to allow a direct comparison of predictors on outcomes at each follow-up and a more accurate assessment of change between follow-ups. Thus, the data presented in this study only involves the outcomes of the 71 men assessed at both 32- and 48-year follow-ups.

Most of the same questions and ratings scales used at the 32-year follow-up were again used at the 48-year follow-up to limit method variance and provide better direct comparisons over time. The structured and semi-structured

questionnaire given at both follow-ups included detailed assessments of multiple types of adjustment (Westermeyer, 1998, 2004). All follow-up ratings were made blind to information collected in 1959. The following outcome variables were selected for exploration in this study.

Work Assessment

An occupational status rating was made according to the 7-point system devised by Hollingshead and Redlich (1958) for current or past (if retired) occupation and the inter-rater reliability for this scale was .90 (Westermeyer, 1998). The men were asked about each job held, time unemployed, work satisfaction, work supervisory responsibility, and current income at each follow-up.

Physical Health and Disability

The Physical Disability Scale used was a modification of a 5-point scale of disability initially devised by Vaillant (Vaillant, 1979; Vaillant & Vaillant, 1990). Several specific questions were used to rate the scale including items addressing surgeries, hospitalizations, and major illnesses that the men have experienced in their lives (e.g., cancer, heart disease, diabetes), the number of sick days taken in the past year, time devoted to spare time activities in an average week, and a self-report, 4-point rating of current, subjective physical health from the National Opinion Research Center (NORC) yearly survey (Davis & Smith, 1989).

Social Competence Assessment at Follow-ups

Based on questionnaire checklist items, five assessments of social competence were made according to 3- or 4-point categories and summed into an Overall Social Competence Scale ranging from 0 to 11. Missing data in one of the Social Competence subscales for five individuals were included as the mid-range point of that subscale. The five assessments of social competence included self-reports of: (a) number of close friends in whom one could confide (0 = none, 1 = 1 to 3, and 2 = 4 or more); (b) frequency of meeting friends in the past year (0 = less than monthly, 1 = monthly to less than weekly, 2 = weekly or more) based on a scale devised by Strauss and Carpenter (1974); (c) quality of relationship to spouse or significant other (0 = no spouse or live-in significant other, 1 = poor relationship, 2 = fair relationship, 3 = good or excellent relationship) based on a forced-choice item devised by Vaillant (1978); (d) hours spent on charitable or volunteer activities (0 = none, 1 = 1 to 2 hours per weeks, 2 = 3 or more hours per week); and (e) political or community participation (0 = none or just voting, 1 = some involvement and not a leader, 2 = extensive involvement or a leader). The rating of the Political/Community Participation Scale was based on voting behavior, recent political and community activities, and membership and

leadership in organizations. Inter-rater reliability for the Political/Community Participation Scale was .81 (Westermeyer, 2004).

Symptoms

Symptoms were assessed by two checklist ratings at both follow-ups. Twenty-nine items from the 90-item Hopkins Symptom Checklist (SCL-90), a self-report instrument assessing primarily depression and anxiety symptoms during the week preceding each follow-up, were used (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). Scores for each item ranged from 0 (no discomfort) to 4 (extreme discomfort) for the week preceding each follow-up. For analyses meeting the assumptions of parametric statistics, individual items were dichotomized as absent (0) or present (1-4), and present symptoms were summed into an overall score. Additional non-parametric analyses are presented regarding frequency of “quite a bit” discomfort (3) and “extreme” discomfort (4) on the scale for each follow-up.

In addition, 16 self-report items from the Diagnostic Interview Schedule (DIS Scale) (Robins, Helzer, Croughan, & Ratcliff, 1981) were dichotomized as present or absent and used to assess depression and alcohol abuse for: (a) lifetime; and (b) in the year preceding each follow-up. Ten DIS items assessing alcohol abuse signs and symptoms were summed into an overall DIS Alcohol Abuse score, and six items assessing depressive symptoms were summed into an overall DIS Depression score. Information on past (lifetime) and current (past year) smoking behavior also was collected at each follow-up.

Overall Mental Health

Overall mental health at each follow-up was assessed by the Global Assessment Scale (GAS), which is a 100-point overall outcome rating based on all symptoms, work adjustment, and social functioning for the year prior to follow-up (Endicott, Spitzer, Fleiss, & Cohen, 1976). Because it aggregates several variables into one assessment, the GAS provided a more powerful description of outcome than any specific symptom or functioning assessment alone. Moreover, the GAS assessed positive aspects of functioning in addition to impairment. Inter-rater reliability for the GAS Scale was .82 (Westermeyer, 1998).

RESULTS

Outcomes for the 71 men are presented in the five domains of work, physical disability, overall social competence, symptoms, and overall adjustment. Table 1 presents distributions of select outcomes at each follow-up, and Table 2 compares means for major outcomes between follow-ups.

Table 1. Outcomes for 71 Men Assessed at 32- and 48-Year Follow-Ups

Outcome	32-Year follow-up <i>n</i> (%)	48-Year follow-up <i>n</i> (%)
Physical Disability Scale		
Good or excellent health	55 (77%)	24 (37%)
Fair: Occasional problems or major problem under control	7 (10%)	20 (28%)
Fair/Poor: Irreversible severe illness without disability	9 (13%)	23 (32%)
Poor: Chronic illness with disability	0 (0%)	4 (6%)
Social and family relationships		
Currently married	54 (76%)	50 (70%)
Good or excellent relationship with spouse or significant other	47 (81%)	47 (85%)
Close or very close to all children	50 (83%)	51 (84%)
One or more close friends	59 (83%)	66 (93%)
Meets with friends weekly or more	48 (72%)	48 (72%)
Charitable and community activities		
Above average political or community participation	39 (55%)	25 (35%)
Some volunteer or charitable activity	48 (68%)	38 (53%)
Weekly attendance at religious service	29 (41%)	28 (40%)
Symptoms		
One or more DIS depressive symptoms	11 (17%)	18 (27%)
One or more HSCL symptoms causing "quite a bit" or "extreme" discomfort	3 (5%)	10 (16%)
Addictive behaviors and symptoms		
Smoking in the year prior to follow-up	13 (19%)	3 (4%)
One or more DIS alcohol signs or symptoms in the year prior to follow-up	6 (9%)	3 (4%)

Note: Percentages are based on subcategories of outcome scales. Numbers for percentage vary depending upon availability of data. Participants included only those with data at both follow-up assessments. DIS: Diagnostic Interview Schedule, HSCL: Hopkins Symptom Checklist.

Table 2. Comparison of Outcomes between 32-Year Follow-Up and 48-Year Follow-Up among 71 Men

Outcome	32-Year follow-up Mean (SD)		48-Year follow-up Mean (SD)		<i>t</i>
Work outcome: occupational status	1.92	(1.10)	1.96	(1.10)	0.52
Physical Disability Scale	1.90	(1.00)	2.90	(1.20)	6.10***
Social competence outcomes					
Overall Social Competence Scale	6.80	(2.80)	6.32	(2.30)	1.79
Political/Community Participation Scale	0.77	(0.80)	0.54	(0.79)	2.28*
Volunteer or charitable activity	0.93	(0.85)	0.73	(0.77)	3.25*
Psychiatric symptoms: 29 HSCL Symptoms	5.2	(4.10)	5.9	(5.10)	1.03
Overall outcome: Global Assessment Scale	79.7	(15.80)	77.0	(15.30)	1.99*

Note: *N* = 71, *n* for 29 HSCL Symptoms = 64. Occupational status: Hollingshead-Redlich Occupation Scale, HSCL: Hopkins Symptom Checklist.

p* < .05, *p* < .01, ****p* < .001.

Work Outcome

By an average age of 69, most men had retired. Whereas all 71 men were in the workforce at the peak of their careers in their late forties or fifties, 62 (87%) of the 71 men identified themselves as fully retired (*n* = 45) or semi-retired (*n* = 17) by the second follow-up. Most men voluntarily chose retirement, and 82% of the retired men reported being satisfied with retirement. Nine (13%) of the 71 men continued to work full time.

Most men had successful, satisfying careers. By the 48-year follow-up, 57 (80%) of the 71 men held or had retired from jobs in the highest two Hollingshead-Redlich occupational categories, and over 84% of the men had attained supervisory responsibility. There was little change in occupational status between follow-ups as over 80% of the men retained the same primary, full-time occupation at the second follow-up or when they retired as they held at the earlier follow-up (see Table 2).

Physical Disability

The physical health of the men significantly declined between follow-ups according to the Physical Disability Scale (see Tables 1 and 2). Twenty-seven (38%) of the 71 men reported severe illnesses in their sixties and seventies that included various cancers ($n = 8$, 11%) or heart disease ($n = 12$, 17%). Whereas 24 (36%) of 67 men reported taking prescription medications at the first follow-up, 55 (82%) of the same 67 men reported taking prescription medications at the second follow-up (McNemar $\chi^2 = 27.5$, $p < .001$). Nevertheless, among the 27 men coping with irreversible, severe illnesses, only four men were rated as having chronic illnesses with disability. Most men remained physically active, and 64 (90%) men subjectively rated their physical health as “good” or better.

Overall Social Competence

There was a non-significant decline in overall social competence between follow-ups because of significant declines in two of the five subscales of the Overall Social Competence Scale: (a) hours per week devoted to charitable activities; and (b) political or community service (see Tables 1 and 2). In contrast, there were some non-significant improvements or similar outcomes between follow-ups in the other social competence areas of marital relationships and friendships. Most men maintained close, satisfying relationships with wives (or significant others), other family members, and friends at an average age of 69 years in comparison to the same assessments made at the first follow-up 16 years earlier (see Table 1). In addition, among the 51 men with grandchildren by the second follow-up, 36 (71%) men reported close or very close relationships with all of them. Religious attendance was virtually unchanged between follow-ups.

Symptoms

Table 2 compares mean scores between follow-ups for the 29 symptoms (i.e., causing a little discomfort or more) assessed by the Hopkins Symptom checklist (HSCL). Although not showing a statistically significant change, the mean score of the 29 HSCL symptoms increased between follow-ups (see Table 2). Table 1 presents the frequencies of men reporting Hopkins Symptoms Checklist (HSCL) symptoms causing “quite a bit” or “extreme” discomfort at each follow-up. Similar to mean HSCL score changes, the frequency of men reporting any HSCL symptoms causing “quite a bit” or more discomfort showed a non-significant increase from three (5%) to 10 (16%) men between follow-ups (McNemar $\chi^2 = 3.77$, $p < .10$). Two of these 10 men at the second follow-up were quite symptomatic, having checked several symptoms at the “extreme” level.

Table 1 also presents frequencies of men reporting any DIS depressive symptoms and any DIS alcohol signs and symptoms at each follow-up. Similar to HSCL symptom results, the frequency of men reporting any DIS depressive

symptoms showed a non-significant increase over the 16-year follow-up period (McNemar $\chi^2 = 2.58$, n.s.). In contrast to depressive symptoms, addictive behaviors declined over time. Frequency of individuals with DIS alcohol signs or symptoms in the year preceding follow-up showed a non-significant decline from six (9%) men to three (4%) men between follow-ups (McNemar $\chi^2 = 1.8$, n.s.). It also should be noted that 16 (26%) men at the 48-year follow-up retrospectively reported one or more lifetime DIS alcohol signs or symptoms sometime in the past, suggesting that several men had curtailed problem drinking in their lives.

Smoking in the year preceding follow-up significantly declined from 13 (19%) men at the first follow-up to three (4%) men at the second follow-up (McNemar $\chi^2 = 8.33$, $p < .01$). Moreover, 29 (42%) men at the second follow-up retrospectively reported having smoked at sometime in their past lives, suggesting a high rate of smoking reduction over time.

Overall Mental Health: The Global Assessment Scale (GAS)

Overall adjustment significantly decreased between the two follow-ups (see Table 2). The largest decline (i.e., 41% to 21%) occurred in the best or superior outcome category (i.e., > 90 on the GAS) because some men were more likely to manifest mental health symptoms, or they were less active in work, charitable, or community activities by the second follow-up. By the second follow-up, 10 (14%) men were below a 61 GAS rating with at least moderate symptoms or poor functioning that others would consider impaired. Those men who manifested serious symptoms or impairment in functioning (i.e., 41 to 50 on the GAS) rose from one (1%) man to five (7%) men between follow-ups.

Relationships among Separate Areas of Outcome

Table 3 presents the inter-correlations among the Global Assessment (GAS) Scale, the Overall Social Competence Scale, the Hollingshead-Redlich Occupation Scale, the HSCL Symptom Scale, and the Disability Scale at the 32-year follow-up (F1) and the 48-year follow-up (F2). The findings include concurrent or synchronous correlations between different variables at the same time period (e.g., HSCL symptoms and social competence at the first follow-up), cross-lag correlations of different variables at different time periods (e.g., HSCL symptoms at the first follow-up and social competence at the second follow-up), and between-time period correlations of the same variables or auto-correlations (e.g., social competence at the first and second follow-ups) (Rogosa, 1980). As expected, occupation status, social competence, and HSCL symptoms were significantly associated with the Global Assessment Scale (GAS) for all synchronous and cross-lag correlations, and all significant relationships were in the expected direction with better Global Assessment Scale (GAS) scores being

Table 3. Correlations among Outcomes at 32-Year (F1) and 48-Year (F2) Follow-Ups for 71 Men

	Global Assessment Scale		Social competence		Occupational status		29 HSCL symptoms		Physical Disability Scale	
	F1	F2	F1	F2	F1	F2	F1	F2	F1	F2
Global Assessment Scale	F1 — F2 .74***	—								
Social competence	F1 .75*** F2 .45***	.57*** .56***	— .62***	—						
Occupational status	F1 -.48*** F2 -.47***	-.47*** -.58***	-.49*** -.46***	-.44*** -.44***	— .81***	—				
29 HSCL symptoms	F1 -.62*** F2 -.28*	-.36*** -.47***	-.29* -.03	-.15 -.06	.02 .34**	.05 .35**	— .29*	—		
Physical Disability Scale	F1 .02 F2 -.11	.06 -.19	.11 -.07	.05 -.20	-.15 .03	-.15 .12	.25* .24	.11 .18	— .30**	—

Note: $N = 71$, n for 29 HSCL symptoms = 64. F1: 32-Year Follow-Up, F2: 48-Year Follow-Up. Social Competence: Overall Social Competence Scale, Occupational Status: Hollingshead-Redlich Occupation Scale, HSCL: Hopkins Symptom Checklist. All significant associations are in the expected direction.

* $p < .05$, ** $p < .01$, *** $p < .001$.

associated with better outcomes. In contrast, physical disability was not significantly associated with the Global Assessment Scale, overall social competence, or occupational status by either cross-lag or synchronous associations.

Auto- and cross-lag correlations give prediction data of the first follow-up outcomes for second follow-up outcomes 16 years later. Auto-correlations show that each of the five second follow-up outcomes were significantly predicted by the same outcome assessments at the first follow-up. In addition to higher predictive associations, higher auto-correlations suggest more stability and less change over time than lower auto-correlations. In support of the changes in specific outcome domains presented above, the higher auto-correlations between follow-ups were more likely to involve social competence ($r = .62$) and occupation status ($r = .81$) than physical disability ($r = .30$) or HSCL psychiatric symptoms ($r = .29$), suggesting physical and mental symptom domains were more likely to fluctuate over time than occupational status and social competence.

Relationships among Predictors

Most relationships among predictors were not significantly associated, and all significant associations were in the expected direction. The strongest associations (i.e., $p < .001$) involved: depressive symptoms with anxiety symptoms ($r = .58$, $p < .001$); depressive symptoms with immature defensive behaviors when angry ($r = .47$, $p < .001$); anxiety symptoms with physical symptoms ($r = .36$, $p < .001$); and warm family environment with love from father ($r = .50$, $p < .001$). Of particular note, troubled parental discipline was significantly associated with several predictors including an unfavorable warm family environment ($r = .31$, $p < .01$), poor peer social relationships ($r = .24$, $p < .05$), lower high school rank ($r = .26$, $p < .05$), the absence of a mentor ($r = .30$, $p < .05$), less love from father ($r = .26$, $p < .05$), and immature defensive behaviors ($r = .28$, $p < .05$). Also, in an exploratory analysis, troubled parental discipline was significantly associated with problematic alcohol drinking among fathers ($r = .28$, $p < .05$).

Young Adult Predictors of Midlife and Early Old Age Outcomes

To investigate the comparative predictive efficacy of young adult factors from middle age to old age, Table 4 presents data on eleven predictors in relation to three outcomes: (a) the Global Assessment Scale (GAS); (b) the Overall Social Competence Scale; and (c) the 29 symptoms from the Hopkins Symptom Checklist Scale assessed at both follow-ups. Each set of correlations were based on the men who had outcome assessments in that domain for both time periods.

Results show that the power of predictors could vary by outcome, type of predictor, and follow-up period. Two predictors, anxiety symptoms and physical symptoms, were not significantly associated with any aspect of adjustment at either follow-up.

Table 4. Correlations among Adult Predictors and 32-Year (F1) and 48-Year Outcomes (F2) for 71 Men

	Global Assessment Scale		Overall Social Competence Scale		29 HSCL symptoms	
	F1	F2	F1	F2	F1	F2
Young adult predictors						
Symptoms and defenses						
Depressive symptoms	-.14	-.03	.01	.12	.31**	.06
Anxiety symptoms	-.08	.04	-.12	-.01	-.01	-.17
Defensive behaviors when angry	-.41***	-.27*	-.19	-.08	.44***	.24*
Academic performance						
High school rank	.21	.34**	.29*	.26*	.05	-.10
Years of education	.20	.15	.27*	.19	-.11	-.03
Social competence						
Good peer social adjustment	.34**	.26*	.35**	.23*	-.26**	-.14
Mentor identified	.30*	.18	.25*	.12	-.19	-.21
Family environment						
Warm family environment	.28*	.09	.15	-.01	-.19	-.02
Troubled parental discipline	-.43***	-.35**	-.35**	-.22	.33**	.17
Love from father	.27*	.07	-.08	-.09	-.29*	-.05
Physical health: Physical symptoms	.07	.12	.06	.01	-.09	-.12

Note: $N = 71$, n for 29 HSCL symptoms = 64. F1: 32-Year Follow-Up, F2: 48-Year Follow-up. HSCL: Hopkins Symptom Checklist. All significant associations are in the expected direction.

* $p < .05$, ** $p < .01$, *** $p < .001$.

All predictors significantly associated with outcomes were in the expected direction. Similar to the auto-correlation data presented in Table 3 showing that all midlife outcomes were significantly predictive of the same outcomes in early old age, good peer social adjustment in young adulthood significantly predicted favorable overall social competence 32 and 48 years later. Furthermore, higher rates of depressive symptoms in 1959 significantly predicted higher rates of HSCL symptoms at the first follow-up but not at the second follow-up. While 10 factors significantly predicted various outcomes at the first follow-up but not at the second follow-up, only high school rank significantly predicted overall outcome at the second follow-up but did not significantly predict overall outcome at the first follow-up.

Three key factors—an absence of immature defensive behaviors when angry, good peer social adjustment, and an absence of troubled parental discipline in young adulthood—significantly predicted better overall outcome (i.e., GAS Scale) at both the 32-year and 48-year follow-ups. However, it should be noted that outcomes in early old age were better predicted by similar outcomes in middle age than by young adult predictors (see Tables 3 and 4).

Most importantly, analyses showed that the power of young adult predictors generally diminished between the first and second follow-ups. Six items significantly predicted overall outcome (GAS) at the first follow-up, and four items significantly predicted overall outcome at the second follow-up (see Table 4). To compare effect sizes (multiple r^2) of predictive items at each follow-up, a hierarchical linear regression (with forced entry) was used for the seven significant predictors of the GAS at either the first or second follow-ups. For a few participants who had missing data for three of the predictors, the median value was substituted to retain maximum sample size for all regression analyses. Hierarchical regression revealed that the overall predictive variance of the Global Assessment Scale declined from .40 at the first 32-year follow-up to .26 at the second 48-year follow-up.

The predictive efficacy of young adult factors of the Overall Social Competence Scale also declined between follow-ups. Five items significantly predicted overall social competence at the first follow-up, and two of these items (i.e., peer social adjustment and high school rank) also significantly predicted overall social competence at the second follow-up. Hierarchical linear regression (with forced entry) of the five predictive items significantly associated with overall social competence at either follow-up revealed that the overall variance (multiple r^2) accounting for social competence declined from .35 at the first 32-year follow-up to .17 at the second 48-year follow-up.

The power of aggregated predictors also decreased in predicting 29 HSCL symptoms for the 64 men who had data on these symptoms at both follow-ups. Five items were significant predictors of symptoms at the first follow-up, but only one of these items, immature defensive behaviors when angry, also significantly predicted symptoms at the second follow-up. Hierarchical linear regression (with

forced entry) of these five predictors revealed that the overall effect size (multiple r^2) for predicting HSCL symptoms declined from .28 at the first 32-year follow-up to .11 at the second 48-year follow-up.

DISCUSSION

Although some men demonstrated impairment and moderate or serious symptoms, most men selected for health in young adulthood maintained good physical and mental health into the seventh and eighth decades of their lives. Despite increasing medical problems with age (along with a mortality rate of 15%), physical health was not associated with mental health among the surviving men. As a group, they generally enjoyed close relationships and spare time activities with spouses, other family members, and friends while coping well with potentially serious and irreversible physical illnesses with the aid of medications and medical services. Many men continued to engage in a variety of community and charitable activities, despite significant declines in these activities with age. In accord with research findings on retirement (Vaillant, 2002), the change to retirement status by the 48-year follow-up appeared to be a smooth transition for most men.

Several types of factors probably influenced the development of positive mental health among these men. It should be noted, however, that one important factor was that these men came of age in a North American, post World War II generation characterized by good economic conditions, educational opportunities, and low morbidity and mortality rates. This favorable social context powerfully differs from the poverty that has limited both the life span and economic opportunities available to the great majority of people in world history (Fogel, 2004).

Continuity and Discontinuity from Middle Age to Early Old Age

Changes over the 16-year period between follow-ups presented a mixed picture of declines, improvements, and continuity in select areas. Despite significant declines in overall GAS outcome, physical health, charitable activity, and political or community involvements, other areas such as family and social relationships were quite similar or somewhat improved from earlier assessments in middle age. Most men maintained marital, family, and friend relationships, and reported generally close new relationships with their grandchildren. Most declines that did occur in early old age were from levels of high functioning in midlife when many men were in the midst of child rearing and work tasks characteristic of Vaillant's stage of career consolidation (Vaillant, 2002; Vaillant & Milofsky, 1980) and mentoring responsibilities characteristic of Erikson's concept of generativity (Erikson, 1950/1963; Westermeyer, 2004).

Although depressive and other psychiatric symptoms showed a non-significant increase between follow-ups, few men demonstrated multiple, serious mood or anxiety symptoms or severe psychopathology in old age. Smoking behavior significantly declined between follow-ups and was rare in early old age. Moreover, alcohol abuse showed a non-significant decline between follow-ups. In accord with other prospective, longitudinal research, alcohol abuse also was rare in old age (Vaillant, 2003b). Addictive behaviors seemed to largely decline with maturity in comparison to retrospective reports of lifetime alcohol and nicotine use.

These findings support other investigations (Baltes et al., 1999; Schaie, 1994; Vaillant, 2002) that suggest change, for better or for worse, may characterize the second half of lives. In support of dynamic developmental processes, other research suggests that the brain may continue neurological development through much of adulthood (Benes, Turtle, Khan, & Farol, 1994), and the unique plasticity of human brain development (Gottesman & Gould, 2003), in comparison to other body organs, incorporates aspects of both biological and experiential spheres that continue to drive change or development even in old age. The mind may continue to mature even as chronic physical illnesses increase (Vaillant, 2002).

Young Adult Predictors of Middle Age and Early Old Age Outcomes

In accord with other research (DiRago & Vaillant, 2007; Vaillant 2002), this study demonstrated that the power of young adult predictors weakened over the life cycle from middle age to early old age. As Vaillant (2002) suggests, different predictors may be relevant for different phases of the life cycle. A primary implication of this finding is that early adult characteristics or childhood and adolescent social environments may not necessarily impose immovable parameters on subsequent adult development. As individuals may change for whatever reasons with aging, the impact of early life factors may diminish with time.

Although better assessments of biological and other predictors of long-term adjustment must be studied in more representative samples, the current findings suggest that young adult factors were better predictors of middle age adjustment than early old age adjustment, and early old age adjustment was better predicted by middle age adjustment than young adult factors. Logically, assessments of behaviors often are effective predictors of the same subsequent behaviors, especially if more closely connected in time or to similar developmental antecedents.

Although the impact of young adult predictors declined over time, it is important to note that select markers of social adjustment and family environment in early adulthood, or indeed early child development, may still be important factors for adjustment for much of the life span and possibly even into old age. For example, although some predictors (e.g., love from father; mentor relationship)

faded in importance in old age, they could still be important predictive factors for over three decades of life. Moreover, young adult assessments of immature defenses, individual social development, and troubled parental discipline were significantly associated with overall outcome at both midlife and early old age.

Regarding these important predictors, it is difficult to infer causality or disentangle causal factors involved in complex or reciprocal interactions. For example, the immature ego defenses, acting out and passive aggression, imply maladaptive coping behaviors that have a negative impact on adjustment (Vaillant, 1977/1995, 1993). However, both internal (e.g., biologic) and external factors (e.g., trauma) may be involved in the complicated development of these maladaptive and largely unconscious coping strategies (Vaillant, 1993).

In contrast to more transient physical, depressive, or anxiety symptom predictors, young adult peer social adjustment appears to provide a social skill base for developing subsequent social, marital, and generative behaviors across the life span (Westermeyer, 2004). Our findings suggest that developmentally based social relationships were more likely than symptoms to maintain continuity from middle age to early old age. Whatever internal (biology) or external (sociologic) factors may involve social development, capacity for social relationships with peers in young adulthood may form the basis for other spheres of social relatedness and positive mental health throughout the life span.

The enduring impact of troubled parental discipline on 32- and 48-year outcomes emphasizes the potential deleterious effect of a negative family environment on human development. Troubled parental discipline suggested problematic parenting by its assessment of "unfair," "upsetting," or "inconsistent" parental discipline. Moreover, troubled parental discipline was significantly associated with other predictors such as problem drinking among fathers, an absence of a warm family environment, and lack of love from father that may indicate trauma, abuse, or neglect in childhood or adolescence. Although our findings indicate that aspects of a difficult family environment may diminish with time for some individuals, the results also are consistent with research demonstrating that a difficult or neglecting family context (as indexed in the current study by troubled parental discipline), may have a negative impact on subsequent long-term development for some individuals (Vaillant, 2002).

Limitations of Study

A primary limitation of the current study involves the initial selection criteria of the sample. The lower class men and the African-American men in this study were selected as successful college students in 1959, and so are not representative of these demographic groups. Results are further limited to one gender and one historical cohort. Although a warm family environment, love from father, and troubled parental discipline were significantly associated with aspects of outcome decades later, most of these men came from two-parent,

nurturing family environments, and they had already achieved some success in graduating from high school when selected for the study. Many were admitted to college based on mentor relationships and altruistic motivations that may have played a major role in subsequent coping and achievements. A more heterogeneous family environment prospectively assessed in early childhood may have revealed stronger associations of warm, nurturing families (or conversely a neglecting or traumatic family environment) with subsequent long-term outcomes.

A second limiting factor typical of longitudinal research is the choice of initial measures in 1959. The predictive measures for this research do not include the most recently developed neurological, biological, affective, and cognitive measures. Thus, this research is not a fair test of the Barker hypothesis or of other potential factors assessing a “sleeping effect” in human development—especially for health and medical issues. Moreover, the questionnaires at all time periods exclusively involved self-report rather than more objective measures used in other studies (Vaillant & Vaillant, 1990) such as physical exam data or corroborating reports from family members, health professionals, or others. In particular, self-reports regarding health status likely presents a more optimistic picture than more objective, medical exam data.

To conclude, overall findings support the growing literature on positive mental health or successful aging, as well as research documenting both favorable and unfavorable changes that may characterize the second half of life. Most importantly, findings suggest the possibility of both an enduring impact of some predictors as well as a diminishing impact of aggregated young adult factors and some specific predictors on subsequent adjustment in early old age.

REFERENCES

- Baltes, P. B., Mayer, K. U., Helmchen, H., & Steinhagen-Thiessen, E. (1999). The Berlin Aging Study (BASE): Sample, design and overview of measures. In P. B. Baltes & K. U. Mayer (Eds.), *The Berlin Aging Study: Aging from 70 to 100* (pp. 15-55). Cambridge, UK: Cambridge University Press.
- Barker, D. J. P., & Clark, P. M. (1997). Fetal under-nutrition and disease in later life. *Journal of Reproduction and Fertility*, 2, 105-112.
- Barker, D. J. P., Eriksson, J. G., Forsen, T., & Osmond, C. (2002). Fetal origins of adult disease: Strength effects and biological basis. *International Journal of Epidemiology*, 31, 1235-1239. doi: 10.1093/ije/31.6.1235
- Benes, F. M., Turtle, M., Khan, Y., & Farol, P. (1994). Myelination of a key relay in the hippocampal formation occurs in the human brain during childhood, adolescence, and adulthood. *Archives of General Psychiatry*, 51, 477-484. doi: 10.1001/archpsyc.1994.03950060041004
- Cohler, B. J., Hostetler, A. J., & Boxer, A. M. (1998). Generativity, social context and lived experience: Narratives of gay men in middle adulthood. In D. P. McAdams

- & E. de St. Aubin (Eds.), *Generativity and adult development* (pp. 265-308). Washington, DC: American Psychological Association. doi: 10.1037/10288-008
- Davis J. A., & Smith T. W. (1989). *General social surveys, 1972-1989 (Codebook for the machine-readable data file)*. Chicago, IL: National Opinion Research Center.
- Derogatis, L. R., Lipman, R. S., Rickels, K., Uhlenhuth, E. H., & Covi, L. (1974). The Hopkins symptoms checklist (HSCL): A self-report symptoms inventory. *Behavioral Science, 19*, 1-15. doi: 10.1002/bs.3830190102
- DiLalla, L. F. (Ed.). (2004). *Behavior genetics principles: Perspectives in development, personality and psychopathology*. Washington, DC: American Psychological Association. doi: 10.1037/10684-000
- DiRago, A. C., & Vaillant, G. E. (2007). Resilience in inner city youth: Childhood predictors of occupational status across the lifespan. *Journal of Youth and Adolescence, 36*, 61-70. doi: 10.1007/s10964-006-9132-8
- Elder, G. H. Jr. (1974). *Children of the Great Depression: Social change in life experiences*. Chicago, IL: University of Chicago Press.
- Elder, G. H. (1998). The life course as developmental theory. *Child Development, 69*, 1-12. doi: 10.2307/1132065
- Endicott, J., Spitzer, R. L., Fleiss, J. L., & Cohen, J. (1976). The Global Assessment Scale: A procedure for assessing overall severity of psychiatric disturbance. *Archives of General Psychiatry, 33*, 766-771. doi: 10.1001/archpsyc.1976.01770060086012
- Erikson E. H. (1950/1963). *Childhood and society* (2nd Ed.). New York, NY: W. W. Norton & Co.
- Floud, R., Fogel, R. W., Harris, B., & Hong, S. C. (2011). *The changing body*. Cambridge, UK: Cambridge University Press. doi: 10.1017/CBO9780511975912
- Fogel, R. W. (2004). *The escape from hunger and premature death, 1700-2100*. Cambridge, UK: Cambridge University Press. doi: 10.1017/CBO9780511817649
- Friedman, H. S., & Martin, L. R. (2011). *The longevity project*. New York, NY: Hudson Street Press.
- Fukuyama, F. (2011). *The origins of political order*. New York, NY: Farrar, Straus and Giroux.
- Gottesman, I. I., & Gould, T. D. (2003). The endophenotype concept in psychiatry: Etymology and strategic intentions. *American Journal of Psychiatry, 160*, 636-645. doi: 10.1176/appi.ajp.160.4.636
- Grinker, R. R. Sr. (1963). A dynamic story of the homoclite. In J. Masserman (Ed.), *Science and psychoanalysis*. New York, NY: Grune and Stratton.
- Grinker, R. R. Sr., Grinker R. R. Jr., & Timberlake, J. (1962). Mentally healthy young males (homoclitcs). *Archives of General Psychiatry, 6*, 405-453 doi: 10.1001/archpsyc.1962.01710240001001
- Grinker, R. R. Sr., & Werble, B. (1974). Mentally healthy young men (homoclitcs) 14 years later. *Archives of General Psychiatry, 30*, 71-74. doi: 10.1001/archpsyc.1974.01760110107014
- Grinker, R. R. Sr., & Westermeyer, J. F. (1985). Systems theory in the practice of psychiatry. *International Journal of Family Psychiatry, 6*, 33-43.
- Hollingshead, A. B., & Redlich, F. C. (1958). *Social class and mental illness*. New York, NY: John Wiley and Sons. doi: 10.1037/10645-000
- Kendler, K. S., Jaffee, S. R., & Romer, D. (Eds.). (2011). *The Dynamic genome and mental health*. New York, NY: Oxford University Press.

- Kohlberg, L. (1968). The child as a moral philosopher. In R. Diessner & J. Tiegs (Eds.), *Notable selections in human development*. Guilford, CT: McGraw-Hill.
- Kohlberg, L., Ricks, D., & Snarey, J. (1984). Childhood development as a predictor of adaptation in adulthood. *Genetic Psychology Monographs*, 110, 91-173.
- LeVine, R. A., & New, R. S. (Eds.). (2008). *Anthropology and Child development: A cross-cultural reader*. Oxford, UK: Blackwell Publishing.
- McAdams, D. P. (2006). *The redemptive self: Stories Americans live by*. New York, NY: Oxford University Press. doi: 10.1080/15427609.2006.9683363
- Robins, L. N., Helzer, J. E., Croughan, J., & Ratcliff, K. S. (1981). The NIMH diagnostic interview schedule: Its history, characteristics and validity. *Archives of General Psychiatry*, 38, 381-389.
- Rogosa, D. (1980). A critique of cross-lagged correlations. *Psychological Bulletin*, 88(2), 245-258. doi: 10.1037/0033-2909.88.2.245
- Schaie, K. W. (1994). The course of adult intellectual development. *American Journal of Psychology*, 49, 304-313. doi: 10.1037/0003-066x.49.4.304
- Strauss, J. S., & Carpenter, W. T. (1974). The prediction of outcome in schizophrenia: II. Relationships between predictor and outcome variables. *Archives of General Psychiatry*, 31(3), 3-42. doi: 10.1001/archpsyc.1974.01760130021003
- Vaillant, G. E. (1977/1995). *Adaptation to life*. Cambridge, MA: Harvard University Press.
- Vaillant, G. E. (1978). Natural history of male psychological health VI: Correlates of successful marriage and fatherhood. *American Journal of Psychiatry*, 135, 653-659.
- Vaillant, G. E. (1979). Natural history of male psychological health: Effects of mental health on physical health. *New England Journal of Medicine*, 301(23), 1249-1254.
- Vaillant, G. E. (1993). *The wisdom of the ego*. Cambridge, MA: Harvard University Press.
- Vaillant, G. E. (2002). *Aging well*. New York, NY: Little, Brown and Company. doi: 10.1097/JGP.0b013e31803190e0
- Vaillant, G. E. (2003a). Mental health. *The American Journal of Psychiatry*, 160, 1373-1384. doi: 10.1176/appi.ajp.160.8.1373
- Vaillant, G. E. (2003b). A 60-year follow-up of alcoholic men. *Addiction*, 98, 1043-1051. doi: 10.1046/j.1360-0443.2003.00422.x
- Vaillant, G. E., & Milofsky, E. (1980). Natural history of male psychological health IX: Empirical evidence for Erikson's model of the life cycle. *American Journal of Psychiatry*, 137, 1348-1359.
- Vaillant, G. E., & Mukamal, K. (2001). Successful aging. *The American Journal of Psychiatry*, 158, 839-847. doi: 10.1176/appi.ajp.158.6.839
- Vaillant, G. E., & Vaillant, C. O. (1990). Natural history of male psychological health, XII: A 45-year study of predictors of successful aging at age 65. *American Journal of Psychiatry*, 147, 31-37.
- Westermeyer, J. F. (1998). Predictors and characteristics of mental health among men at midlife: A 32-year longitudinal study. *American Journal of Orthopsychiatry*, 68, 265-273. doi: 10.1037/y0080335
- Westermeyer, J. F. (2004). Predictors and characteristics of Erikson's life cycle model among men: A 32-year longitudinal study. *International Journal of Aging and Human Development*, 56, 29-48. doi: 10.2190/3VRW-6YP5-PX9T-H0UH

Whitbourne, S. K., Sneed, J. R., & Sayer, A. (2009). Psychosocial development from college through midlife: A 34-year sequential study. *Journal of Personality and Social Psychology*, 63, 260- 271. doi: 10.1037/a0016550

Direct reprint requests to:

Jerry F. Westermeyer
Adler School of Professional Psychology
17 North Dearborn Street
Chicago, IL 60602
e-mail: jfw@adler.edu